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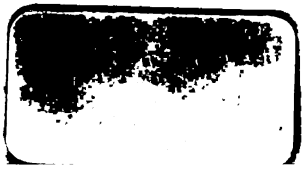

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THE COMPLETE

MATHEMATICAL AND GENERAL NAVIGATION TABLES,

INCLUDING EVERY TABLE REQUIRED WITH THE NAUTICAL ALMANAC IN FINDING THE

LATITUDE AND LONGITUDE:

WITH AN EXPLANATION OF THEIR CONSTRUCTION, USE, AND APPLICATION TO

NAVIGATION AND NAUTICAL ASTRONOMY,

TRIGONOMETRY, DIALLING, GUNNERY, ETC. ETC.

BY THOMAS KERIGAN, R.N.

AUTHOR OF "THE YOUNG NAVIGATOR'S GUIDE," ETC.

SECOND EDITION;

CAREFULLY REVISED, AND ADAPTED TO THE IMPROVED ELEMENTS INTRODUCED INTO THE NAUTICAL ALMANAC.

Dedicated, by permission, to the Right Hon. the Lords Commissioners of the Admiralty.

IN TWO VOLUMES.

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DIRECTIONS

FOR TAKING OUT THE NATURAL VERSED SINE SUPPLEMENT, THE NATURAL CO-VERSED SINE, OR THE NATURAL CO-SINE OF ANY GIVEN ARCH.

If the size of the page admitted of another column being annexed to each compartment, so as to extend every degree to 60 seconds at the top of the page; that is, to every tenth second from 0″ to 60″, then, the taking out of the supplemental, or complemental values of arcs and angles would be equally as apparent as the taking out of the values of the direct arcs; because, in this case, the supplemental, or indirect arcs would begin at 0″, at the bottom of each page: but since this could not be done, and since the supplemental, or complemental value of an arch, expressed in integral or *whole* degrees, is necessarily represented by the value of the next *less* degree at bottom in the column marked 60″, it being the last, or rather the *uppermost* number at the top of that column; the Reader is, therefore, requested to attend to the following

Rules.

1.—If the given supplemental, or complemental arch be expressed in *whole* degrees, its value will be found in the same page with the next *less* degree in the column marked 60″ at bottom, or 0″ at top; it being the last number in that column, reckoning from the bottom upwards; or the first, reckoning from the top downwards.

2.—If the arch be expressed in degrees, and seconds *less* than 10; the value of the integral or *whole* degrees is to be found as above; from which let the proportional part corresponding to the given seconds, at the bottom of the page, be deducted, and the remainder will be the true value of such arch.

3.—If the arch be expressed in degrees and *whole* minutes, its value will be found on the same line with the next *less* minute in the column marked 60″ at bottom, or 0″ at top of the page.

4.—If the arch be expressed in degrees and minutes, and seconds *under* 10, the value of the degrees and *whole* minutes is to be found in the manner just mentioned; from which let the proportional part corresponding to the odd seconds, at the bottom of the page, be subtracted, and the remainder will be the correct value of the given arch.

5.—If the arch be expressed in degrees, minutes, and tens of seconds, its value will be seen directly; but if the seconds are not *even* tens, which in general will be the case, find the value

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of the given degree, minute, and next *less* tenth second; from which let the proportional part corresponding to the odd seconds, at the bottom of the page, be subtracted, and the result will be the true value of such arch.

6.—If the arch be expressed in minutes and seconds, its value is to be found in the same manner as directed in the second member of the last Rule, substituting, however, the word 0 *degree* for "given degree."

In like manner may the value of the log. co-secant, the log. co-sine, and the log. co-tangent, of any given arch be very readily taken out; observing to read fifths of seconds for tenths of seconds; except in the last 10 pages of the log. co-secants, and in the first 10 pages of the log. co-sines. And, generally, the same rules are to be observed in taking out the values of all arcs or angles that may be found at the bottom of the Tables of Natural Versed Sines, Logarithmic Sines, Secants, and Tangents.

See Note, page 57; Rules, pages 58—60:—Note, page 90; Rules, pages 91—92:—and Note, page 94; Rules, pages 94—95, of the first volume.

The converse of the above Rules, that is, the finding of the arch corresponding to a given versed sine, &c. &c. is obvious, and therefore need not be insisted upon in this place, particularly since it has been already given in pages 60, 92, and 95, of Volume I.

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TO MARINERS IN GENERAL.

The author conceives it to be a duty incumbent upon him to acquaint the Mariner, that in collating the Table of Latitudes and Longitudes contained in this volume with the surveys that have been taken by the navigators of different countries, such remarkable discrepancies have been discovered in the geographical positions of the *same places*, as established by different authorities, as to prove beyond all doubt that one, at least, of those positions must be erroneous :—and since there is no rule for showing why a preference should be given to any particular authority, or of deciding which of the authorities is the most deserving of credit on points where each seemed to have been possessed of the fairest pretensions to a competent knowledge of hydrographical subjects ; the mariner is requested not to approach the places thus alluded to but with the greatest caution ; so that he may have a fair chance of avoiding the consequences which might result from placing an unqualified confidence in any of those positions.

The following list contains the names of the places in which the most considerable geographical differences have been discovered. In this list, the positions which immediately follow the names of the places, are those that have been made choice of in Table LVIII ; the other positions, or those which are ranged in a line with the preceding, are the Latitudes and Longitudes that are usually met with in the common books on navigation.

Names of Places.	Coast or Country.	Latitude.	Longitude.	Latitude.	Lon gitde.
		° ′ ″	° ′ ″	° ′ ″	° ′ ″
Sheerness Fort	England	51.11.25N	0.44.26 E	51.26.45 N	0.44.26 E
Nagel Island	Lapland	68.25. 0	37.35. 0	68.23. 0	35.55. 0
Stralsund	Germany	54.19. 0	13.32.15	54.18. 0	13.12. 0
Revel.....	Finland	59.26.33	24.35. 9	59.26.29	24.45.30
Wiburg	Finland	60.42.40	28.46. 5	60.39. 0	29.54. 0
St. Qnintin	France	49.50.51	1.22.37	49.50.51	3.17.40
La Conchée Tower ..	France	48.41. 2	2. 3.15W	48.41. 2	2. 3.15 E
Cape Penas	Spain.....	43.42. 0	5.46. 0W	43.42. 0	4.46. 0W
Trieste	Gulf of Venice	45.38. 8	13.47. 8 E	45.45. 0	13.47. 0 E
Cape Spartivento....	Gulf of Venice	37.55.50	16. 3.35	37.53. 0	16.22. 0
Corinth.....	Turkey in Europe ..	37.53.24	23. 2.22	37.58.22	23.28.29
Salonica	Turkey in Europe ..	40.38. 7	22.56. 0	48.38. 7	22.56. 0
Akerman	Coast of Black Sea ..	46.12. 0	30.44. 0	46.11. 0	30.29. 0
Sinope	Coast of Black Sea ..	42. 3.10	35. 8.45	42. 2.16	34.41.15
Bona	Barbary	36.48. 0	7.48.45	37.48. 0	7.52. 0
Tripoli	Syria	34.26.25	35.51.28	34.42. 0	35.33. 0
River Sestos.....	Africa	5.34. 0	9.14. 0W	4.39. 0	9.40. 0W
Trinidad Island	Atlantic Ocean	20.32.30 S	29.11. 0W	20.32.30 N	29.11. 0W
Antongill Bay, ent...	Madagascar	15.27.23 S	50.23.30 E	16.27.23 S	50.23.15 E
Clerk's Island	Sea of Kamtsch.	63.15. 0 N	169.40. 0W	63.15. 0 N	169.40. 0 E
Anderson's Island ..	Sea of Kamtsch.	63. 4. 0 N	167.38. 0W	63. 4. 0 N	167.38. 0 E
Port Dalrymple	Van Diemen's Land	41. 3.30 S	147.11. 0 E	41. 3.30 S	146.47.30 E
Rotumah Isle	Friendly Islands	12.30. 0 S	177.50. 0 E	12.30. 0 S	177. 0. 0 E
Diego Ram. M. I. ..	Terra del Fuego	56.27. 0 S	68.39. 0W	56.27. 0 N	68.39. 0W
Pert, St. Antonio....	Patagonia	45. 2.30 S	65.48.44	40.54. 0 S	64.40. 0
Triagle Is. E. I.	Gulf of Mexico.....	21. 2. 0 N	92. 5. 0	19. 1. 0 N	87.43. 0
Cape Bonavista	Newfoundland	48.42. 5	52.56. 0	48.56. 0	52.34. 0
Bear Island	James' Bay	54.34. 0	81.24. 0	54.34. 0	79.56. 0
Cape Farewell	Greenland	59.45. 0	47.50. 0	59.42. 0	45.16. 0
Cape Newnham	N. W. Ct. America..	58.34. 0	161.55. 0	58.41.30	162.19.30
Cape Douglas	N. W. Ct. America ..	58.52. 0	152.50. 0	58.56. 0	153.50. 0
Leon	Mexico	12.21. 0	86.45. 0	11.50.30	87. 9. 0
St. Blas, Port	Mexico	21.32.48	105.15.33	21.30. 0	104.46. 0
Deseada Isle.....	West Indies	16.20. 0 N	61.50. 0W	16.20. 0 N	61. 6.30W
Pantellaria Isle	Mediterranean.....	36.51.15 N	11. 3.40 E	36.51.15 N	11.54.29 E

Now, when the mariner takes into consideration the extent of some of these discrepancies, and how very materially their removal will conduce to the common interests of hydrography and

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navigation, he will doubtlessly be induced, in the event of touching at any of the places enumerated in the foregoing list, to avail himself of every favourable opportunity that may occur for taking the necessary observations, so as to establish the correct geographical positions of those places.—And when it is remembered that the latitude of Sheerness (a place so much frequented by naval officers) has not as yet been satisfactorily determined,—that a place so adjacent to the coast of England as St. Quintin has an error of 115 miles in its longitude, as laid down by different surveyors,—that La Conchée is placed upon opposite sides of the same meridian, and that the same islands are placed upon opposite sides of the equator; there will then be strong presumptive grounds for doubting the truth of many other positions: the consideration of which ought to act as a warning voice to seamen against placing anything like implicit faith in the old or original charts and surveys of any maritime country whatever.

Remark.—To the original list of geographical discrepancies I have now to add the island of Panetllaria. This is a small island in the Mediterranean Sea, adjacent to the coast of Lybia in Africa; it being only about 53 miles to the eastward of Tunis. When Robert Ingram, Esq., was in command of His Majesty's ship *Ætna*, in the year 1830, he found the position of Pantellaria to be considerably to the eastward of that which is assigned to it in all our nautical tables; and thus, he is of opinion that the correct longitude of the *Fort* is 11° 54′ 29″ East, instead of 11° 3′ 40″, as stated in page 620 of this volume. This shows that *one of the longitudes* must be *erroneous* to the value of 50′ 49″ or 51 miles in round numbers; which is rather *alarming*, seeing that the whole island does not measure more than about 17 or 18 miles in circumference. However, as the island in question is only 177 miles distant from Malta, in the direction of North 70° 49′ West; it is to be hoped that some of our ships of war will afford the *Master*, or some other competent person, an opportunity of verifying the result of Captain Ingram's observation.

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THE TABLES.

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TO CONVERT LONGITUDE, OR DEGREES INTO TIME, AND CONVERSELY.

Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.
1	0. 4	61	4. 4	121	8. 4	181	12. 4	241	16. 4	301	20. 4
2	0. 8	62	4. 8	122	8. 8	182	12. 8	242	16. 8	302	20. 8
3	0. 12	63	4. 12	123	8. 12	183	12. 12	243	16. 12	303	20. 12
4	0. 16	64	4. 16	124	8. 16	184	12. 16	244	16. 16	304	20. 16
5	0. 20	65	4. 20	125	8. 20	185	12. 20	245	16. 20	305	20. 20
6	0. 24	66	4. 24	126	8. 24	186	12. 24	246	16. 24	306	20. 24
7	0. 28	67	4. 28	127	8. 28	187	12. 28	247	16. 28	307	20. 28
8	0. 32	68	4. 32	128	8. 32	188	12. 32	248	16. 32	308	20. 32
9	0. 36	69	4. 36	129	8. 36	189	12. 36	249	16. 36	309	20. 36
10	0. 40	70	4. 40	130	8. 40	190	12. 40	250	16. 40	310	20. 40
11	0. 44	71	4. 44	131	8. 44	191	12. 44	251	16. 44	311	20. 44
12	0. 48	72	4. 48	132	8. 48	192	12. 48	252	16. 48	312	20. 48
13	0. 52	73	4. 52	133	8. 52	193	12. 52	253	16. 52	313	20. 52
14	0. 56	74	4. 56	134	8. 56	194	12. 56	254	16. 56	314	20. 56
15	1. 0	75	5. 0	135	9. 0	195	13. 0	255	17. 0	315	21. 0
16	1. 4	76	5. 4	136	9. 4	196	13. 4	256	17. 4	316	21. 4
17	1. 8	77	5. 8	137	9. 8	197	13. 8	257	17. 8	317	21. 8
18	1. 12	78	5. 12	138	9. 12	198	13. 12	258	17. 12	318	21. 12
19	1. 16	79	5. 16	139	9. 16	199	13. 16	259	17. 16	319	21. 16
20	1. 20	80	5. 20	140	9. 20	200	13. 20	260	17. 20	320	21. 20
21	1. 24	81	5. 24	141	9. 24	201	13. 24	261	17. 24	321	21. 24
22	1. 28	82	5. 28	142	9. 28	202	13. 28	262	17. 28	322	21. 28
23	1. 32	83	5. 32	143	9. 32	203	13. 32	263	17. 32	323	21. 32
24	1. 36	84	5. 36	144	9. 36	204	13. 36	264	17. 36	324	21. 36
25	1. 40	85	5. 40	145	9. 40	205	13. 40	265	17. 40	325	21. 40
26	1. 44	86	5. 44	146	9. 44	206	13. 44	266	17. 44	326	21. 44
27	1. 48	87	5. 48	147	9. 48	207	13. 48	267	17. 48	327	21. 48
28	1. 52	88	5. 52	148	9. 52	208	13. 52	268	17. 52	328	21. 52
29	1. 56	89	5. 56	149	9. 56	209	13. 56	269	17. 56	329	21. 56
30	2. 0	90	6. 0	150	10. 0	210	14. 0	270	18. 0	330	22. 0
31	2. 4	91	6. 4	151	10. 4	211	14. 4	271	18. 4	331	22. 4
32	2. 8	92	6. 8	152	10. 8	212	14. 8	272	18. 8	332	22. 8
33	2. 12	93	6. 12	153	10. 12	213	14. 12	273	18. 12	333	22. 12
34	2. 16	94	6. 16	154	10. 16	214	14. 16	274	18. 16	334	22. 16
35	2. 20	95	6. 20	155	10. 20	215	14. 20	275	18. 20	335	22. 20
36	2. 24	96	6. 24	156	10. 24	216	14. 24	276	18. 24	336	22. 24
37	2. 28	97	6. 28	157	10. 28	217	14. 28	277	18. 28	337	22. 28
38	2. 32	98	6. 32	158	10. 32	218	14. 32	278	18. 32	338	22. 32
39	2. 36	99	6. 36	159	10. 36	219	14. 36	279	18. 36	339	22. 36
40	2. 40	100	6. 40	160	10. 40	220	14. 40	280	18. 40	340	22. 40
41	2. 44	101	6. 44	161	10. 44	221	14. 44	281	18. 44	341	22. 44
42	2. 48	102	6. 48	162	10. 48	222	14. 48	282	18. 48	342	22. 48
43	2. 52	103	6. 52	163	10. 52	223	14. 52	283	18. 52	343	22. 52
44	2. 56	104	6. 56	164	10. 56	224	14. 56	284	18. 56	344	22. 56
45	3. 0	105	7. 0	165	11. 0	225	15. 0	285	19. 0	345	23. 0
46	3. 4	106	7. 4	166	11. 4	226	15. 4	286	19. 4	346	23. 4
47	3. 8	107	7. 8	167	11. 8	227	15. 8	287	19. 8	347	23. 8
48	3. 12	108	7. 12	168	11. 12	228	15. 12	288	19. 12	348	23. 12
49	3. 16	109	7. 16	169	11. 16	229	15. 16	289	19. 16	349	23. 16
50	3. 20	110	7. 20	170	11. 20	230	15. 20	290	19. 20	350	23. 20
51	3. 24	111	7. 24	171	11. 24	231	15. 24	291	19. 24	351	23. 24
52	3. 28	112	7. 28	172	11. 28	232	15. 28	292	19. 28	352	23. 28
53	3. 32	113	7. 32	173	11. 32	233	15. 32	293	19. 32	353	23. 32
54	3. 36	114	7. 36	174	11. 36	234	15. 36	294	19. 36	354	23. 36
55	3. 40	115	7. 40	175	11. 40	235	15. 40	295	19. 40	355	23. 40
56	3. 44	116	7. 44	176	11. 44	236	15. 44	296	19. 44	356	23. 44
57	3. 48	117	7. 48	177	11. 48	237	15. 48	297	19. 48	357	23. 48
58	3. 52	118	7. 52	178	11. 52	238	15. 52	298	19. 52	358	23. 52
59	3. 56	119	7. 56	179	11. 56	239	15. 56	299	19. 56	359	23. 56
60	4. 0	120	8. 0	180	12. 0	240	16. 0	300	20. 0	360	24. 0
Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.	Degr. Min. Sec.	H. M. M. S. S. T.

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Table II.

Depression of the Horizon.

Height of the Eye in Feet.	Dip.	Height of the Eye in Feet.	Dip.	Height of the Eye in Feet.	Dip.	Height of the Eye in Feet.	Dip.	Height of the Eye in Feet.	Dip.
	′ ″		′ ″		′ ″		′ ″		′ ″
1	0.58	15	3.42	29	5.10	45	6.27	160	12. 6
2	1.21	16	3.50	30	5.15	50	6.46	170	12.29
3	1.40	17	3.57	31	5.20	55	7. 6	180	12.51
4	1.56	18	4. 4	32	5.25	60	7.24	200	13.30
5	2. 9	19	4.11	33	5.30	65	7.42	220	14. 6
6	2.21	20	4.17	34	5.35	70	8. 1	240	14.42
7	2.33	21	4.24	35	5.40	80	8.34	260	15.24
8	2.44	22	4.30	36	5.45	90	9. 6	280	16. 0
9	2.53	23	4.36	37	5.50	100	9.34	300	16.35
10	3. 2	24	4.42	38	5.55	110	10. 3	320	17. 7
11	3.10	25	4.47	39	5.59	120	10.30	340	17.39
12	3.19	26	4.52	40	6. 4	130	10.56	360	18.10
13	3.27	27	4.58	41	6. 8	140	11.20	400	19. 9
14	3.36	28	5. 5	42	6.12	150	11.42	500	21.24

Table III.

Dip of the Horizon, at different distances from the observer.

Distance of the Shore.	Height of the Eye above the Sea, in Feet.							
	5	10	15	20	25	30	35	40
	Dip	Dip	Dip	Dip	Dip	Dip	Dip	Dip
	′	′	′	′	′	′	′	′
Miles								
0¼	11	23	34	45	57	68	79	90
0½	6	11	17	22	28	34	39	45
0¾	4	8	12	15	19	23	27	30
1	3	6	9	12	15	17	20	23
1¼	3	5	7	9	12	14	16	19
1½	3	4	6	8	10	12	14	15
1¾	2	3	5	7	8	10	12	13
2	2	3	5	6	8	10	11	12
2½	2	3	5	6	7	8	9	10
3	2	3	4	5	6	7	8	8
3½	2	3	4	5	6	6	7	7
4	2	3	4	4	5	6	7	7
5	2	3	4	4	5	5	6	6
6	2	3	4	4	5	5	6	6

Table IV.

Augmentation of the Moon's Semidiameter.

Moon's App. Altitude.	Moon's Horizontal Semidiameter.					
	′ ″ 14. 30	′ ″ 15. 0	′ ″ 15. 30	′ ″ 16. 0	′ ″ 16. 30	′ ″ 17. 0
°	″	″	″	″	″	″
0	0	0	0	0	0	0
3	0	0	1	1	1	1
6	1	1	2	2	2	2
9	2	2	2	2	3	3
12	3	3	3	3	4	4
15	4	4	4	4	5	5
18	4	4	5	5	5	6
21	5	5	6	6	6	7
24	5	6	6	6	7	7
27	6	6	7	7	8	8
30	7	7	8	8	9	9
33	7	8	8	9	10	10
36	8	9	9	10	10	11
39	8	9	10	10	11	12
42	9	10	10	11	12	12
45	9	10	11	12	12	13
48	10	11	12	12	13	14
51	10	11	12	13	14	14
54	11	12	13	13	14	15
57	11	12	13	14	15	16
60	12	13	14	14	15	16
63	12	13	14	15	16	17
66	12	13	14	15	16	17
69	13	14	15	15	16	17
72	13	14	15	16	17	18
75	13	14	15	16	17	18
78	13	14	15	16	17	18
81	13	14	15	16	17	18
84	13	14	15	16	18	19
90	14	15	16	17	18	19
°	″	″	″	″	″	″
Moon's App. Altitude.	′ ″ 14. 30	′ ″ 15. 0	′ ″ 15. 30	′ ″ 16. 0	′ ″ 16. 30	′ ″ 17. 0
	Moon's Horizontal Semidiameter.					

Table V.

Contraction of the Semidiameter of the Sun and Moon.

Apparent Altitude.	Inclination of Semidiameters to the Horizon.											
	° 0	° 12	° 24	° 36	° 48	° 54	° 60	° 66	° 72	° 78	° 84	° 90
	″	″	″	″	″	″	″	″	″	″	″	″
3	0	2	8	17	28	33	38	42	45	48	49	50
4	0	2	6	12	19	23	26	29	32	33	35	35
5	0	1	4	9	14	16	19	21	23	24	25	25
6	0	1	3	7	10	12	14	16	17	18	19	19
7	0	1	2	5	8	9	11	12	13	14	14	14
8	0	0	2	4	6	7	8	9	10	11	11	11
9	0	0	1	3	5	6	7	8	8	9	9	9
10	0	0	1	3	4	5	6	6	7	7	8	8
11	0	0	1	2	4	4	5	5	6	6	6	6
12	0	0	1	2	3	4	4	5	5	5	5	5
14	0	0	1	1	2	3	3	3	4	4	4	4
20	0	0	0	1	1	1	2	2	2	2	2	2
30	0	0	0	0	1	1	1	1	1	1	1	1
50	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0

Table VI.—*Parallax of the Planets in Altitude.*

Planet's App. Alt.	Planet's Horizontal Parallax.																
	″ 1	″ 3	″ 5	″ 7	″ 9	″ 11	″ 13	″ 15	″ 17	″ 19	″ 21	″ 23	″ 25	″ 27	″ 29	″ 31	″ 33
°	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″
0	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33
10	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	30	32
20	1	3	5	7	9	10	12	14	16	18	20	22	24	25	27	29	31
25	1	3	5	6	8	10	12	14	15	17	19	21	23	24	26	28	30
30	1	3	4	6	8	10	11	13	15	16	18	20	22	23	25	27	29
33	1	2	4	6	8	9	11	13	14	16	18	19	21	23	24	26	28
36	1	2	4	6	7	9	11	12	14	15	17	19	20	22	23	25	27
39	1	2	4	5	7	9	10	12	13	15	16	18	19	21	23	24	26
42	1	2	4	5	7	8	10	11	13	14	16	17	19	20	22	23	25
45	1	2	4	5	6	8	9	11	12	13	15	16	18	19	21	22	23
48	1	2	3	5	6	7	9	10	11	13	14	15	17	18	19	21	22
51	1	2	3	4	6	7	8	9	11	12	13	14	16	17	18	20	21
54	1	2	3	4	5	6	8	9	10	11	12	14	15	16	17	18	19
57	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18
60	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
63	0	1	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15
66	0	1	2	3	4	4	5	6	7	8	9	9	10	11	12	13	13
69	0	1	2	3	3	4	5	5	6	7	8	8	9	10	10	11	12
72	0	1	2	2	3	3	4	5	5	6	6	7	8	8	9	10	10
75	0	1	1	2	2	3	3	4	4	5	5	6	6	7	8	8	9
78	0	1	1	1	2	2	3	3	4	4	4	5	5	6	6	6	7
81	0	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5
84	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3
87	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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TABLE VIII.

MEAN ASTRONOMICAL REFRACTION.

Minutes	Apparent Altitude. 0° Refr.	1° Refr.	2° Refr.	3° Refr.	4° Refr.	5° Refr.	6° Refr.	7° Refr.	8° Refr.	Apparent Altitude.	Refrac.	Apparent Altitude.	Refrac.	Apparent Altitude.	Refrac.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
0	33. 0	24 29	18.35	14.36	11.51	9.54	8.28	7.20	6.29	9. 0	5.48	11. 0	4.47	13. 0	4. 3
1	32.50	24.22	18.30	14.32	11.48	9.52	8.26	7.19	6.28	2	5.46	2	4.46	2	4. 2
2	32.40	24.15	18.25	14.29	11.46	9.50	8.24	7.18	6.27	4	5.45	4	4.45	4	4. 2
3	32.30	24. 8	18.20	14.26	11.44	9.48	8.23	7.17	6.26	6	5.44	6	4.45	6	4. 1
4	32.20	24. 1	18.15	14.23	11.42	9.47	8.22	7.16	6.25	8	5.43	8	4.44	8	4. 1
5	32.10	23.54	18.11	14.20	11.40	9.46	8.21	7.15	6.25	10	5.42	10	4.43	10	4. 0
6	32. 0	23.47	18. 6	14.16	11.37	9.44	8.19	7.14	24	9 12	5.40	11.12	4.42	13.12	3.59
7	31.50	23.40	18. 1	14.13	11.35	9.42	8.17	7.13	6.23	14	5.39	14	4.41	14	3.59
8	31.41	23.34	17.56	14.10	11.33	9.40	8.16	7.12	6.23	16	5.38	16	4.41	16	3.58
9	31.32	23.27	17.52	14. 7	11.31	9.39	8.15	7.11	6.22	18	5.37	18	4.40	18	3.58
10	31.22	23.20	17.48	14. 4	11.29	9.38	8.14	7.11	6.22	20	5.36	20	4.39	20	3.57
11	31.13	23.13	17.43	14. 1	11.26	9.36	8.13	7.10	6.21	22	5.35	22	4.38	22	3.56
12	31. 3	23. 7	17.38	13.58	11.24	9.34	8.12	7. 9	6.20	9 24	5.34	11.24	4.37	13.24	3.56
13	30.54	23. 0	17.34	13.55	11.22	9.32	8.11	7. 8	6.20	26	5.33	26	4.36	26	3.55
14	30.44	22.54	17.30	13.52	11.20	9.31	8.10	7. 7	6.19	28	5.32	28	4.35	28	3.55
15	30.35	22.47	17.26	13.49	11.18	9.30	8. 9	7. 6	6.18	30	5.31	30	4.34	30	3.54
16	30.26	22.40	17.21	13.46	11.16	9.28	8. 7	7. 5	6.17	32	5.29	32	4.34	32	3.53
17	30.17	22.34	17.16	13.43	11.14	9.26	8. 6	7. 4	6.16	34	5.28	34	4.33	34	3.53
18	30. 8	22.28	17.12	13.40	11.12	9.25	8. 5	7. 3	6.16	9.36	5.27	11.36	4.33	13.36	3.52
19	29.59	22.21	17. 8	13.37	11.10	9.24	8. 4	7. 2	6.15	38	5.26	38	4.32	38	3.52
20	29.50	22.15	17. 4	13.34	11. 8	9.23	8. 3	7. 2	6.15	40	5.25	40	4.31	40	3.51
21	29.41	22. 8	17. 0	13.31	11. 6	9.21	8. 1	7. 1	6.14	42	5.24	42	4.30	42	3.50
22	29.32	22. 2	16.56	13.28	11. 4	9.19	8. 0	7. 0	6.13	44	5.23	44	4.29	44	3.50
23	29.24	21.56	16.52	13.25	11. 2	9.17	7.59	6.59	6.12	46	5.22	46	4.29	46	3.49
24	29.15	21.50	16.48	13.22	11. 0	9.16	7.58	6.58	6.12	9.48	5.21	11.48	4.28	13.48	3.49
25	29. 6	21.44	16.44	13.20	10.58	9.15	7.57	6.57	6.11	50	5.20	50	4.27	50	3.48
26	28.57	21.38	16.40	13.17	10.56	9.13	7.55	6.56	6.10	52	5.19	52	4.26	52	3.47
27	28.49	21.32	16.36	13.14	10.54	9.11	7.54	6.55	6.10	54	5.18	54	4.25	54	3.47
28	28.40	21.26	16.32	13.11	10.52	9.10	7.53	6.54	6. 9	56	5.17	56	4.25	56	3.46
29	28.32	21.20	16.28	13. 8	10.50	9. 9	7.52	6.53	6. 9	58	5.16	58	4.24	58	3.46
30	28.23	21.15	16.24	13. 6	10.48	9. 8	7.51	6.53	6. 8	10. 0	5.15	12. 0	4.23	14. 0	3.45
31	28.15	21. 9	16.20	13. 3	10.46	9. 6	7.49	6.52	6. 7	2	5.14	2	4.22	2	3.45
32	28. 6	21. 3	16.16	13. 0	10.44	9. 4	7.48	6.51	6. 7	4	5.13	4	4.22	4	3.44
33	27.58	20.57	16.12	12.57	10.42	9. 3	7.47	6.50	6. 6	6	5.12	6	4.21	6	3.44
34	27.49	20.51	16. 8	12.55	10.40	9. 2	7.46	6.49	6. 6	8	5.11	8	4.21	8	3.43
35	27.41	20.46	16. 4	12.53	10.38	9. 1	7.45	6.49	6. 5	10	5.10	10	4.20	10	3.43
36	27.33	20.40	16. 0	12.50	10.37	8.59	7.44	6.48	6. 4	10.12	5. 9	12.12	4.19	14.12	3.42
37	27.25	20.34	15.56	12.47	10.35	8.57	7.43	6.47	6. 3	14	5. 8	14	4.18	14	3.42
38	27.16	20.28	15.52	12.44	10.33	8.56	7.42	6.46	6. 3	16	5. 7	16	4.18	16	3.41
39	27. 8	20.23	15.48	12.42	10.31	8.55	7.41	6.45	6. 2	18	5. 6	18	4.17	18	3.41
40	27. 0	20.18	15.45	12.40	10.29	8.54	7.40	6.45	6. 1	20	5. 5	20	4.16	20	3.40
41	26.52	20.12	15.41	12.37	10.27	8.52	7.39	6.44	6. 0	22	5. 4	22	4.15	22	3.40
42	26.44	20. 6	15.37	12.34	10.25	8.50	7.38	6.43	6. 0	10.24	5. 3	12.24	4.15	14.24	3.39
43	26.36	20. 1	15.33	12.31	10.23	8.49	7.37	6.42	5.59	26	5. 2	26	4.14	26	3.39
44	26.28	19.56	15.30	12.29	10.21	8.48	7.36	6.41	5.59	28	5. 1	28	4.14	28	3.38
45	26.20	19.51	15.27	12.27	10.20	8.47	7.35	6.41	5.58	30	5. 0	30	4.13	30	3.38
46	26.12	19.45	15.23	12.24	10.18	8.45	7.34	6.40	5.57	32	4.59	32	4.12	32	3.37
47	26. 5	19.40	15.19	12.21	10.16	8.44	7.33	6.39	5.57	34	4.58	34	4.11	34	3.36
48	25.57	19.35	15.15	12.19	10.14	8.43	7.32	6.38	5.56	10.36	4.58	12.36	4.11	14.36	3.36
49	25.50	19.30	15.12	12.17	10.12	8.42	7.31	6.37	5.56	38	4.57	38	4.10	38	3.35
50	25.42	19.25	15. 9	12.15	10.11	8.41	7.30	6.37	5.55	40	4.56	40	4. 9	40	3.35
51	25.35	19.20	15. 5	12.12	10. 9	8.39	7.29	6.36	5.54	42	4.55	42	4. 8	42	3.35
52	25.27	19.15	15. 1	12. 9	10. 7	8.37	7.28	6.35	5.54	44	4.54	44	4. 8	44	3.34
53	25.20	19.10	14.58	12. 7	10. 5	8.36	7.27	6.34	5.53	46	4.53	46	4. 7	46	3.34
54	25.12	19. 5	14.55	12. 5	10. 3	8.35	7.26	6.33	5.53	10.48	4.52	12.48	4. 7	14.48	3.33
55	25. 5	19. 0	14.52	12. 3	10. 2	8.34	7.25	6.33	5.52	50	4.51	50	4. 6	50	3.33
56	24.58	18.55	14.48	12. 0	10. 0	8.32	7.24	6.32	5.51	52	4.50	52	4. 5	52	3.32
57	24.51	18.50	14.45	11.57	9.58	8.31	7.23	6.31	5.50	54	4.49	54	4. 5	54	3.32
58	24.43	18.45	14.42	11.55	9.56	8.30	7.22	6.30	5.50	56	4.49	56	4. 4	56	3.31
59	24.36	18.40	14.39	11.53	9.55	8.29	7.21	6.29	5.49	58	4.48	58	4. 4	58	3.31
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″		′ ″		′ ″		′ ″
Minutes	Refr. 0°	Refr. 1°	Refr. 2°	Refr. 3°	Refr. 4°	Refr. 5°	Refr. 6°	Refr. 7°	Refr. 8°	Apparent Altitude.	Refrac.	Apparent Altitude.	Refrac.	Apparent Altitude.	Refrac.

Apparent Altitude.

TABLE VII. Parallax of the Sun in Alt.

Alt.	Par.
°	″
1	9
2	9
3	9
4	9
5	9
6	9
7	9
8	9
9	9
10	9
11	9
12	9
13	9
14	9
15	8
16	8
17	8
18	8
19	8
20	8
21	8
22	8
23	8
24	8
25	8
26	8
27	8
28	8
29	8
30	8
32	8
34	7
36	7
38	7
40	7
42	6
44	6
46	6
48	6
50	6
52	5
54	5
56	5
58	5
60	4
62	4
64	4
66	4
68	3
70	3
72	3
74	2
76	2
78	2
80	2
82	1
84	1
86	1
88	0
90	0
°	″
Alt.	Par.

Parallax of the Sun.

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Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
15. 0	3. 30	17. 30	2. 59	20. 0	2. 35	25. 0	2. 2	30. 0	1. 38	40. 0	1. 8	50. 0	0. 48	65. 0	0. 26
5	3. 29	35	2. 58	10	2. 34	10	2. 1	20	1. 37	20	1. 7	30	0. 47	30	0. 26
10	3. 28	40	2. 57	20	2. 32	20	2. 0	40	1. 36	40	1. 6	51. 0	0. 46	66. 0	0. 25
15	3. 27	45	2. 56	30	2. 31	30	1. 59	31. 0	1. 35	41. 0	1. 5	30	0. 45	30	0. 24
20	3. 26	50	2. 55	40	2. 29	40	1. 58	20	1. 33	20	1. 4	52. 0	0. 44	67. 0	0. 24
25	3. 25	55	2. 54	50	2. 28	50	1. 57	40	1. 32	40	1. 4	30	0. 44	30	0. 23
15. 30	3. 24	18. 0	2. 54	21. 0	2. 27	26. 0	1. 56	32. 0	1. 31	42. 0	1. 3	53. 0	0. 43	68. 0	0. 23
35	3. 22	5	2. 53	10	2. 26	10	1. 55	20	1. 30	20	1. 2	30	0. 42	68. 30	0. 22
40	3. 21	10	2. 52	20	2. 25	20	1. 55	40	1. 29	40	1. 2	54. 0	0. 41	69	0. 22
45	3. 20	15	2. 51	30	2. 24	30	1. 54	33. 0	1. 28	43. 0	1. 1	30	0. 41	70	0. 21
50	3. 19	20	2. 51	40	2. 23	40	1. 53	20	1. 26	20	1. 1	55. 0	0. 40	71	0. 19
55	3. 18	25	2. 50	50	2. 21	50	1. 52	40	1. 25	40	1. 0	30	0. 39	72	0. 18
16. 0	3. 17	18. 30	2. 49	22. 0	2. 20	27. 0	1. 51	34. 0	1. 24	44. 0	0. 59	56. 0	0. 38	73	0. 17
5	3. 16	35	2. 48	10	2. 19	10	1. 50	20	1. 23	20	0. 59	30	0. 38	74	0. 16
10	3. 15	40	2. 47	20	2. 18	20	1. 50	40	1. 22	40	0. 58	57. 0	0. 37	75	0. 15
15	3. 13	45	2. 46	30	2. 17	30	1. 49	35. 0	1. 21	45. 0	0. 57	30	0. 36	76	0. 14
20	3. 12	50	2. 46	40	2. 16	40	1. 48	20	1. 20	20	0. 56	58. 0	0. 35	77	0. 13
25	3. 11	55	2. 45	50	2. 15	50	1. 47	40	1. 19	40	0. 56	30	0. 34	78	0. 12
16. 30	3. 10	19. 0	2. 44	23. 0	2. 14	28. 0	1. 47	36. 0	1. 18	46. 0	0. 55	59. 0	0. 34	79	0. 11
35	3. 9	5	2. 43	10	2. 13	10	1. 46	20	1. 17	20	0. 54	30	0. 33	80	0. 10
40	3. 8	10	2. 43	20	2. 12	20	1. 45	40	1. 17	40	0. 54	60. 0	0. 33	81	0. 9
45	3. 7	15	2. 42	30	2. 11	30	1. 45	37. 0	1. 16	47. 0	0. 53	30	0. 32	82	0. 8
50	3. 6	20	2. 41	40	2. 10	40	1. 44	20	1. 15	20	0. 52	61. 0	0. 32	83	0. 7
55	3. 5	25	2. 40	50	2. 9	50	1. 43	40	1. 14	40	0. 52	30	0. 31	84	0. 6
17. 0	3. 4	19. 30	2. 40	24. 0	2. 8	29. 0	1. 42	38. 0	1. 13	48. 0	0. 51	62. 0	0. 30	85	0. 5
5	3. 3	35	2. 39	10	2. 7	10	1. 41	20	1. 12	20	0. 50	30	0. 29	86	0. 4
10	3. 3	40	2. 38	20	2. 6	20	1. 41	40	1. 11	40	0. 50	63. 0	0. 29	87	0. 3
15	3. 2	45	2. 37	30	2. 5	30	1. 40	39. 0	1. 10	49. 0	0. 49	30	0. 28	88	0. 2
20	3. 1	50	2. 37	40	2. 4	40	1. 40	20	1. 10	20	0. 49	64. 0	0. 28	89	0. 1
25	3. 0	55	2. 36	50	2. 3	50	1. 39	40	1. 9	40	0. 48	30	0. 27	90	0. 0

TABLE IX. — *Correction of the Mean Astronomical Refraction.*

Apparent Altitude.	*Height of the Thermometer.*																Apparent Altitude.
	20°	24°	28°	32°	36°	40°	44°	48°	50°	52°	56°	60°	64°	68°	72°	76°	80°	
	+	+	+	+	+	+	+	+		−	−	−	−	−	−	−	−	
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
1	1. 59	1. 43	1. 25	1. 9	0. 53	0. 38	0. 23	0. 8	0. 0	0. 7	0. 21	0. 36	0. 50	1. 3	1. 17	1. 30	1. 43	1
2	1. 31	1. 18	1. 5	. 53	. 41	. 29	. 17	. 6	. 0	. 5	. 16	. 27	. 37	. 48	. 58	1. 8	1. 18	2
3	1. 11	1. 1	51	41	32	22	13	4	0	4	13	21	30	38	46	. 54	1. 1	3
4	58	49	41	33	26	18	11	4	0	4	10	17	24	31	37	44	. 50	4
5	48	41	35	28	22	16	9	3	0	3	9	14	20	26	31	36	40	5
6	41	35	30	24	19	13	8	3	0	2	7	12	17	22	26	31	35	6
7	36	31	26	21	16	12	7	2	0	2	6	10	14	19	23	27	31	7
8	32	27	23	19	15	10	6	2	0	2	5	9	13	16	20	24	27	8
9	28	24	20	16	13	9	5	2	0	2	5	8	11	14	18	21	24	9
10	26	22	18	15	12	8	5	2	0	1	4	7	10	13	16	19	22	10
12	21	18	15	13	10	7	4	1	0	1	4	6	9	11	13	16	18	12
14	18	16	13	11	8	6	4	1	0	1	3	5	7	9	11	14	16	14
16	16	14	12	9	7	5	3	1	0	1	3	5	6	8	10	12	14	16
18	14	12	10	8	6	5	3	1	0	1	2	4	6	7	9	10	12	18
20	13	11	9	7	6	4	2	1	0	1	2	4	5	6	8	9	11	20
30	8	7	6	5	4	3	2	1	0	0	1	2	3	4	5	6	7	30
40	6	5	4	3	3	2	1	0	0	0	1	2	2	3	3	4	5	40
50	4	3	3	2	2	1	1	0	0	0	1	1	2	2	2	3	3	50
60	3	2	2	2	1	1	1	0	0	0	0	1	1	1	2	2	2	60
70	2	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	70
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	
				−	−	−	−	−		+	+	+	+	+				
Apparent Altitude.	″	″	″	28. 26	28. 56	28. 85	29. 15	29. 45	29. 60	29. 75	30. 05	30. 35	30. 64	30. 94	″	″	″	Apparent Altitude.

Height of the Barometer.

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TABLE X.

To find the Latitude by an Altitude of the North Polar Star.

When the Right Ascension of the Meridian falls in either of these two columns, the Correction will be *Subtractive*.

Right Ascension of the Meridian in Sidereal Time.		Correction of Polar Star's Alt.	Annual Variation of Correction.	Proportional parts of Correction for the intermediate Mins. of Sidereal Time. 1m	2m	3m	4m	5m	Right Ascension of the Meridian in Sidereal Time.	
h. m. s.	h. m. s.	° ′ ″	″	′ ″	′ ″	′ ″	′ ″	′ ″	h. m. s.	h. m. s.
1. 1.5	1. 1. 5	1.33.55	−19.44	0. 0	0. 0	0. 0	0. 0	0. 0	13. 1.5	13. 1. 5
1.10.0	0.52.10	1.33.51	−19.14	0. 0	0. 1	0. 1	0. 2	0. 2	13.10.0	12.52.10
1.20.0	0.42.10	1.33.36	−18.79	0. 2	0. 3	0. 5	0. 6	0. 8	13.20.0	12.42.10
1.30.0	0.32.10	1.33.10	−18.44	0. 3	0. 5	0. 8	0.10	0.13	13.30.0	12.32.10
1.40.0	0.22.10	1.32.34	−18.03	0. 4	0. 7	0.11	0.14	0.18	13.40.0	12.22.10
1.50.0	0.12.10	1.31.47	−17.60	0. 5	0. 9	0.14	0.19	0.24	13.50.0	12.12.10
2. 0.0	0. 2.10	1.30.50	−17.12	0. 6	0.11	0.17	0.23	0.29	14. 0.0	12. 2.10
2.10.0	23.52.10	1.29.42	−16.61	0. 7	0.14	0.20	0.27	0.34	14.10.0	11.52.10
2.20.0	23.42.10	1.28.24	−16.05	0. 8	0.16	0.23	0.31	0.39	14.20.0	11.42.10
2.30.0	23.32.10	1.26.56	−15.48	0. 9	0.18	0.26	0.35	0.44	14.30.0	11.32.10
2.40.0	23.22.10	1.25.18	−14.89	0.10	0.20	0.29	0.39	0.49	14.40.0	11.22.10
2.50.0	23.12.10	1.23.30	−14.28	0.11	0.22	0.32	0.43	0.54	14.50.0	11.12.10
3. 0.0	23. 2.10	1.21.33	−13.62	0.12	0.23	0.35	0.47	0.59	15. 0.0	11. 2.10
3. 5.0	22.57.10	1.20.31	−13.30	0.12	0.25	0.37	0.50	,,	15. 5.0	10.57.10
3.10.0	22.52.10	1.19.27	−12.97	0.13	0.26	0.37	0.51	,,	15.10.0	10.52.10
3.15.0	22.47.10	1.18.20	−12.62	0.13	0.27	0.40	0.54	,,	15.15.0	10.47.10
3.20.0	22.42.10	1.17.11	−12.26	0.14	0.28	0.41	0.55	,,	15.20.0	10.42.10
3.25.0	22.37.10	1.16. 0	−11.86	0.14	0.28	0.43	0.57	,,	15.25.0	10.37.10
3.30.0	22.32.10	1.14.47	−11.48	0.15	0.29	0.44	0.58	,,	15.30.0	10.32.10
3.35.0	22.27.10	1.13.31	−11.13	0.15	0.30	0.46	1. 1	,,	15.35.0	10.27.10
3.40.0	22.22.10	1.12.14	−10.74	0.15	0.31	0.46	1. 2	,,	15.40.0	10.22.10
3.45.0	22.17.10	1.10.54	−10.38	0.16	0.32	0.48	1. 4	,,	15.45.0	10.17.10
3.50.0	22.12.10	1. 9.32	−10.03	0.16	0.33	0.49	1. 6	,,	15.50.0	10.12.10
3.55.0	22. 7.10	1. 8. 9	− 9.63	0.17	0.33	0.50	1. 7	,,	15.55.0	10. 7.10
4. 0.0	22. 2.10	1. 6.43	− 9.21	0.17	0.34	0.52	1. 9	,,	16. 0.0	10. 2.10
4. 5.0	21.57.10	1. 5.16	− 8.80	0.17	0.35	0.52	1.10	,,	16. 5.0	9.57.10
4.10.0	21.52.10	1. 3.46	− 8.39	0.18	0.36	0.54	1.12	,,	16.10.0	9.52.10
4.15.0	21.47.10	1. 2.15	− 7.98	0.18	0.36	0.55	1.13	,,	16.15.0	9.47.10
4.20.0	21.42.10	1. 0.42	− 7.56	0.19	0.37	0.56	1.14	,,	16.20.0	9.42.10
4.25.0	21.37.10	0.59. 8	− 7.15	0.19	0.38	0.56	1.15	,,	16.25.0	9.37.10
4.30.0	21.32.10	0.57.31	− 6.73	0.19	0.39	0.58	1.17	,,	16.30.0	9.32.10
4.35.0	21.27.10	0.55.53	− 6.30	0.20	0.39	0.59	1.18	,,	16.35.0	9.27.10
4.40.0	21.22.10	0.54.14	− 5.88	0.20	0.40	0.59	1.19	,,	16.40.0	9.22.10
4.45.0	21.17.10	0.52.32	− 5.46	0.20	0.41	1. 1	1.21	,,	16.45.0	9.17.10
4.50.0	21.12.10	0.50.50	− 5.03	0.20	0.41	1. 1	1.22	,,	16.50.0	9.12.10
4.55.0	21. 7.10	0.49. 6	− 4.60	0.21	0.42	1. 2	1.23	,,	16.55.0	9. 7.10
5. 0.0	21. 2.10	0.47.20	− 4.18	0.21	0.42	1. 3	1.25	,,	17. 0.0	9. 2.10
5. 5.0	20.57.10	0.45.33	− 3.76	0.21	0.43	1. 4	1.26	,,	17. 5.0	8.57.10
5.10.0	20.52.10	0.43.45	− 3.29	0.22	0.43	1. 5	1.26	,,	17.10.0	8.52.10
5.15.0	20.47.10	0.41.56	− 2.82	0.22	0.44	1. 5	1.27	,,	17.15.0	8.47.10
5.20.0	20.42.10	0.40. 6	− 2.35	0.22	0.44	1. 6	1.28	,,	17.20.0	8.42.10
5.25.0	20.37.10	0.38.14	− 1.92	0.22	0.45	1. 7	1.30	,,	17.25.0	8.37.10
5.30.0	20.32.10	0.36.21	− 1.49	0.23	0.45	1. 8	1.30	,,	17.30.0	8.32.10
5.35.0	20.27.10	0.34.27	− 1.06	0.23	0.45	1. 8	1.31	,,	17.35.0	8.27.10
5.40.0	20.22.10	0.32.32	− 0.63	0.23	0.46	1. 9	1.32	,,	17.40.0	8.22.10
5.45.0	20.17.10	0.30.36	− 0.22	0.23	0.46	1.10	1.33	,,	17.45.0	8.17.10
5.50.0	20.12.10	0.28.40	+ 0.28	0.23	0.46	1.10	1.33	,,	17.50.0	8.12.10
5.55.0	20. 7.10	0.26.42	+ 0.71	0.24	0.47	1.11	1.34	,,	17.55.0	8. 7.10
6. 0.0	20. 2.10	0.24.44	+ 1.19	0.24	0.47	1.11	1.34	,,	18. 0.0	8. 2.10
6. 5.0	19.57.10	0.22.45	+ 1.62	0.24	0.48	1.11	1.35	,,	18. 5.0	7.57.10
6.10.0	19.52.10	0.20.46	+ 2.09	0.24	0.48	1.11	1.35	,,	18.10.0	7.52.10
6.15.0	19.47.10	0.18.46	+ 2.42	0.24	0.48	1.12	1.36	,,	18.15.0	7.47.10
6.20.0	19.42.10	0.16.45	+ 2.95	0.24	0.48	1.13	1.37	,,	18.20.0	7.42.10
6.25.0	19.37.10	0.14.44	+ 3.42	0.24	0.48	1.13	1.37	,,	18.25.0	7.37.10
6.30.0	19.32.10	0.12.42	+ 3.85	0.24	0.49	1.13	1.38	,,	18.30.0	7.32.10
6.35.0	19.27.10	0.10.40	+ 4.27	0.24	0.49	1.13	1.38	,,	18.35.0	7.27.10
6.40.0	19.22.10	0. 8.38	+ 4.69	0.24	0.49	1.13	1.38	,,	18.40.0	7.22.10
6.45.0	19.17.10	0. 6.35	+ 5.12	0.25	0.49	1.14	1.38	,,	18.45.0	7.17.10
6.50.0	19.12.10	0. 4.32	+ 5.55	0.25	0.49	1.14	1.38	,,	18.50.0	7.12.10
6.55.0	19. 7.10	0. 2.30	+ 6.01	0.25	0.49	1.14	1.38	,,	18.55.0	7. 7.10
7. 1.5	19. 1. 5	0. 0. 0	+ 6.49	0.25	0.50	1.15	1.40	,,	19. 1.5	7. 1. 5
Right Ascension of the Meridian in Sidereal Time.		Correction of Polar Star's Alt.	Annual Variation of Correction.	1m	2m	3m	4m	5m	Right Ascension of the Meridian in Sidereal Time.	

When the Right Ascension of the Meridian falls in either of these two columns, the Correction will be *Additive*.

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Right Asc. of Meridian or Sidereal Time.	Approximate Latitude. 0°	10°	20°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	Right Asc. of Meridian or Sidereal Time.
h. m. s.	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	h. m. s.
1. 1.5	0.0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	1. 1. 5
1.30.0	0.0	0. 0	0. 1	0. 1	0. 1	0. 1	0. 2	0. 2	0. 3	0. 3	0. 3	0. 4	0. 6	0.10	0.26	0.32.10
2. 0.0	0.0	0. 1	0. 2	0. 4	0. 5	0. 5	0. 6	0. 8	0. 9	0.11	0.14	0.18	0.24	0.41	1.38	0. 2.10
2.30.0	0.0	0. 2	0. 5	0. 8	0. 9	0.11	0.13	0.16	0.19	0.23	0.29	0.37	0.52	1.25	3.23	23.32.10
3. 0.0	0.0	0. 4	0. 8	0.12	0.15	0.19	0.22	0.26	0.32	0.39	0.48	1. 3	1.28	2.19	5.32	23. 2.10
3.30.0	0.0	0. 5	0.12	0.18	0.22	0.27	0.32	0.39	0.46	0.56	1.11	1.32	2. 7	3.23	7.52	22.32.10
4. 0.0	0.0	0. 7	0.15	0.24	0.30	0.36	0.43	0.51	1. 2	1.15	1.34	2. 2	2.49	4.27	10. 8	22. 2.10
4.20.0	0.0	0. 9	0.17	0.29	0.35	0.43	0.50	1. 0	1.12	1.28	1.50	2.23	3.17	5.10	11.32	21.42.10
4.40.0	0.0	0.10	0.20	0.33	0.40	0.48	0.57	1. 8	1.23	1.40	2. 4	2.42	3.43	5.48	12.45	21.22.10
5. 0.0	0.0	0.11	0.23	0.37	0.44	0.53	1. 4	1.16	1.31	1.51	2.18	2.59	4. 6	6.23	13.49	21. 2.10
5.20.0	0.0	0.12	0.25	0.40	0.49	0.58	1. 9	1.23	1.39	2. 0	2.30	3.15	4.26	6.53	14.40	20.42.10
5.40.0	0.0	0.12	0.26	0.42	0.51	1. 2	1.13	1.28	1.46	2. 7	2.40	3.27	4.42	7.18	15.13	20.22.10
6. 0.0	0.0	0.13	0.28	0.44	0.54	1. 5	1.18	1.33	1.52	2.14	2.48	3.37	4.55	7.40	15.36	20. 2.10
6.20.0	0.0	0.14	0.29	0.46	0.56	1. 8	1.21	1.36	1.55	2.19	2.54	3.44	5. 4	7.45	15.44	19.42.10
6.40.0	0.0	0.14	0.29	0.47	0.57	1. 8	1.22	1.38	1.57	2.21	2.57	3.46	5. 8	7.48	15.38	19.22.10
7. 0.0	0.0	0.14	0.29	0.47	0.57	1. 9	1.22	1.38	1.57	2.21	2.57	3.46	5. 7	7.44	15.18	19. 2.10
7.20.0	0.0	0.14	0.29	0.47	0.57	1. 8	1.21	1.36	1.56	2.19	2.54	3.43	5. 1	7.36	14.44	18.42.10
7.40.0	0.0	0.13	0.28	0.45	0.55	1. 5	1.18	1.33	1.52	2.14	2.48	3.35	4.50	7.16	14. 3	18.22.10
8. 0.0	0.0	0.12	0.28	0.44	0.53	1. 4	1.15	1.30	1.48	2. 9	2.42	3.26	4.39	6.55	13.11	18. 2.10
8.20.0	0.0	0.12	0.26	0.41	0.50	1. 0	1.12	1.25	1.42	2. 1	2.32	3.14	4.20	6.27	12.11	17.42.10
8.40.0	0.0	0.11	0.24	0.38	0.46	0.56	1. 6	1.18	1.34	1.52	2.20	2.59	3.59	5.55	11. 5	17.22.10
9. 0.0	0.0	0.10	0.22	0.35	0.42	0.50	1. 0	1.11	1.25	1.41	2. 6	2.42	3.36	5.19	9.53	17. 2.10
9.20.0	0.9	0. 9	0.19	0.31	0.38	0.45	0.54	1. 4	1.16	1.30	1.53	2.24	3.11	4.42	8.41	16.42.10
9.40.0	0.0	0. 8	0.17	0.27	0.32	0.39	0.46	0.55	1. 6	1.18	1.38	2. 4	2.45	4. 4	7.26	16.22.10
10. 0.0	0.0	0. 7	0.14	0.23	0.28	0.31	0.40	0.47	0.56	1. 5	1.23	1.45	2.21	3.26	6.13	16. 2.10
10.30.0	0.0	0. 5	0.11	0.17	0.20	0.24	0.29	0.36	0.41	0.47	1. 1	1.18	1.42	2.30	4.39	15.32.10
11. 0.0	0.0	0. 4	0. 8	0.12	0.14	0.17	0.20	0.24	0.28	0.32	0.42	0.53	1. 9	1.40	2.58	15. 2.10
11.30.0	0.0	0. 3	0. 5	0. 7	0. 8	0.10	0.12	0.14	0.16	0.17	0.24	0.31	0.40	0.58	1.42	14.32.10
12. 0.0	0.0	0. 2	0. 3	0. 4	0. 4	0. 5	0. 6	0. 7	0. 8	0. 9	0.11	0.14	0.19	0.26	0.45	14. 2.10
12.30.0	0.0	0. 1	0. 2	0. 2	0. 2	0. 2	0. 3	0. 3	0. 3	0. 3	0. 4	0. 4	0. 5	0. 7	0.11	13.32.10
13. 1.5	0.0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	13. 1. 5

TABLE XII.—*The Mean Sun's Approximate Right Ascension.*

Days.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Days.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	
1	18.43	20.45	22.35	0.37	2.36	4.38	6.36	8.38	10.41	12.39	14.41	16.39	1
2	18.47	20.49	22.39	0.41	2.40	4.42	6.40	8.42	10.45	12.43	14.45	16.43	2
3	18.51	20.53	22.43	0.45	2.44	4.46	6.44	8.46	10.49	12.47	14.49	16.47	3
4	18.54	20.57	22.47	0.49	2.48	4.50	6.48	8.50	10.53	12.51	14.53	16.51	4
5	18.58	21. 1	22.51	0.53	2.52	4.54	6.52	8.54	10.56	12.55	14.57	16.55	5
6	19. 2	21. 5	22.55	0.57	2.55	4.58	6.56	8.58	11. 0	12.59	15. 1	16.59	6
7	19. 6	21. 9	22.59	1. 1	2.59	5. 2	7. 0	9. 2	11. 4	13. 3	15. 5	17. 3	7
8	19.10	21.12	23. 3	1. 5	3. 3	5. 6	7. 4	9. 6	11. 8	13. 7	15. 9	17. 7	8
9	19.14	21.16	23. 7	1. 9	3. 7	5. 9	7. 8	9.10	11.12	13.10	15.13	17.11	9
10	19.18	21.20	23.11	1.13	3.11	5.13	7.12	9.14	11.16	13.14	15.17	17.15	10
11	19.22	21.24	23.15	1.17	3.15	5.17	7.16	9.18	11.20	13.18	15.21	17.19	11
12	19.26	21.28	23.19	1.21	3.19	5.21	7.20	9.22	11.24	13.22	15.25	17.23	12
13	19.30	21.32	23.23	1.25	3.23	5.25	7.24	9.26	11.28	13.26	15.28	17.27	13
14	19.34	21.36	23.26	1.29	3.27	5.29	7.27	9.30	11.32	13.30	15.32	17.31	14
15	19.38	21.40	23.30	1.33	3.31	5.33	7.31	9.34	11.36	13.34	15.36	17.35	15
16	19.42	21.44	23.34	1.37	3.35	5.37	7.35	9.38	11.40	13.38	15.40	17.39	16
17	19.46	21.48	23.38	1.41	3.39	5.41	7.39	9.42	11.44	13.42	15.44	17.43	17
18	19.50	21.52	23.42	1.44	3.43	5.45	7.43	9.45	11.48	13.46	15.48	17.46	18
19	19.54	21.56	23.46	1.48	3.47	5.49	7.47	9.49	11.52	13.50	15.52	17.50	19
20	19.58	22. 0	23.50	1.52	3.51	5.53	7.51	9.53	11.56	13.54	15.56	17.54	20
21	20. 1	22. 4	23.54	1.56	3.55	5.57	7.55	9.57	12. 0	13.58	16. 0	17.58	21
22	20. 5	22. 8	23.58	2. 0	3.59	6. 1	7.59	10. 1	12. 3	14. 2	16. 4	18. 2	22
23	20. 9	22.12	0. 2	2. 4	4. 2	6. 5	8. 3	10. 5	12. 7	14. 6	16. 8	18. 6	23
24	20.13	22.16	0. 6	2. 8	4. 6	6. 9	8. 7	10. 9	12.11	14.10	16.12	18.10	24
25	20.17	22.19	0.10	2.12	4.10	6.13	8.11	10.13	12.15	14.14	16.16	18.14	25
26	20.21	22.23	0.14	2.16	4.14	6.17	8.15	10.17	12.19	14.18	16.20	18.18	26
27	20.25	22.27	0.18	2.20	4.18	6.20	8.19	10.21	12.23	14.21	16.24	18.22	27
28	20.29	22.31	0.22	2.24	4.22	6.24	8.23	10.25	12.27	14.25	16.28	18.26	28
29	20.33	22.33	0.26	2.28	4.26	6.28	8.27	10.29	12.31	14.29	16.32	18.30	29
30	20.37	„ „	0.30	2.32	4.30	6.32	8.31	10.33	12.35	14.33	16.36	18.34	30
31	20.41	„ „	0.34	„ „	4.34	„ „	8.35	10.37	„ „	14.37	„ „	18.38	31

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EQUATIONS TO EQUAL ALTITUDES, *First part.*

Lat.	Interval between the Observations.																	Lat.
	h m 2. 40	h m 3. 20	h m 4. 0	h m 4. 40	h m 5. 20	h m 6. 0	h m 6. 40	h m 7. 20	h m 8. 0	h m 8. 40	h m 9. 20	h m 10. 0	h m 10. 40	h m 11. 20	h m 12. 0	
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0
1	0. 12	0. 12	0. 13	0. 13	0. 13	0. 13	0. 14	0. 14	0. 14	0. 15	0. 16	0. 16	0. 17	0. 18	0. 19	1
2	0. 25	0. 25	0. 25	0. 26	0. 26	0. 27	0. 27	0. 28	0. 29	0. 30	0 31	0. 32	0. 34	0. 36	0. 38	2
3	0. 37	0. 37	0. 38	0. 38	0. 39	0. 40	0. 41	0. 42	0. 44	0. 45	0. 47	0. 49	0. 51	0. 54	0. 56	3
4	0. 49	0. 50	0. 50	0. 51	0. 52	0. 53	0. 55	0. 56	0. 58	1. 0	1. 3	1. 5	1. 8	1. 12	1. 16	4
5	1. 1	1. 2	1. 3	1. 4	1. 5	1. 7	1. 9	1. 10	1. 13	1. 15	1. 18	1. 22	1. 25	1. 30	1. 35	5
6	1. 14	1. 14	1. 16	1. 17	1. 18	1. 20	1. 22	1. 25	1. 27	1. 30	1. 34	1. 38	1. 42	1. 48	1. 54	6
7	1. 26	1. 27	1. 28	1. 30	1. 32	1. 34	1. 36	1. 39	1. 42	1. 46	1. 50	1. 54	2. 0	2. 6	2. 13	7
8	1. 39	1. 40	1. 41	1. 43	1. 45	1. 47	1. 50	1. 53	1. 57	2. 1	2. 6	2. 11	2. 17	2. 24	2. 32	8
9	1. 51	1. 52	1. 54	1. 56	1. 58	2. 1	2. 4	2. 8	2. 12	2. 16	2. 22	2. 28	2. 34	2. 42	2. 51	9
10	2. 4	2. 5	2. 7	2. 9	2. 12	2. 15	2. 18	2. 22	2. 27	2. 32	2. 38	2. 44	2. 52	3. 1	3. 10	10
11	2. 16	2. 18	2. 20	2. 22	2. 25	2. 29	2. 32	2. 37	2. 42	2. 48	2. 54	3. 1	3. 10	3. 19	3. 30	11
12	2. 29	2. 31	2. 33	2. 36	2. 39	2. 42	2. 46	2. 51	2. 57	3. 3	3. 10	3. 18	3. 27	3. 38	3. 50	12
13	2. 42	2. 44	2. 46	2. 49	2. 52	2. 56	3. 1	3. 6	3. 12	3. 19	3. 26	3. 35	3. 45	3. 56	4. 9	13
14	2. 55	2. 57	3. 0	3. 3	3. 6	3. 10	3. 15	3. 21	3. 27	3. 35	3. 43	3. 52	4. 3	4. 15	4. 29	14
15	3. 8	3. 10	3. 13	3. 16	3. 20	3. 25	3. 30	3. 36	3. 43	3. 51	4. 0	4. 10	4. 21	4. 34	4. 49	15
16	3. 21	3. 24	3. 27	3. 30	3. 34	3. 39	3. 45	3. 51	3. 58	4. 7	4. 16	4. 27	4. 40	4. 54	5. 10	16
17	3. 35	3. 37	3. 40	3. 44	3. 48	3. 53	3. 59	4. 6	4. 14	4. 23	4. 33	4. 45	4. 58	5. 13	5. 30	17
18	3. 48	3. 51	3. 54	3. 58	4. 3	4. 8	4. 14	4. 22	4. 30	4. 40	4. 50	5. 3	5. 17	5. 33	5. 51	18
19	4. 2	4. 4	4. 8	4. 12	4. 17	4. 23	4. 30	4. 37	4. 46	4. 56	5. 8	5. 21	5. 36	5. 52	6. 12	19
20	4. 15	4. 18	4. 22	4. 27	4. 32	4. 38	4. 45	4. 53	5. 3	5. 13	5. 25	5. 39	5. 55	6. 13	6. 33	20
21	4. 29	4. 33	4. 36	4. 41	4. 47	4. 53	5. 1	5. 9	5. 19	5. 30	5. 43	5. 58	6. 14	6. 33	6. 55	21
22	4. 44	4. 47	4. 51	4. 56	5. 2	5. 9	5. 16	5. 26	5. 36	5. 48	6. 1	6. 16	6. 34	6. 54	7. 16	22
23	4. 58	5. 1	5. 6	5. 11	5. 17	5. 24	5. 32	5. 42	5. 53	6. 5	6. 19	6. 36	6. 54	7. 15	7. 38	23
24	5. 12	5. 16	5. 21	5. 26	5. 32	5. 40	5. 49	5. 59	6. 10	6. 23	6. 38	6. 55	7. 14	7. 36	8. 1	24
25	5. 27	5. 31	5. 36	5. 41	5. 48	5. 56	6. 5	6. 16	6. 28	6. 41	6. 57	7. 14	7. 35	7. 58	8. 24	25
26	5. 42	5. 46	5. 51	5. 57	6. 4	6. 12	6. 22	6. 33	6. 46	7. 0	7. 16	7. 35	7. 55	8. 19	8. 47	26
27	5. 58	6. 2	6. 7	6. 13	6. 20	6. 29	6. 39	6. 50	7. 4	7. 19	7. 36	7. 55	8. 17	8. 42	9. 10	27
28	6. 13	6. 18	6. 23	6. 29	6. 37	6. 46	6. 56	7. 8	7. 22	7. 38	7. 55	8. 15	8. 38	9. 5	9. 34	28
29	6. 29	6. 34	6. 39	6. 46	6. 54	7. 3	7. 14	7. 27	7. 41	7. 57	8. 16	8. 37	9. 0	9. 28	9. 59	29
30	6. 45	6. 50	6. 56	7. 3	7. 11	7. 21	7. 32	7. 45	8. 0	8. 17	8. 36	8. 58	9. 23	9. 51	10. 23	30
31	7. 2	7. 7	7. 13	7. 20	7. 29	7. 39	7. 51	8. 4	8. 20	8. 37	8. 57	9. 20	9. 46	10. 15	10. 49	31
32	7. 18	7. 24	7. 30	7. 38	7. 47	7. 57	8. 9	8. 23	8. 40	8. 58	9. 19	9. 42	10. 9	10. 40	11. 15	32
33	7. 36	7. 41	7. 48	7. 55	8. 5	8. 16	8. 29	8. 43	9. 0	9. 19	9. 41	10. 5	10. 33	11. 5	11. 41	33
34	7. 53	7. 59	8. 6	8. 14	8. 24	8. 35	8. 48	9. 3	9. 21	9. 41	10. 3	10. 29	10. 58	11. 31	12. 8	34
35	8. 11	8. 17	8. 24	8. 33	8. 43	8. 55	9. 8	9. 24	9. 42	10. 3	10. 26	10. 52	11. 23	11. 57	12. 36	35
36	8. 30	8. 36	8. 43	8. 52	9. 2	9. 15	9. 29	9. 45	10. 4	10. 25	10. 50	11. 17	11. 48	12. 24	13. 5	36
37	8. 49	8. 55	9. 2	9. 12	9. 23	9. 35	9. 50	10. 7	10. 26	10. 48	11. 14	11. 42	12. 14	12. 52	13. 34	37
38	9. 8	9. 15	9. 22	9. 32	9. 43	9. 57	10. 12	10. 29	10. 50	11. 12	11. 38	12. 8	12. 42	13. 20	14. 4	38
39	9. 28	9. 35	9. 43	9. 53	10. 5	10. 18	10. 34	10. 52	11. 13	11. 37	12. 4	12. 35	13. 9	13. 49	14. 35	39
40	9. 49	9. 56	10. 4	10. 14	10. 26	10. 41	10. 57	11. 16	11. 38	12. 2	12. 30	13. 2	13. 38	14. 19	15. 6	40
41	10. 10	10. 17	10. 26	10. 37	10. 49	11. 4	11. 21	11. 40	12. 3	12. 28	12. 57	13. 30	14. 7	14. 50	15. 39	41
42	10. 32	10. 39	10. 48	10. 59	11. 12	11. 28	11. 45	12. 5	12. 28	12. 55	13. 25	13. 59	14. 38	15. 22	16. 12	42
43	10. 54	11. 2	11. 11	11. 23	11. 36	11. 52	12. 10	12. 31	12. 55	13. 23	13. 54	14. 29	15. 9	15. 55	16. 47	43
44	11. 18	11. 25	11. 35	11. 47	12. 1	12. 18	12. 36	12. 58	13. 23	13. 51	14. 23	15. 00	15. 41	16. 29	17. 23	44
45	11. 42	11. 50	12. 0	12. 12	12. 27	12. 44	13. 3	13. 26	13. 51	14. 21	14. 54	15. 32	16. 15	17. 4	18. 0	45
46	12. 7	12. 15	12. 26	12. 38	12. 53	13. 11	13. 31	13. 54	14. 21	14. 51	15. 26	16. 5	16. 49	17. 41	18. 39	46
47	12. 32	12. 41	12. 52	13. 5	13. 21	13. 39	14. 0	14. 24	14. 51	15. 23	15. 59	16. 39	17. 25	18. 18	19. 18	47
48	12. 59	13. 8	13. 20	13. 33	13. 49	14. 8	14. 30	14. 55	15. 23	15. 56	16. 33	17. 15	18. 3	18. 57	19. 59	48
49	13. 27	13. 37	13. 48	14. 2	14. 19	14. 38	15. 1	15. 27	15. 56	16. 30	17. 8	17. 52	18. 41	19. 38	20. 42	49
50	13. 56	14. 6	14. 18	14. 33	14. 50	15. 10	15. 33	16. 0	16. 31	17. 6	17. 46	18. 31	19. 22	20. 21	21. 27	50
51	14. 26	14. 37	14. 49	15. 4	15. 22	15. 43	16. 7	16. 35	17. 7	17. 43	18. 24	19. 10	20. 4	21. 4	22. 14	51
52	14. 58	15. 9	15. 22	15. 37	15. 56	16. 17	16. 42	17. 11	17. 44	18. 21	19. 4	19. 53	20. 48	21. 51	23. 2	52
53	15. 31	15. 42	15. 55	16. 12	16. 31	16. 54	17. 19	17. 49	18. 23	19. 2	19. 46	20. 37	21. 34	22. 39	23. 53	53
54	16. 6	16. 17	16. 31	16. 48	17. 8	17. 31	17. 58	18. 29	19. 4	19. 45	20. 30	21. 22	22. 22	23. 29	24. 46	54
55	16. 42	16. 54	17. 8	17. 26	17. 46	18. 11	18. 39	19. 10	19. 48	20. 29	21. 17	22. 11	23. 12	24. 23	25. 42	55
56	17. 20	17. 33	17. 47	18. 6	18. 27	18. 52	19. 21	19. 54	20. 33	21. 16	22. 5	23. 1	24. 5	25. 18	26. 41	56
57	18. 1	18. 13	18. 29	18. 47	19. 10	19. 36	20. 6	20. 41	21. 20	22. 5	22. 57	23. 55	25. 1	26. 17	27. 43	57
58	18. 43	18. 56	19. 12	19. 32	19. 55	20. 22	20. 53	21. 29	22. 10	22. 57	23. 51	24. 51	26. 0	27. 19	28. 48	58
59	19. 28	19. 41	19. 58	20. 18	20. 43	21. 11	21. 43	22. 21	23. 4	23. 52	24. 48	25. 51	27. 2	28. 24	29. 57	59
60	20. 15	20. 30	20. 47	21. 8	21. 33	22. 3	22. 36	23. 15	24. 0	24. 50	25. 49	26. 54	28. 9	29. 34	31. 11	60
Lat.	h m 2. 40	h m 3. 20	h m 4. 0	h m 4. 40	h m 5. 20	h m 6. 0	h m 6. 40	h m 7. 20	h m 8. 0	h m 8. 40	h m 9. 20	h m 10. 0	h m 10. 40	h m 11. 20	h m 12. 0	Lat.
	Interval between the Observations.															

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EQUATIONS TO EQUAL ALTITUDES, *Second part.*

Sun's Dec.	Interval between the Observations.																		Sun's Dec.
	h m 2. 40	h m 3. 20	h m 4. 0	h m 4. 40	h m 5. 20	h m 6. 0	h m 6. 40	h m 7. 20	h m 8. 0	h m 8. 40	h m 9. 20	h m 10. 0	h m 10. 40	h m 11. 20	h m 12. 0		
° ′	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	″ ‴	° ′	
0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0
0. 20	0. 4	0. 4	0. 4	0. 4	0. 3	0. 3	0. 3	0. 3	0. 2	0. 2	0. 2	0. 2	0. 1	0. 1	0. 0	0. 20	0. 20
0. 40	0. 8	0. 8	0. 7	0. 7	0. 7	0. 6	0. 6	0. 5	0. 5	0. 4	0. 4	0. 3	0. 2	0. 1	0. 0	0. 40	0. 40
1. 0	0. 12	0. 11	0. 11	0. 10	0. 10	0. 9	0. 9	0. 8	0. 7	0. 6	0. 5	0. 4	0. 3	0. 2	0. 0	1. 0	1. 0
1. 20	0. 15	0. 15	0. 15	0. 14	0. 13	0. 12	0. 12	0. 11	0. 10	0. 8	0. 7	0. 6	0. 4	0. 2	0. 0	1. 20	1. 20
1. 40	0. 19	0. 19	0. 18	0. 17	0. 17	0. 16	0. 15	0. 13	0. 12	0. 11	0. 9	0. 7	0. 5	0. 2	0. 0	1. 40	1. 40
2. 0	0. 23	0. 22	0. 22	0. 21	0. 20	0. 19	0. 18	0. 16	0. 15	0. 13	0. 11	0. 8	0. 6	0. 3	0. 0	2. 0	2. 0
2. 20	0. 27	0. 26	0. 25	0. 25	0. 23	0. 22	0. 20	0. 19	0. 17	0. 15	0. 12	0. 10	0. 7	0. 4	0. 0	2. 20	2. 20
2. 40	0. 31	0. 30	0. 29	0. 28	0. 27	0. 25	0. 23	0. 21	0. 19	0. 17	0. 14	0. 11	0. 8	0. 4	0. 0	2. 40	2. 40
3. 0	0. 35	0. 34	0. 33	0. 31	0. 30	0. 28	0. 26	0. 24	0. 22	0. 19	0. 16	0. 13	0. 9	0. 5	0. 0	3. 0	3. 0
3. 20	0. 39	0. 38	0. 36	0. 35	0. 33	0. 31	0. 29	0. 27	0. 24	0. 21	0. 18	0. 14	0. 10	0. 5	0. 0	3. 20	3. 20
3. 40	0. 43	0. 42	0. 40	0. 39	0. 37	0. 35	0. 32	0. 29	0. 27	0. 23	0. 20	0. 15	0. 11	0. 6	0. 0	3. 40	3. 40
4. 0	0. 46	0. 45	0. 44	0. 42	0. 40	0. 38	0. 35	0. 32	0. 29	0. 26	0. 21	0. 17	0. 12	0. 6	0. 0	4. 0	4. 0
4. 20	0. 50	0. 49	0. 48	0. 46	0. 44	0. 41	0. 38	0. 35	0. 31	0. 28	0. 23	0. 18	0. 13	0. 7	0. 0	4. 20	4. 20
4. 40	0. 54	0. 53	0. 51	0. 49	0. 47	0. 44	0. 41	0. 38	0. 34	0. 30	0. 25	0. 20	0. 14	0. 7	0. 0	4. 40	4. 40
5. 0	0. 58	0. 56	0. 55	0. 52	0. 50	0. 47	0. 44	0. 40	0. 36	0. 32	0. 27	0. 21	0. 15	0. 8	0. 0	5. 0	5. 0
5. 20	1. 2	1. 0	0. 58	0. 56	0. 53	0. 50	0. 47	0. 43	0. 39	0. 34	0. 29	0. 23	0. 16	0. 8	0. 0	5. 20	5. 20
5. 40	1. 5	1. 4	1. 2	1. 0	0. 57	0. 54	0. 50	0. 46	0. 41	0. 36	0. 30	0. 24	0. 17	0. 9	0. 0	5. 40	5. 40
6. 0	1. 9	1. 8	1. 6	1. 3	1. 0	0. 57	0. 53	0. 49	0. 44	0. 38	0. 32	0. 25	0. 18	0. 9	0. 0	6. 0	6. 0
6. 20	1. 13	1. 11	1. 9	1. 7	1. 3	1. 0	0. 56	0. 51	0. 46	0. 40	0. 34	0. 27	0. 19	0. 10	0. 0	6. 20	6. 20
6. 40	1. 17	1. 15	1. 13	1. 10	1. 7	1. 3	0. 59	0. 54	0. 49	0. 43	0. 36	0. 28	0. 20	0. 10	0. 0	6. 40	6. 40
7. 0	1. 21	1. 19	1. 17	1. 14	1. 10	1. 6	1. 2	0. 57	0. 51	0. 45	0. 38	0. 30	0. 21	0. 11	0. 0	7. 0	7. 0
7. 20	1. 25	1. 23	1. 20	1. 17	1. 14	1. 10	1. 5	0. 59	0. 53	0. 47	0. 39	0. 31	0. 22	0. 11	0. 0	7. 20	7. 20
7. 40	1. 29	1. 27	1. 24	1. 21	1. 17	1. 13	1. 8	1. 2	0. 56	0. 49	0. 41	0. 32	0. 23	0. 12	0. 0	7. 40	7. 40
8. 0	1. 33	1. 30	1. 28	1. 24	1. 20	1. 16	1. 11	1. 5	0. 58	0. 51	0. 43	0. 34	0. 24	0. 13	0. 0	8. 0	8. 0
8. 20	1. 37	1. 34	1. 31	1. 28	1. 24	1. 19	1. 14	1. 8	1. 1	0. 53	0. 45	0. 35	0. 25	0. 13	0. 0	8. 20	8. 20
8. 40	1. 40	1. 38	1. 35	1. 31	1. 27	1. 22	1. 17	1. 10	1. 3	0. 56	0. 47	0. 37	0. 26	0. 14	0. 0	8. 40	8. 40
9. 0	1. 44	1. 42	1. 39	1. 35	1. 31	1. 26	1. 20	1. 13	1. 6	0. 58	0. 48	0. 38	0. 27	0. 14	0. 0	9. 0	9. 0
9. 20	1. 48	1. 46	1. 43	1. 39	1. 34	1. 29	1. 23	1. 16	1. 8	1. 0	0. 50	0. 40	0. 28	0. 15	0. 0	9. 20	9. 20
9. 40	1. 52	1. 50	1. 46	1. 42	1. 37	1. 32	1. 26	1. 19	1. 11	1. 2	0. 52	0. 41	0. 29	0. 15	0. 0	9. 40	9. 40
10. 0	1. 56	1. 53	1. 50	1. 46	1. 41	1. 35	1. 29	1. 21	1. 13	1. 4	0. 54	0. 43	0. 30	0. 16	0. 0	10. 0	10. 0
10. 20	2. 0	1. 57	1. 54	1. 49	1. 44	1. 38	1. 32	1. 24	1. 16	1. 6	0. 56	0. 44	0. 31	0. 16	0. 0	10. 20	10. 20
10. 40	2. 4	2. 1	1. 57	1. 53	1. 48	1. 42	1. 35	1. 27	1. 18	1. 9	0. 58	0. 45	0. 32	0. 17	0. 0	10. 40	10. 40
11. 0	2. 8	2. 5	2. 1	1. 57	1. 51	1. 45	1. 38	1. 30	1. 21	1. 11	0. 59	0. 47	0. 33	0. 17	0. 0	11. 0	11. 0
11. 20	2. 12	2. 9	2. 5	2. 0	1. 55	1. 48	1. 41	1. 33	1. 23	1. 13	1. 1	0. 48	0. 34	0. 18	0. 0	11. 20	11. 20
11. 40	2. 16	2. 13	2. 9	2. 4	1. 58	1. 52	1. 44	1. 35	1. 26	1. 15	1. 3	0. 50	0. 35	0. 18	0. 0	11. 40	11. 40
12. 0	2. 20	2. 17	2. 13	2. 8	2. 2	1. 55	1. 47	1. 38	1. 28	1. 17	1. 5	0. 51	0. 36	0. 19	0. 0	12. 0	12. 0
12. 20	2. 24	2. 21	2. 16	2. 11	2. 5	1. 58	1. 50	1. 41	1. 31	1. 20	1. 7	0. 53	0. 37	0. 20	0. 0	12. 20	12. 20
12. 40	2. 28	2. 25	2. 20	2. 15	2. 9	2. 1	1. 53	1. 44	1. 33	1. 22	1. 9	0. 54	0. 38	0. 20	0. 0	12. 40	12. 40
13. 0	2. 32	2. 29	2. 24	2. 19	2. 12	2. 5	1. 56	1. 47	1. 36	1. 24	1. 11	0. 56	0. 39	0. 21	0. 0	13. 0	13. 0
13. 30	2. 38	2. 34	2. 30	2. 24	2. 17	2. 10	2. 1	1. 51	1. 40	1. 27	1. 13	0. 58	0. 41	0. 21	0. 0	13. 30	13. 30
14. 0	2. 44	2. 40	2. 36	2. 30	2. 23	2. 15	2. 6	1. 55	1. 44	1. 31	1. 16	1. 0	0. 42	0. 22	0. 0	14. 0	14. 0
14. 30	2. 51	2. 46	2. 41	2. 35	2. 28	2. 20	2. 10	2. 0	1. 48	1. 34	1. 19	1. 2	0. 44	0. 23	0. 0	14. 30	14. 30
15. 0	2. 57	2. 52	2. 47	2. 41	2. 33	2. 25	2. 15	2. 4	1. 51	1. 37	1. 22	1. 5	0. 45	0. 24	0. 0	15. 0	15. 0
15. 30	3. 3	2. 59	2. 53	2. 47	2. 39	2. 30	2. 20	2. 8	1. 56	1. 41	1. 25	1. 7	0. 47	0. 25	0. 0	15. 30	15. 30
16. 0	3. 9	3. 4	2. 59	2. 52	2. 44	2. 35	2. 24	2. 13	1. 59	1. 44	1. 28	1. 9	0. 49	0. 26	0. 0	16. 0	16. 0
16. 30	3. 15	3. 11	3. 5	2. 58	2. 49	2. 40	2. 29	2. 17	2. 3	1. 48	1. 31	1. 11	0. 50	0. 26	0. 0	16. 30	16. 30
17. 0	3. 22	3. 17	3. 11	3. 3	2. 55	2. 45	2. 34	2. 21	2. 7	1. 51	1. 33	1. 14	0. 52	0. 27	0. 0	17. 0	17. 0
17. 30	3. 28	3. 23	3. 17	3. 9	3. 0	2. 50	2. 39	2. 26	2. 11	1. 55	1. 36	1. 16	0. 53	0. 28	0. 0	17. 30	17. 30
18. 0	3. 34	3. 29	3. 23	3. 15	3. 6	2. 55	2. 44	2. 30	2. 15	1. 58	1. 39	1. 18	0. 55	0. 29	0. 0	18. 0	18. 0
18. 30	3. 41	3. 35	3. 29	3. 21	3. 11	3. 1	2. 48	2. 35	2. 19	2. 2	1. 42	1. 21	0. 57	0. 30	0. 0	18. 30	18. 30
19. 0	3. 47	3. 42	3. 35	3. 27	3. 17	3. 6	2. 53	2. 39	2. 23	2. 5	1. 45	1. 23	0. 58	0. 31	0. 0	19. 0	19. 0
19. 30	3. 53	3. 48	3. 41	3. 32	3. 23	3. 11	2. 58	2. 44	2. 27	2. 9	1. 48	1. 25	1. 0	0. 32	0. 0	19. 30	19. 30
20. 0	4. 0	3. 54	3. 47	3. 38	3. 28	3. 17	3. 3	2. 48	2. 31	2. 12	1. 51	1. 28	1. 1	0. 32	0. 0	20. 0	20. 0
20. 30	4. 7	4. 1	3. 53	3. 44	3. 34	3. 22	3. 8	2. 53	2. 35	2. 16	1. 54	1. 30	1. 3	0. 33	0. 0	20. 30	20. 30
21. 0	4. 13	4. 7	3. 59	3. 50	3. 40	3. 27	3. 13	2. 57	2. 40	2. 20	1. 57	1. 33	1. 5	0. 34	0. 0	21. 0	21. 0
21. 30	4. 20	4. 13	4. 6	3. 56	3. 45	3. 33	3. 18	3. 2	2. 44	2. 23	2. 0	1. 35	1. 7	0. 35	0. 0	21. 30	21. 30
22. 0	4. 26	4. 20	4. 12	4. 2	3. 51	3. 38	3. 23	3. 7	2. 48	2. 27	2. 4	1. 37	1. 8	0. 36	0. 0	22. 0	22. 0
22. 30	4. 33	4. 26	4. 18	4. 8	3. 57	3. 44	3. 29	3. 11	2. 52	2. 31	2. 7	1. 40	1. 10	0. 37	0. 0	22. 30	22. 30
23. 0	4. 40	4. 33	4. 25	4. 15	4. 3	3. 49	3. 34	3. 16	2. 56	2. 34	2. 10	1. 42	1. 12	0. 38	0. 0	23. 0	23. 0
23. 30	4. 47	4. 40	4. 31	4. 21	4. 9	3. 55	3. 39	3. 21	3. 1	2. 38	2. 13	1. 45	1. 14	0. 39	0. 0	23. 30	23. 30
Sun's Dec.	h m 2. 40	h m 3. 20	h m 4. 0	h m 4. 40	h m 5. 20	h m 6. 0	h m 6. 40	h m 7. 20	h m 8. 0	h m 8. 40	h m 9. 20	h m 10. 0	h m 10. 40	h m 11. 20	h m 12. 0		Sun's Dec.
	Interval between the Observations.																

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TO REDUCE THE SUN'S LONGITUDE, RIGHT ASCENSION, AND DECLINATION, AND, ALSO, THE EQUATIO[N] OF TIME, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Appar. time past Noon.	Variation in 24 hours.														Longitude of the Ship or place	
	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	20"	30"	40"	50"		
Hours	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	II . III	15° to 180°	
Min.	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	III . IIII	15' to 14°	
Sec.	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	IIII . V	0' to 15…	
															° '	°
0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0	0
1	0. 2.5	0. 5.0	0. 7.5	0.10.0	0.12.5	0.15.0	0.17.5	0.20.0	0.22.5	0.25.0	0.50.0	1.15.0	1.40.0	2. 5.0	0.15	15
2	0. 5.0	0.10.0	0.15.0	0.20.0	0.25.0	0.30.0	0.35.0	0.40.0	0.45.0	0.50.0	1.40.0	2.30.0	3.20.0	4.10.0	0.30	30
3	0. 7.5	0.15.0	0.22.5	0.30.0	0.37.5	0.45.0	0.52.5	1. 0.0	1. 7.5	1.15.0	2.30.0	3.45.0	5. 0.0	6.15.0	0.45	45
4	0.10.0	0.20.0	0.30.0	0.40.0	0.50.0	1. 0.0	1.10.0	1.20.0	1.30.0	1.40.0	3.20.0	5. 0.0	6.40.0	8.20.0	1. 0	60
5	0.12.5	0.25.0	0.37.5	0.50.0	1. 2.5	1.15.0	1.27.5	1.40.0	1.52.5	2. 5.0	4.10.0	6.15.0	8.20.0	10.25.0	1.15	75
6	0.15.0	0.30.0	0.45.0	1. 0.0	1.15.0	1.30.0	1.45.0	2. 0.0	2.15.0	2.30.0	5. 0.0	7.30.0	10. 0.0	12.30.0	1.30	90
7	0.17.5	0.35.0	0.52.5	1.10.0	1.27.5	1.45.0	2. 2.5	2.20.0	2.37.5	2.55.0	5.50.0	8.45.0	11.40.0	14.35.0	1.45	105
8	0.20.0	0.40.0	1. 0.0	1.20.0	1.40.0	2. 0.0	2.20.0	2.40.0	3. 0.0	3.20.0	6.40.0	10. 0.0	13.20.0	16.40.0	2. 0	120
9	0.22.5	0.45.0	1. 7.5	1.30.0	1.52.5	2.15.0	2.37.5	3. 0.0	3.22.5	3.45.0	7.30.0	11.15.0	15. 0.0	18.45.0	2.15	135
10	0.25.0	0.50.0	1.15.0	1.40.0	2. 5.0	2.30.0	2.55.0	3.20.0	3.45.0	4.10.0	8.20.0	12.30.0	16.40.0	20.50.0	2.30	150
11	0.27.5	0.55.0	1.22.5	1.50.0	2.17.5	2.45.0	3.12.5	3.40.0	4. 7.5	4.35.0	9.10.0	13.45.0	18.20.0	22.55.0	2.45	165
12	0.30.0	1. 0.0	1.30.0	2. 0.0	2.30.0	3. 0.0	3.30.0	4. 0.0	4.30.0	5. 0.0	10. 0.0	15. 0.0	20. 0.0	25. 0.0	3. 0	180
13	0.32.5	1. 5.0	1.37.5	2.10.0	2.42.5	3.15.0	3.47.5	4.20.0	4.52.5	5.25.0	10.50.0	16.15.0	21.40.0	27. 5.0	3.15	
14	0.35.0	1.10.0	1.45.0	2.20.0	2.55.0	3.30.0	4. 5.0	4.40.0	5.15.0	5.50.0	11.40.0	17.30.0	23.20.0	29.10.0	3.30	
15	0.37.5	1.15.0	1.52.5	2.30.0	3. 7.5	3.45.0	4.22.5	5. 0.0	5.37.5	6.15.0	12.30.0	18.45.0	25. 0.0	31.15.0	3.45	
16	0.40.0	1.20.0	2. 0.0	2.40.0	3.20.0	4. 0.0	4.40.0	5.20.0	6. 0.0	6.40.0	13.20.0	20. 0.0	26.40.0	33.20.0	4. 0	
17	0.42.5	1.25.0	2. 7.5	2.50.0	3.32.5	4.15.0	4.57.5	5.40.0	6.22.5	7. 5.0	14.10.0	21.15.0	28.20.0	35.25.0	4.15	
18	0.45.0	1.30.0	2.15.0	3. 0.0	3.45.0	4.30.0	5.15.0	6. 0.0	6.45.0	7.30.0	15. 0.0	22.30.0	30. 0.0	37.30.0	4.30	
19	0.47.5	1.35.0	2.22.5	3.10.0	3.57.5	4.45.0	5.32.5	6.20.0	7. 7.5	7.55.0	15.50.0	23.45.0	31.40.0	39.35.0	4.45	
20	0.50.0	1.40.0	2.30.0	3.20.0	4.10.0	5. 0.0	5.50.0	6.40.0	7.30.0	8.20.0	16.40.0	25. 0.0	33.20.0	41.40.0	5. 0	
21	0.52.5	1.45.0	2.37.5	3.30.0	4.22.5	5.15.0	6. 7.5	7. 0.0	7.52.5	8.45.0	17.30.0	26.15.0	35. 0.0	43.45.0	5.15	
22	0.55.0	1.50.0	2.45.0	3.40.0	4.35.0	5.30.0	6.25.0	7.20.0	8.15.0	9.10.0	18.20.0	27.30.0	36.40.0	45.50.0	5.30	
23	0.57.5	1.55.0	2.52.5	3.50.0	4.47.5	5.45.0	6.42.5	7.40.0	8.37.5	9.35.0	19.10.0	28.45.0	38.20.0	47.55.0	5.45	
24	1. 0.0	2. 0.0	3. 0.0	4. 0.0	5. 0.0	6. 0.0	7. 0.0	8. 0.0	9. 0.0	10. 0.0	20. 0.0	30. 0.0	40. 0.0	50. 0.0	6. 0	
25	1. 2.5	2. 5.0	3. 7.5	4.10.0	5.12.5	6.15.0	7.17.5	8.20.0	9.22.5	10.25.0	20.50.0	31.15.0	41.40.0	52. 5.0	6.15	
26	1. 5.0	2.10.0	3.15.0	4.20.0	5.25.0	6.30.0	7.35.0	8.40.0	9.45.0	10.50.0	21.40.0	32.30.0	43.20.0	54.10.0	6.30	
27	1. 7.5	2.15.0	3.22.5	4.30.0	5.37.5	6.45.0	7.52.5	9. 0.0	10. 7.5	11.15.0	22.30.0	33.45.0	45. 0.0	56.15.0	6.45	
28	1.10.0	2.20.0	3.30.0	4.40.0	5.50.0	7. 0.0	8.10.0	9.20.0	10.30.0	11.40.0	23.20.0	35. 0.0	46.40.0	58.20.0	7. 0	
29	1.12.5	2.25.0	3.37.5	4.50.0	6. 2.5	7.15.0	8.27.5	9.40.0	10.52.5	12. 5.0	24.10.0	36.15.0	48.20.0	60.25.0	7.15	
30	1.15.0	2.30.0	3.45.0	5. 0.0	6.15.0	7.30.0	8.45.0	10. 0.0	11.15.0	12.30.0	25. 0.0	37.30.0	50. 0.0	62.30.0	7.30	
31	1.17.5	2.35.0	3.52.5	5.10.0	6.27.5	7.45.0	9. 2.5	10.20.0	11.37.5	12.55.0	25.50.0	38.45.0	51.40.0	64.35.0	7.45	
32	1.20.0	2.40.0	4. 0.0	5.20.0	6.40.0	8. 0.0	9.20.0	10.40.0	12. 0.0	13.20.0	26.40.0	40. 0.0	53.20.0	66.40.0	8. 0	
33	1.22.5	2.45.0	4. 7.5	5.30.0	6.52.5	8.15.0	9.37.5	11. 0.0	12.22.5	13.45.0	27.30.0	41.15.0	55. 0.0	68.45.0	8.15	
34	1.25.0	2.50.0	4.15.0	5.40.0	7. 5.0	8.30.0	9.55.0	11.20.0	12.45.0	14.10.0	28.20.0	42.30.0	56.40.0	70.50.0	8.30	
35	1.27.5	2.55.0	4.22.5	5.50.0	7.17.5	8.45.0	10.12.5	11.40.0	13. 7.5	14.35.0	29.10.0	43.45.0	58.20.0	72.55.0	8.45	
36	1.30.0	3. 0.0	4.30.0	6. 0.0	7.30.0	9. 0.0	10.30.0	12. 0.0	13.30.0	15. 0.0	30. 0.0	45. 0.0	60. 0.0	75. 0.0	9. 0	
37	1.32.5	3. 5.0	4.37.5	6.10.0	7.42.5	9.15.0	10.47.5	12.20.0	13.52.5	15.25.0	30.50.0	46.15.0	61.40.0	77. 5.0	9.15	
38	1.35.0	3.10.0	4.45.0	6.20.0	7.55.0	9.30.0	11. 5.0	12.40.0	14.15.0	15.50.0	31.40.0	47.30.0	63.20.0	79.10.0	9.30	
39	1.37.5	3.15.0	4.52.5	6.30.0	8. 7.5	9.45.0	11.22.5	13. 0.0	14.37.5	16.15.0	32.30.0	48.45.0	65. 0.0	81.15.0	9.45	
40	1.40.0	3.20.0	5. 0.0	6.40.0	8.20.0	10. 0.0	11.40.0	13.20.0	15. 0.0	16.40.0	33.20.0	50. 0.0	66.40.0	83.20.0	10. 0	
41	1.42.5	3.25.0	5. 7.5	6.50.0	8.32.5	10.15.0	11.57.5	13.40.0	15.22.5	17. 5.0	34.10.0	51.15.0	68.20.0	85.25.0	10.15	
42	1.45.0	3.30.0	5.15.0	7. 0.0	8.45.0	10.30.0	12.15.0	14. 0.0	15.45.0	17.30.0	35. 0.0	52.30.0	70. 0.0	87.30.0	10.30	
43	1.47.5	3.35.0	5.22.5	7.10.0	8.57.5	10.45.0	12.32.5	14.20.0	16. 7.5	17.55.0	35.50.0	53.45.0	71.40.0	89.35.0	10.45	
44	1.50.0	3.40.0	5.30.0	7.20.0	9.10.0	11. 0.0	12.50.0	14.40.0	16.30.0	18.20.0	36.40.0	55. 0.0	73.20.0	91.40.0	11. 0	
45	1.52.5	3.45.0	5.37.5	7.30.0	9.22.5	11.15.0	13. 7.5	15. 0.0	16.52.5	18.45.0	37.30.0	56.15.0	75. 0.0	93.45.0	11.15	
46	1.55.0	3.50.0	5.45.0	7.40.0	9.35.0	11.30.0	13.25.0	15.20.0	17.15.0	19.10.0	38.20.0	57.30.0	76.40.0	95.50.0	11.30	
47	1.57.5	3.55.0	5.52.5	7.50.0	9.47.5	11.45.0	13.42.5	15.40.0	17.37.5	19.35.0	39.10.0	58.45.0	78.20.0	97.55.0	11.45	
48	2. 0.0	4. 0.0	6. 0.0	8. 0.0	10. 0.0	12. 0.0	14. 0.0	16. 0.0	18. 0.0	20. 0.0	40. 0.0	60. 0.0	80. 0.0	100. 0.0	12. 0	
49	2. 2.5	4. 5.0	6. 7.5	8.10.0	10.12.5	12.15.0	14.17.5	16.20.0	18.22.5	20.25.0	40.50.0	61.15.0	81.40.0	102. 5.0	12.15	
50	2. 5.0	4.10.0	6.15.0	8.20.0	10.25.0	12.30.0	14.35.0	16.40.0	18.45.0	20.50.0	41.40.0	62.30.0	83.20.0	104.10.0	12.30	
51	2. 7.5	4.15.0	6.22.5	8.30.0	10.37.5	12.45.0	14.52.5	17. 0.0	19. 7.5	21.15.0	42.30.0	63.45.0	85. 0.0	106.15.0	12.45	
52	2.10.0	4.20.0	6.30.0	8.40.0	10.50.0	13. 0.0	15.10.0	17.20.0	19.30.0	21.40.0	43.20.0	65. 0.0	86.40.0	108.20.0	13. 0	
53	2.12.5	4.25.0	6.37.5	8.50.0	11. 2.5	13.15.0	15.27.5	17.40.0	19.52.5	22. 5.0	44.10.0	66.15.0	88.20.0	110.25.0	13.15	
54	2.15.0	4.30.0	6.45.0	9. 0.0	11.15.0	13.30.0	15.45.0	18. 0.0	20.15.0	22.30.0	45. 0.0	67.30.0	90. 0.0	112.30.0	13.30	
55	2.17.5	4.35.0	6.52.5	9.10.0	11.27.5	13.45.0	16. 2.5	18.20.0	20.37.5	22.55.0	45.50.0	68.45.0	91.40.0	114.35.0	13.45	
56	2.20.0	4.40.0	7. 0.0	9.20.0	11.40.0	14. 0.0	16.20.0	18.40.0	21. 0.0	23.20.0	46.40.0	70. 0.0	93.20.0	116.40.0	14. 0	
57	2.22.5	4.45.0	7. 7.5	9.30.0	11.52.5	14.15.0	16.37.5	19. 0.0	21.22.5	23.45.0	47.30.0	71.15.0	95. 0.0	118.45.0	14.15	
58	2.25.0	4.50.0	7.15.0	9.40.0	12. 5.0	14.30.0	16.55.0	19.20.0	21.45.0	24.10.0	48.20.0	72.30.0	96.40.0	120.50.0	14.30	
59	2.27.5	4.55.0	7.22.5	9.50.0	12.17.5	14.45.0	17.12.5	19.40.0	22. 7.5	24.35.0	49.10.0	73.45.0	98.20.0	122.55.0	14.45	
Appar. time past Noon.	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	20"	30"	40"	50"	Longitude of the Ship or place	
	Variation in 24 hours.															

The proportion corresponding to the intermediate minutes of longitude betwixt 0 and 15 may be … degrees 1, 2, 3, &c. in 15, (esteemed as …

NOTE.—*In correcting the Sun's Declination at Noon.*—If the longitude be west, and the declination increasing, the correspond[ing] correction is to be added to; but if decreasing, subtracted from the declination at the given noon. The converse of this ta[ble] place in east longitude, viz.: if the longitude be east, and the declination increasing, the corresponding correction is to be s[ub]tracted from; but if decreasing, added to the declination at the given noon.

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TO REDUCE THE SUN'S LONGITUDE, RIGHT ASCENSION, AND DECLINATION, AND, ALSO, TH EQUATION OF TIME, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Appar. time past Noon.	Variation in 24 hours.												Longitude of the Ship or place.	
	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	12′		
Hours	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	15° to 180°	
Min.	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	15° to 14°.4	
Sec.	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	0° to 15°	
													° ′	
0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0	0
1	0. 2.30	0. 5.0	0. 7.30	0.10.0	0.12.30	0.15.0	0.17.30	0.20.0	0.22.30	0.25.0	0.27.30	0.30.0	0.15	15
2	0. 5. 0	0.10.0	0.15. 0	0.20.0	0.25. 0	0.30.0	0.35. 0	0.40.0	0.45. 0	0.50.0	0.55. 0	1. 0.0	0.30	30
3	0. 7.30	0.15.0	0.22.30	0.30.0	0.37.30	0.45.0	0.52.30	1. 0.0	1. 7.30	1.15.0	1.22.30	1.30.0	0.45	45
4	0.10. 0	0.20.0	0.30. 0	0.40.0	0.50. 0	1. 0.0	1.10. 0	1.20.0	1.30. 0	1.40.0	1.50. 0	2. 0.0	1. 0	60
5	0.12.30	0.25.0	0.37.30	0.50.0	1. 2.30	1.15.0	1.27.30	1.40.0	1.52.30	2. 5.0	2.17.30	2.30.0	1.15	75
6	0.15. 0	0.30.0	0.45. 0	1. 0.0	1.15. 0	1.30.0	1.45. 0	2. 0.0	2.15. 0	2.30.0	2.45. 0	3. 0.0	1.30	90
7	0.17.30	0.35.0	0.52.30	1.10.0	1.27.30	1.45.0	2. 2.30	2.20.0	2.37.30	2.55.0	3.12.30	3.30.0	1.45	105
8	0.20. 0	0.40.0	1. 0. 0	1.20.0	1.40. 0	2. 0.0	2.20. 0	2.40.0	3. 0. 0	3.20.0	3.40. 0	4. 0.0	2. 0	120
9	0.22.30	0.45.0	1. 7.30	1.30.0	1.52.30	2.15.0	2.37.30	3. 0.0	3.22.30	3.45.0	4. 7.30	4.30.0	2.15	135
10	0.25. 0	0.50.0	1.15. 0	1.40.0	2. 5. 0	2.30.0	2.55. 0	3.20.0	3.45. 0	4.10.0	4.35. 0	5. 0.0	2.30	150
11	0.27.30	0.55.0	1.22.30	1.50.0	2.17.30	2.45.0	3.12.30	3.40.0	4. 7.30	4.35.0	5. 2.30	5.30.0	2.45	165
12	0.30. 0	1. 0.0	1.30. 0	2. 0.0	2.30. 0	3. 0.0	3.30. 0	4. 0.0	4.30. 0	5. 0.0	5.30. 0	6. 0.0	3. 0	180
13	0.32.30	1. 5.0	1.37.30	2.10.0	2.42.30	3.15.0	3.47.30	4.20.0	4.52.30	5.25.0	5.57.30	6.30.0	3.15	
14	0.35. 0	1.10.0	1.45. 0	2.20.0	2.55. 0	3.30.0	4. 5. 0	4.40.0	5.15. 0	5.50.0	6.25. 0	7. 0.0	3.30	
15	0.37.30	1.15.0	1.52.30	2.30.0	3. 7.30	3.45.0	4.22.30	5. 0.0	5.37.30	6.15.0	6.52.30	7.30.0	3.45	
16	0.40. 0	1.20.0	2. 0. 0	2.40.0	3.20. 0	4. 0.0	4.40. 0	5.20.0	6. 0. 0	6.40.0	7.20. 0	8. 0.0	4. 0	
17	0.42.30	1.25.0	2. 7.30	2.50.0	3.32.30	4.15.0	4.57.30	5.40.0	6.22.30	7. 5.0	7.47.30	8.30.0	4.15	
18	0.45. 0	1.30.0	2.15. 0	3. 0.0	3.45. 0	4.30.0	5.15. 0	6. 0.0	6.45. 0	7.30.0	8.15. 0	9. 0.0	4.30	
19	0.47.30	1.35.0	2.22.30	3.10.0	3.57.30	4.45.0	5.32.30	6.20.0	7. 7.30	7.55.0	8.42.30	9.30.0	4.45	
20	0.50. 0	1.40.0	2.30. 0	3.20.0	4.10. 0	5. 0.0	5.50. 0	6.40.0	7.30. 0	8.20.0	9.10. 0	10. 0.0	5. 0	
21	0.52.30	1.45.0	2.37.30	3.30.0	4.22.30	5.15.0	6. 7.30	7. 0.0	7.52.30	8.45.0	9.37.30	10.30.0	5.15	
22	0.55. 0	1.50.0	2.45. 0	3.40.0	4.35. 0	5.30.0	6.25. 0	7.20.0	8.15. 0	9.10.0	10. 5. 0	11. 0.0	5.30	
23	0.57.30	1.55.0	2.52.30	3.50.0	4.47.30	5.45.0	6.42.30	7.40.0	8.37.30	9.35.0	10.32.30	11.30.0	5.45	
24	1. 0. 0	2. 0.0	3. 0. 0	4. 0.0	5. 0. 0	6. 0.0	7. 0. 0	8. 0.0	9. 0. 0	10. 0.0	11. 0. 0	12. 0.0	6. 0	
25	1. 2.30	2. 5.0	3. 7.30	4.10.0	5.12.30	6.15.0	7.17.30	8.20.0	9.22.30	10.25.0	11.27.30	12.30.0	6.15	
26	1. 5. 0	2.10.0	3.15. 0	4.20.0	5.25. 0	6.30.0	7.35. 0	8.40.0	9.45. 0	10.50.0	11.55. 0	13. 0.0	6.30	
27	1. 7.30	2.15.0	3.22.30	4.30.0	5.37.30	6.45.0	7.52.30	9. 0.0	10. 7.30	11.15.0	12.22.30	13.30.0	6.45	
28	1.10. 0	2.20.0	3.30. 0	4.40.0	5.50. 0	7. 0.0	8.10. 0	9.20.0	10.30. 0	11.40.0	12.50. 0	14. 0.0	7. 0	
29	1.12.30	2.25.0	3.37.30	4.50.0	6. 2.30	7.15.0	8.27.30	9.40.0	10.52.30	12. 5.0	13.17.30	14.30.0	7.15	
30	1.15. 0	2.30.0	3.45. 0	5. 0.0	6.15. 0	7.30.0	8.45. 0	10. 0.0	11.15. 0	12.30.0	13.45. 0	15. 0.0	7.30	
31	1.17.30	2.35.0	3.52.30	5.10.0	6.27.30	7.45.0	9. 2.30	10.20.0	11.37.30	12.55.0	14.12.30	15.30.0	7.45	
32	1.20. 0	2.40.0	4. 0. 0	5.20.0	6.40. 0	8. 0.0	9.20. 0	10.40.0	12. 0. 0	13.20.0	14.40. 0	16. 0.0	8. 0	
33	1.22.30	2.45.0	4. 7.30	5.30.0	6.52.30	8.15.0	9.37.30	11. 0.0	12.22.30	13.45.0	15. 7.30	16.30.0	8.15	
34	1.25. 0	2.50.0	4.15. 0	5.40.0	7. 5. 0	8.30.0	9.55. 0	11.20.0	12.45. 0	14.10.0	15.35. 0	17. 0.0	8.30	
35	1.27.30	2.55.0	4.22.30	5.50.0	7.17.30	8.45.0	10.12.30	11.40.0	13. 7.30	14.35.0	16. 2.30	17.30.0	8.45	
36	1.30. 0	3. 0.0	4.30. 0	6. 0.0	7.30. 0	9. 0.0	10.30. 0	12. 0.0	13.30. 0	15. 0.0	16.30. 0	18. 0.0	9. 0	
37	1.32.30	3. 5.0	4.37.30	6.10.0	7.42.30	9.15.0	10.47.30	12.20.0	13.52.30	15.25.0	16.57.30	18.30.0	9.15	
38	1.35. 0	3.10.0	4.45. 0	6.20.0	7.55. 0	9.30.0	11. 5. 0	12.40.0	14.15. 0	15.50.0	17.25. 0	19. 0.0	9.30	
39	1.37.30	3.15.0	4.52.30	6.30.0	8. 7.30	9.45.0	11.22.30	13. 0.0	14.37.30	16.15.0	17.52.30	19.30.0	9.45	
40	1.40. 0	3.20.0	5. 0. 0	6.40.0	8.20. 0	10. 0.0	11.40. 0	13.20.0	15. 0. 0	16.40.0	18.20. 0	20. 0.0	10. 0	
41	1.42.30	3.25.0	5. 7.30	6.50.0	8.32.30	10.15.0	11.57.30	13.40.0	15.22.30	17. 5.0	18.47.30	20.30.0	10.15	
42	1.45. 0	3.30.0	5.15. 0	7. 0.0	8.45. 0	10.30.0	12.15. 0	14. 0.0	15.45. 0	17.30.0	19.15. 0	21. 0.0	10.30	
43	1.47.30	3.35.0	5.22.30	7.10.0	8.57.30	10.45.0	12.32.30	14.20.0	16. 7.30	17.55.0	19.42.30	21.30.0	10.45	
44	1.50. 0	3.40.0	5.30. 0	7.20.0	9.10. 0	11. 0.0	12.50. 0	14.40.0	16.30. 0	18.20.0	20.10. 0	22. 0.0	11. 0	
45	1.52.30	3.45.0	5.37.30	7.30.0	9.22.30	11.15.0	13. 7.30	15. 0.0	16.52.30	18.45.0	20.37.30	22.30.0	11.15	
46	1.55. 0	3.50.0	5.45. 0	7.40.0	9.35. 0	11.30.0	13.25. 0	15.20.0	17.15. 0	19.10.0	21. 5. 0	23. 0.0	11.30	
47	1.57.30	3.55.0	5.52.30	7.50.0	9.47.30	11.45.0	13.42.30	15.40.0	17.37.30	19.35.0	21.32.30	23.30.0	11.45	
48	2. 0. 0	4. 0.0	6. 0. 0	8. 0.0	10. 0. 0	12. 0.0	14. 0. 0	16. 0.0	18. 0. 0	20. 0.0	22. 0. 0	24. 0.0	12. 0	
49	2. 2.30	4. 5.0	6. 7.30	8.10.0	10.12.30	12.15.0	14.17.30	16.20.0	18.22.30	20.25.0	22.27.30	24.30.0	12.15	
50	2. 5. 0	4.10.0	6.15. 0	8.20.0	10.25. 0	12.30.0	14.35. 0	16.40.0	18.45. 0	20.50.0	22.55. 0	25. 0.0	12.30	
51	2. 7.30	4.15.0	6.22.30	8.30.0	10.37.30	12.45.0	14.52.30	17. 0.0	19. 7.30	21.15.0	23.22.30	25.30.0	12.45	
52	2.10. 0	4.20.0	6.30. 0	8.40.0	10.50. 0	13. 0.0	15.10. 0	17.20.0	19.30. 0	21.40.0	23.50. 0	26. 0.0	13. 0	
53	2.12.30	4.25.0	6.37.30	8.50.0	11. 2.30	13.15.0	15.27.30	17.40.0	19.52.30	22. 5.0	24.17.30	26.30.0	13.15	
54	2.15. 0	4.30.0	6.45. 0	9. 0.0	11.15. 0	13.30.0	15.45. 0	18. 0.0	20.15. 0	22.30.0	24.45. 0	27. 0.0	13.30	
55	2.17.30	4.35.0	6.52.30	9.10.0	11.27.30	13.45.0	16. 2.30	18.20.0	20.37.30	22.55.0	25.12.30	27.30.0	13.45	
56	2.20. 0	4.40.0	7. 0. 0	9.20.0	11.40. 0	14. 0.0	16.20. 0	18.40.0	21. 0. 0	23.20.0	25.40. 0	28. 0.0	14. 0	
57	2.22.30	4.45.0	7. 7.30	9.30.0	11.52.30	14.15.0	16.37.30	19. 0.0	21.22.30	23.45.0	26. 7.30	28.30.0	14.15	
58	2.25. 0	4.50.0	7.15. 0	9.40.0	12. 5. 0	14.30.0	16.55. 0	19.20.0	21.45. 0	24.10.0	26.35. 0	29. 0.0	14.30	
59	2.27.30	4.55.0	7.22.30	9.50.0	12.17.30	14.45.0	17.12.30	19.40.0	22. 7.30	24.35.0	27. 2.30	29.30.0	14.45	
Appar. time past Noon.	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	12′	Longitude of the Ship or place.	
	Variation in 24 hours.													

The proportion corresponding to the intermediate minutes of longitude between 0 and 15 may be found by taking out the reduction corresponding to the numeral degrees 1, 2, 3, &c. to 15, (esteemed as minutes,) agreeably to the signs expressed in the lower horizontal column at top, marked 0′ to 15′.

In correcting the Sun's Declination at Noon, the reduction, corresponding to the given longitude, is to be applied agreeably to the instructions contained in the Note at the bottom of the preceding page.

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TO REDUCE THE SUN'S LONGITUDE, RIGHT ASCENSION, AND DECLINATION, AND, ALSO, THE EQUATION OF TIME, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Appar. time past Noon.	Variation in 24 hours.												Longitude of the Ship or place.	
	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	24′		
Hours	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	15° to 180°	
Min.	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	15′ to 14°.45′	
Sec.	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	0′ to 15′	
													° ′	″
0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0. 0	0. 0.0	0. 0	0
1	0.32.30	0.35.0	0.37.30	0.40.0	0.42.30	0.45.0	0.47.30	0.50.0	0.52.30	0.55.0	0.57.30	1. 0.0	0.15	15
2	1. 5. 0	1.10.0	1.15. 0	1.20.0	1.25. 0	1.30.0	1.35. 0	1.40.0	1.45. 0	1.50.0	1.55. 0	2. 0.0	0.30	30
3	1.37.30	1.45.0	1.52.30	2. 0.0	2. 7.30	2.15.0	2.22.30	2.30.0	2.37.30	2.45.0	2.52.30	3. 0.0	0.45	45
4	2.10. 0	2.20.0	2.30. 0	2.40.0	2.50. 0	3. 0.0	3.10. 0	3.20.0	3.30. 0	3.40.0	3.50. 0	4. 0.0	1. 0	60
5	2.42.30	2.55.0	3. 7.30	3.20.0	3.32.30	3.45.0	3.57.30	4.10.0	4.22.30	4.35.0	4.47.30	5. 0.0	1.15	75
6	3.15. 0	3.30.0	3.45. 0	4. 0.0	4.15. 0	4.30.0	4.45. 0	5. 0.0	5.15. 0	5.30.0	5.45. 0	6. 0.0	1.30	90
7	3.47.30	4. 5.0	4.22.30	4.40.0	4.57.30	5.15.0	5.32.30	5.50.0	6. 7.30	6.25.0	6.42.30	7. 0.0	1.45	105
8	4.20. 0	4.40.0	5. 0. 0	5.20.0	5.40. 0	6. 0.0	6.20. 0	6.40.0	7. 0. 0	7.20.0	7.40. 0	8. 0.0	2. 0	120
9	4.52.30	5.15.0	5.37.30	6. 0.0	6.22.30	6.45.0	7. 7.30	7.30.0	7.52.30	8.15.0	8.37.30	9. 0.0	2.15	135
10	5.25. 0	5.50.0	6.15. 0	6.40.0	7. 5. 0	7.30.0	7.55. 0	8.20.0	8.45. 0	9.10.0	9.35. 0	10. 0.0	2.30	150
11	5.57.30	6.25.0	6.52.30	7.20.0	7.47.30	8.15.0	8.42.30	9.10.0	9.37.30	10. 5.0	10.32.30	11. 0.0	2.45	165
12	6.30. 0	7. 0.0	7.30. 0	8. 0.0	8.30. 0	9. 0.0	9.30. 0	10. 0.0	10.30. 0	11. 0.0	11.30. 0	12. 0.0	3. 0	180
13	7. 2.30	7.35.0	8. 7.30	8.40.0	9.12.30	9.45.0	10.17.30	10.50.0	11.22.30	11.55.0	12.27.30	13. 0.0	3.15	
14	7.35. 0	8.10.0	8.45. 0	9.20.0	9.55. 0	10.30.0	11. 5. 0	11.40.0	12.15. 0	12.50.0	13.25. 0	14. 0.0	3.30	
15	8. 7.30	8.45.0	9.22.30	10. 0.0	10.37.30	11.15.0	11.52.30	12.30.0	13. 7.30	13.45.0	14.22.30	15. 0.0	3.45	
16	8.40. 0	9.20.0	10. 0. 0	10.40.0	11.20. 0	12. 0.0	12.40. 0	13.20.0	14. 0. 0	14.40.0	15.20. 0	16. 0.0	4. 0	
17	9.12.30	9.55.0	10.37.30	11.20.0	12. 2.30	12.45.0	13.27.30	14.10.0	14.52.30	15.35.0	16.17.30	17. 0.0	4.15	
18	9.45. 0	10.30.0	11.15. 0	12. 0.0	12.45. 0	13.30.0	14.15. 0	15. 0.0	15.45. 0	16.30.0	17.15. 0	18. 0.0	4.30	
19	10.17.30	11. 5.0	11.52.30	12.40.0	13.27.30	14.15.0	15. 2.30	15.50.0	16.37.30	17.25.0	18.12.30	19. 0.0	4.45	
20	10.50. 0	11.40.0	12.30. 0	13.20.0	14.10. 0	15. 0.0	15.50. 0	16.40.0	17.30. 0	18.20.0	19.10. 0	20. 0.0	5. 0	
21	11.22.30	12.15.0	13. 7.30	14. 0.0	14.52.30	15.45.0	16.37.30	17.30.0	18.22.30	19.15.0	20. 7.30	21. 0.0	5.15	
22	11.55. 0	12.50.0	13.45. 0	14.40.0	15.35. 0	16.30.0	17.25. 0	18.20.0	19.15. 0	20.10.0	21. 5. 0	22. 0.0	5.30	
23	12.27.30	13.25.0	14.22.30	15.20.0	16.17.30	17.15.0	18.12.30	19.10.0	20. 7.30	21. 5.0	22. 2.30	23. 0.0	5.45	
24	13. 0. 0	14. 0.0	15. 0. 0	16. 0.0	17. 0. 0	18. 0.0	19. 0. 0	20. 0.0	21. 0. 0	22. 0.0	23. 0. 0	24. 0.0	6. 0	
25	13.32.30	14.35.0	15.37.30	16.40.0	17.42.30	18.45.0	19.47.30	20.50.0	21.52.30	22.55.0	23.57.30	25. 0.0	6.15	
26	14. 5. 0	15.10.0	16.15 .0	17.20.0	18.25. 0	19.30.0	20.35. 0	21.40.0	22.45. 0	23.50.0	24.55. 0	26. 0.0	6.30	
27	14.37.30	15.45.0	16.52.30	18. 0.0	19. 7.30	20.15.0	21.22.30	22.30.0	23.37.30	24.45.0	25.52.30	27. 0.0	6.45	
28	15.10. 0	16.20.0	17.30. 0	18.40.0	19.50. 0	21. 0.0	22.10. 0	23.20.0	24.30. 0	25.40.0	26.50. 0	28. 0.0	7. 0	
29	15.42.30	16.55.0	18. 7.30	19.20.0	20.32.30	21.45.0	22.57.30	24.10.0	25.22.30	26.35.0	27.47.30	29. 0.0	7.15	
30	16.15. 0	17.30.0	18.45. 0	20. 0.0	21.15. 0	22.30.0	23.45. 0	25. 0.0	26.15. 0	27.30.0	28.45. 0	30. 0.0	7.30	
31	16.47.30	18. 5.0	19.22.30	20.40.0	21.57.30	23.15.0	24.32.30	25.50.0	27. 7.30	28.25.0	29.42.30	31. 0.0	7.45	
32	17.20. 0	18.40.0	20. 0. 0	21.20.0	22.40. 0	24. 0.0	25.20. 0	26.40.0	28. 0. 0	29.20.0	30.40. 0	32. 0.0	8. 0	
33	17.52.30	19.15.0	20.37.30	22. 0.0	23.22.30	24.45.0	26. 7.30	27.30.0	28.52.30	30.15.0	31.37.30	33. 0.0	8.15	
34	18.25. 0	19.50.0	21.15. 0	22.40.0	24. 5. 0	25.30.0	26.55. 0	28.20.0	29.45. 0	31.10.0	32.35. 0	34. 0.0	8.30	
35	18.57.30	20.25.0	21.52.30	23.20.0	24.47.30	26.15.0	27.42.30	29.10.0	30.37.30	32. 5.0	33.32.30	35. 0.0	8.45	
36	19.30. 0	21. 0.0	22.30. 0	24. 0.0	25.30. 0	27. 0.0	28.30. 0	30. 0.0	31.30. 0	33. 0.0	34.30. 0	36. 0.0	9. 0	
37	20. 2.30	21.35.0	23. 7.30	24.40.0	26.12.30	27.45.0	29.17.30	30.50.0	32.22.30	33.55.0	35.27.30	37. 0.0	9.15	
38	20.35. 0	22.10.0	23.45. 0	25.20.0	26.55. 0	28.30.0	30. 5. 0	31.40.0	33.15. 0	34.50.0	36.25. 0	38. 0.0	9.30	
39	21. 7.30	22.45.0	24.22.30	26. 0.0	27.37.30	29.15.0	30.52.30	32.30.0	34. 7.30	35.45.0	37.22.30	39. 0.0	9.45	
40	21.40. 0	23.20.0	25. 0. 0	26.40.0	28.20. 0	30. 0.0	31.40. 0	33.20.0	35. 0. 0	36.40.0	38.20. 0	40. 0.0	10. 0	
41	22.12.30	23.55.0	25.37.30	27.20.0	29. 2.30	30.45.0	32.27.30	34.10.0	35.52.30	37.35.0	39.17.30	41. 0.0	10.15	
42	22.45. 0	24.30.0	26.15. 0	28. 0.0	29.45. 0	31.30.0	33.15. 0	35. 0.0	36.45. 0	38.30.0	40.15. 0	42. 0.0	10.30	
43	23.17.30	25. 5.0	26.52.30	28.40.0	30.27.30	32.15.0	34. 2.30	35.50.0	37.37.30	39.25.0	41.12.30	43. 0.0	10.45	
44	23.50. 0	25.40.0	27.30. 0	29.20.0	31.10. 0	33. 0.0	34.50. 0	36.40.0	38.30. 0	40.20.0	42.10. 0	44. 0.0	11. 0	
45	24.22.30	26.15.0	28. 7.30	30. 0.0	31.52.30	33.45.0	35.37.30	37.30.0	39.22.30	41.15.0	43. 7.30	45. 0.0	11.15	
46	24.55. 0	26.50.0	28.45. 0	30.40.0	32.35. 0	34.30.0	36.25. 0	38.20.0	40.15. 0	42.10.0	44. 5. 0	46. 0.0	11.30	
47	25.27.30	27.25.0	29.22.30	31.20.0	33.17.30	35.15.0	37.12.30	39.10.0	41. 7.30	43. 5.0	45. 2.30	47. 0.0	11.45	
48	26. 0. 0	28. 0.0	30. 0. 0	32. 0.0	34. 0. 0	36. 0.0	38. 0. 0	40. 0.0	42. 0. 0	44. 0.0	46. 0. 0	48. 0.0	12. 0	
49	26.32.30	28.35.0	30.37.30	32.40.0	34.42.30	36.45.0	38.47.30	40.50.0	42.52.30	44.55.0	46.57.30	49. 0.0	12.15	
50	27. 5. 0	29.10.0	31.15. 0	33.20.0	35.25. 0	37.30.0	39.35. 0	41.40.0	43.45. 0	45.50.0	47.55. 0	50. 0.0	12.30	
51	27.37.30	29.45.0	31.52.30	34. 0.0	36. 7.30	38.15.0	40.22.30	42.30.0	44.37.30	46.45.0	48.52.30	51. 0.0	12.45	
52	28.10. 0	30.20.0	32.30. 0	34.40.0	36.50. 0	39. 0.0	41.10. 0	43.20.0	45.30. 0	47.40.0	49.50. 0	52. 0.0	13. 0	
53	28.42.30	30.55.0	33. 7.30	35.20.0	37.32.30	39.45.0	41.57.30	44.10.0	46.22.30	48.35.0	50.47.30	53. 0.0	13.15	
54	29.15. 0	31.30.0	33.45. 0	36. 0.0	38.15. 0	40.30.0	42.45. 0	45. 0.0	47.15. 0	49.30.0	51.45. 0	54. 0.0	13.30	
55	29.47.30	32. 5.0	34.22.30	36.40.0	38.57.30	41.15.0	43.32.30	45.50.0	48. 7.30	50.25.0	52.42.30	55. 0.0	13.45	
56	30.20. 0	32.40.0	35. 0. 0	37.20.0	39.40. 0	42. 0.0	44.20. 0	46.40.0	49. 0. 0	51.20.0	53.40. 0	56. 0.0	14. 0	
57	30.52.30	33.15.0	35.37.30	38. 0.0	40.22.30	42.45.0	45. 7.30	47.30.0	49.52.30	52.15.0	54.37.30	57. 0.0	14.15	
58	31.25. 0	33.50.0	36.15. 0	38.40.0	41. 5. 0	43.30.0	45.55. 0	48.20.0	50.45. 0	53.10.0	55.35. 0	58. 0.0	14.30	
59	31.57.30	34.25.0	36.52.30	39.20.0	41.47.30	44.15.0	46.42.30	49.10.0	51.37.30	54. 5.0	56.32.30	59. 0.0	14.45	
Appar. time past Noon.	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	24′	Longitude of the Ship or place.	
	Variation in 24 hours.													

The proportion corresponding to the intermediate minutes of longitude between 0 and 15 may be found by taking out the reduction corresponding to the numeral degrees 1, 2, 3, &c. to 15, (esteemed as minutes,) agreeably to the signs expressed in the lower horizontal column at top, marked 0′ to 15′.

In correcting the Sun's Declination at Noon, the reduction, corresponding to the given longitude, is to be applied agreeably to the instructions contained in the Note at the bottom of page 10.

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TO REDUCE THE MOON'S LONGITUDE, LATITUDE, RIGHT ASCENSION, DECLINATION, SEMIDIAMETER AND HORIZONTAL PARALLAX, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Apparent time past N. or Mid.	Variation in 12 hours.														Longitude of the Ship or place.
	1″	2″	3″	4″	5″	6″	7″	8″	9″	10″	20″	30″	40″	50″	
Hours	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	15° to 180°
Min.	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	15′ to 14°.45′
Sec.	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	0′ to 15′
															° ′ ″
0	0.0. 0	0.0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0 0
1	0.0. 5	0.0.10	0. 0.15	0. 0.20	0. 0.25	0. 0.30	0. 0.35	0. 0.40	0. 0.45	0. 0.50	0. 1.40	0. 2.30	0. 3.20	0. 4.10	0.15 15
2	0.0.10	0.0.20	0. 0.30	0. 0.40	0. 0.50	0. 1. 0	0. 1.10	0. 1.20	0. 1.30	0. 1.40	0. 3.20	0. 5. 0	0. 6.40	0. 8.20	0.30 30
3	0.0.15	0.0.30	0. 0.45	0. 1. 0	0. 1.15	0. 1.30	0. 1.45	0. 2. 0	0. 2.15	0. 2.30	0. 5. 0	0. 7.30	0.10. 0	0.12.30	0.45 45
4	0.0.20	0.0.40	0. 1. 0	0. 1.20	0. 1.40	0. 2. 0	0. 2.20	0. 2.40	0. 3. 0	0. 3.20	0. 6.40	0.10. 0	0.13.20	0.16.40	1. 0 60
5	0.0.25	0.0.50	0. 1.15	0. 1.40	0. 2. 5	0. 2.30	0. 2.55	0. 3.20	0. 3.45	0. 4.10	0. 8.20	0.12.30	0.16.40	0.20.50	1.15 75
6	0.0.30	0.1. 0	0. 1.30	0. 2. 0	0. 2.30	0. 3. 0	0. 3.30	0. 4. 0	0. 4.30	0. 5. 0	0.10. 0	0.15. 0	0.20. 0	0.25. 0	1.30 90
7	0.0.35	0.1.10	0. 1.45	0. 2.20	0. 2.55	0. 3.30	0. 4. 5	0. 4.40	0. 5.15	0. 5.50	0.11.40	0.17.30	0.23.20	0.29.10	1.45 105
8	0.0.40	0.1.20	0. 2. 0	0. 2.40	0. 3.20	0. 4. 0	0. 4.40	0. 5.20	0. 6. 0	0. 6.40	0.13.20	0.20. 0	0.26.40	0.33.20	2. 0 120
9	0.0.45	0.1.30	0. 2.15	0. 3. 0	0. 3.45	0. 4.30	0. 5.15	0. 6. 0	0. 6.45	0. 7.30	0.15. 0	0.22.30	0.30. 0	0.37.30	2.15 135
10	0.0.50	0.1.40	0. 2.30	0. 3.20	0. 4.10	0. 5. 0	0. 5.50	0. 6.40	0. 7.30	0. 8.20	0.16.40	0.25. 0	0.33.20	0.41.40	2.30 150
11	0.0.55	0.1.50	0. 2.45	0. 3.40	0. 4.35	0. 5.30	0. 6.25	0. 7.20	0. 8.15	0. 9.10	0.18.20	0.27.30	0.36.40	0.45.50	2.45 165
12	0.1. 0	0.2. 0	0. 3. 0	0. 4. 0	0. 5. 0	0. 6. 0	0. 7. 0	0. 8. 0	0. 9. 0	0.10. 0	0.20. 0	0.30. 0	0.40. 0	0.50. 0	3. 0 180
13	0.1. 5	0.2.10	0. 3.15	0. 4.20	0. 5.25	0. 6.30	0. 7.35	0. 8.40	0. 9.45	0.10.50	0.21.40	0.32.30	0.43.20	0.54.10	3.15
14	0.1.10	0.2.20	0. 3.30	0. 4.40	0. 5.50	0. 7. 0	0. 8.10	0. 9.20	0.10.30	0.11.40	0.23.20	0.35. 0	0.46.40	0.58.20	3.30
15	0.1.15	0.2.30	0. 3.45	0. 5. 0	0. 6.15	0. 7.30	0. 8.45	0.10. 0	0.11.15	0.12.30	0.25. 0	0.37.30	0.50. 0	1. 2.30	3.45
16	0.1.20	0.2.40	0. 4. 0	0. 5.20	0. 6.40	0. 8. 0	0. 9.20	0.10.40	0.12. 0	0.13.20	0.26.40	0.40. 0	0.53.20	1. 6.40	4. 0
17	0.1.25	0.2.50	0. 4.15	0. 5.40	0. 7. 5	0. 8.30	0. 9.55	0.11.20	0.12.45	0.14.10	0.28.20	0.42.30	0.56.40	1.10.50	4.15
18	0.1.30	0.3. 0	0. 4.30	0. 6. 0	0. 7.30	0. 9. 0	0.10.30	0.12. 0	0.13.30	0.15. 0	0.30. 0	0.45. 0	1. 0. 0	1.15. 0	4.30
19	0.1.35	0.3.10	0. 4.45	0. 6.20	0. 7.55	0. 9.30	0.11. 5	0.12.40	0.14.15	0.15.50	0.31.40	0.47.30	1. 3.20	1.19.10	4.45
20	0.1.40	0.3.20	0. 5. 0	0. 6.40	0. 8.20	0.10. 0	0.11.40	0.13.20	0.15. 0	0.16.40	0.33.20	0.50. 0	1. 6.40	1.23.20	5. 0
21	0.1.45	0.3.30	0. 5.15	0. 7. 0	0. 8.45	0.10.30	0.12.15	0.14. 0	0.15.45	0.17.30	0.35. 0	0.52.30	1.10. 0	1.27.30	5.15
22	0.1.50	0.3.40	0. 5.30	0. 7.20	0. 9.10	0.11. 0	0.12.50	0.14.40	0.16.30	0.18.20	0.36.40	0.55. 0	1.13.20	1.31.40	5.30
23	0.1.55	0.3.50	0. 5.45	0. 7.40	0. 9.35	0.11.30	0.13.25	0.15.20	0.17.15	0.19.10	0.38.20	0.57.30	1.16.40	1.35.50	5.45
24	0.2. 0	0.4. 0	0. 6. 0	0. 8. 0	0.10. 0	0.12. 0	0.14. 0	0.16. 0	0.18. 0	0.20. 0	0.40. 0	1. 0. 0	1.20. 0	1.40. 0	6. 0
25	0.2. 5	0.4.10	0. 6.15	0. 8.20	0.10.25	0.12.30	0.14.35	0.16.40	0.18.45	0.20.50	0.41.40	1. 2.30	1.23.20	1.44.10	6.15
26	0.2.10	0.4.20	0. 6.30	0. 8.40	0.10.50	0.13. 0	0.15.10	0.17.20	0.19.30	0.21.40	0.43.20	1. 5. 0	1.26.40	1.48.20	6.30
27	0.2.15	0.4.30	0. 6.45	0. 9. 0	0.11.15	0.13.30	0.15.45	0.18. 0	0.20.15	0.22.30	0.45. 0	1. 7.30	1.30. 0	1.52.30	6.45
28	0.2.20	0.4.40	0. 7. 0	0. 9.20	0.11.40	0.14. 0	0.16.20	0.18.40	0.21. 0	0.23.20	0.46.40	1.10. 0	1.33.20	1.56.40	7. 0
29	0.2.25	0.4.50	0. 7.15	0. 9.40	0.12. 5	0.14.30	0.16.55	0.19.20	0.21.45	0.24.10	0.48.20	1.12.30	1.36.40	2. 0.50	7.15
30	0.2.30	0.5. 0	0. 7.30	0.10. 0	0.12.30	0.15. 0	0.17.30	0.20. 0	0.22.30	0.25. 0	0.50. 0	1.15. 0	1.40. 0	2. 5. 0	7.30
31	0.2.35	0.5.10	0. 7.45	0.10.20	0.12.55	0.15.30	0.18. 5	0.20.40	0.23.15	0.25.50	0.51.40	1.17.30	1.43.20	2. 9.10	7.45
32	0.2.40	0.5.20	0. 8. 0	0.10.40	0.13.20	0.16. 0	0.18.40	0.21.20	0.24. 0	0.26.40	0.53.20	1.20. 0	1.46.40	2.13.20	8. 0
33	0.2.45	0.5.30	0. 8.15	0.11. 0	0.13.45	0.16.30	0.19.15	0.22. 0	0.24.45	0.27.30	0.55. 0	1.22.30	1.50. 0	2.17.30	8.15
34	0.2.50	0.5.40	0. 8.30	0.11.20	0.14.10	0.17. 0	0.19.50	0.22.40	0.25.30	0.28.20	0.56.40	1.25. 0	1.53.20	2.21.40	8.30
35	0.2.55	0.5.50	0. 8.45	0.11.40	0.14.35	0.17.30	0.20.25	0.23.20	0.26.15	0.29.10	0.58.20	1.27.30	1.56.40	2.25.50	8.45
36	0.3. 0	0.6. 0	0. 9. 0	0.12. 0	0.15. 0	0.18. 0	0.21. 0	0.24. 0	0.27. 0	0.30. 0	1. 0. 0	1.30. 0	2. 0. 0	2.30. 0	9. 0
37	0.3. 5	0.6.10	0. 9.15	0.12.20	0.15.25	0.18.30	0.21.35	0.24.40	0.27.45	0.30.50	1. 1.40	1.32.30	2. 3.20	2.34.10	9.15
38	0.3.10	0.6.20	0. 9.30	0.12.40	0.15.50	0.19. 0	0.22.10	0.25.20	0.28.30	0.31.40	1. 3.20	1.35. 0	2. 6.40	2.38.20	9.30
39	0.3.15	0.6.30	0. 9.45	0.13. 0	0.16.15	0.19.30	0.22.45	0.26. 0	0.29.15	0.32.30	1. 5. 0	1.37.30	2.10. 0	2.42.30	9.45
40	0.3.20	0.6.40	0.10. 0	0.13.20	0.16.40	0.20. 0	0.23.20	0.26.40	0.30. 0	0.33.20	1. 6.40	1.40. 0	2.13.20	2.46.40	10. 0
41	0.3.25	0.6.50	0.10.15	0.13.40	0.17. 5	0.20.30	0.23.55	0.27.20	0.30.45	0.34.10	1. 8.20	1.42.30	2.16.40	2.50.50	10.15
42	0.3.30	0.7. 0	0.10.30	0.14. 0	0.17.30	0.21. 0	0.24.30	0.28. 0	0.31.30	0.35. 0	1.10. 0	1.45. 0	2.20. 0	2.55. 0	10.30
43	0.3.35	0.7.10	0.10.45	0.14.20	0.17.55	0.21.30	0.25. 5	0.28.40	0.32.15	0.35.50	1.11.40	1.47.30	2.23.20	2.59.10	10.45
44	0.3.40	0.7.20	0.11. 0	0.14.40	0.18.20	0.22. 0	0.25.40	0.29.20	0.33. 0	0.36.40	1.13.20	1.50. 0	2.26.40	3. 3.20	11. 0
45	0.3.45	0.7.30	0.11.15	0.15. 0	0.18.45	0.22.30	0.26.15	0.30. 0	0.33.45	0.37.30	1.15. 0	1.52.30	2.30. 0	3. 7.30	11.15
46	0.3.50	0.7.40	0.11.30	0.15.20	0.19.10	0.23. 0	0.26.50	0.30.40	0.34.30	0.38.20	1.16.40	1.55. 0	2.33.20	3.11.40	11.30
47	0.3.55	0.7.50	0.11.45	0.15.40	0.19.35	0.23.30	0.27.25	0.31.20	0.35.15	0.39.10	1.18.20	1.57.30	2.36.40	3.15.50	11.45
48	0.4. 0	0.8. 0	0.12. 0	0.16. 0	0.20. 0	0.24. 0	0.28. 0	0.32. 0	0.36. 0	0.40. 0	1.20. 0	2. 0. 0	2.40. 0	3.20. 0	12. 0
49	0.4. 5	0.8.10	0.12.15	0.16.20	0.20.25	0.24.30	0.28.35	0.32.40	0.36.45	0.40.50	1.21.40	2. 2.30	2.43.20	3.24.10	12.15
50	0.4.10	0.8.20	0.12.30	0.16.40	0.20.50	0.25. 0	0.29.10	0.33.20	0.37.30	0.41.40	1.23.20	2. 5. 0	2.46.40	3.28.20	12.30
51	0.4.15	0.8.30	0.12.45	0.17. 0	0.21.15	0.25.30	0.29.45	0.34. 0	0.38.15	0.42.30	1.25. 0	2. 7.30	2.50. 0	3.32.30	12.45
52	0.4.20	0.8.40	0.13. 0	0.17.20	0.21.40	0.26. 0	0.30.20	0.34.40	0.39. 0	0.43.20	1.26.40	2.10. 0	2.53.20	3.36.40	13. 0
53	0.4.25	0.8.50	0.13.15	0.17.40	0.22. 5	0.26.30	0.30.55	0.35.20	0.39.45	0.44.10	1.28.20	2.12.30	2.56.40	3.40.50	13.15
54	0.4.30	0.9. 0	0.13.30	0.18. 0	0.22.30	0.27. 0	0.31.30	0.36. 0	0.40.30	0.45. 0	1.30. 0	2.15. 0	3. 0. 0	3.45. 0	13.30
55	0.4.35	0.9.10	0.13.45	0.18.20	0.22.55	0.27.30	0.32. 5	0.36.40	0.41.15	0.45.50	1.31.40	2.17.30	3. 3.20	3.49.10	13.45
56	0.4.40	0.9.20	0.14. 0	0.18.40	0.23.20	0.28. 0	0.32.40	0.37.20	0.42. 0	0.46.40	1.33.20	2.20. 0	3. 6.40	3.53.20	14. 0
57	0.4.45	0.9.30	0.14.15	0.19. 0	0.23.45	0.28.30	0.33.15	0.38. 0	0.42.45	0.47.30	1.35. 0	2.22.30	3.10. 0	3.57.30	14.15
58	0.4.50	0.9.40	0.14.30	0.19.20	0.24.10	0.29. 0	0.33.50	0.38.40	0.43.30	0.48.20	1.36.40	2.25. 0	3.13.20	4. 1.40	14.30
59	0.4.55	0.9.50	0.14.45	0.19.40	0.24.35	0.29.30	0.34.25	0.39.20	0.44.15	0.49.10	1.38.20	2.27.30	3.16.40	4. 5.50	14.45
Apparent time past N. or Mid.	1″	2″	3″	4″	5″	6″	7″	8″	9″	10″	20″	30″	40″	50″	Longitude of the Ship or place.
	Variation in 12 hours.														

The proportion corresponding to the intermediate minutes of longitude between 0 and 15 may be found by taking out the reduction corresponding to the numeral degrees 1, 2, 3, &c. to 15, (esteemed as minutes,) agreeably to the signs expressed in the lower horizontal column at top, marked 0′ to 15′.

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TO REDUCE THE MOON'S LONGITUDE, LATITUDE, RIGHT ASCENSION, DECLINATION, SEMIDIAMETER AND HORIZONTAL PARALLAX, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Variation in 12 hours.

Ap. time past N. or Midnt.	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	20′	30′	40′	50′	Longitude of the Ship or place.	
Hours	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	15° to 180°	
Min.	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	II.III.IV	15′ to 14°.45	
Sec.	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	III.IV.V	0′ to 15′	
															° ′	″
0	0.0. 0	0.0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0	0
1	0.0. 5	0.0.10	0. 0.15	0. 0.20	0. 0.25	0. 0.30	0. 0.35	0. 0.40	0. 0.45	0. 0.50	0. 1.40	0. 2.30	0. 3.20	0. 4.10	0.15	15
2	0.0.10	0.0.20	0. 0.30	0. 0.40	0. 0.50	0. 1. 0	0. 1.10	0. 1.20	0. 1.30	0. 1.40	0. 3.20	0. 5. 0	0. 6.40	0. 8.20	0.30	30
3	0.0.15	0.0.30	0. 0.45	0. 1. 0	0. 1.15	0. 1.30	0. 1.45	0. 2. 0	0. 2.15	0. 2.30	0. 5. 0	0. 7.30	0.10. 0	0.12.30	0.45	45
4	0.0.20	0.0.40	0. 1. 0	0. 1.20	0. 1.40	0. 2. 0	0. 2.20	0. 2.40	0. 3. 0	0. 3.20	0. 6.40	0.10. 0	0.13.20	0.16.40	1. 0	60
5	0.0.25	0.0.50	0. 1.15	0. 1.40	0. 2. 5	0. 2.30	0. 2.55	0. 3.20	0. 3.45	0. 4.10	0. 8.20	0.12.30	0.16.40	0.20.50	1.15	75
6	0.0.30	0.1. 0	0. 1.30	0. 2. 0	0. 2.30	0. 3. 0	0. 3.30	0. 4. 0	0. 4.30	0. 5. 0	0.10. 0	0.15. 0	0.20. 0	0.25. 0	1.30	90
7	0.0.35	0.1.10	0. 1.45	0. 2.20	0. 2.55	0. 3.30	0. 4. 5	0. 4.40	0. 5.15	0. 5.50	0.11.40	0.17.30	0.23.20	0.29.10	1.45	105
8	0.0.40	0.1.20	0. 2. 0	0. 2.40	0. 3.20	0. 4. 0	0. 4.40	0. 5.20	0. 6. 0	0. 6.40	0.13.20	0.20. 0	0.26.40	0.33.20	2. 0	120
9	0.0.45	0.1.30	0. 2.15	0. 3. 0	0. 3.45	0. 4.30	0. 5.15	0. 6. 0	0. 6.45	0. 7.30	0.15. 0	0.22.30	0.30. 0	0.37.30	2.15	135
10	0.0.50	0.1.40	0. 2.30	0. 3.20	0. 4.10	0. 5. 0	0. 5.50	0. 6.40	0. 7.30	0. 8.20	0.16.40	0.25. 0	0.33.20	0.41.40	2.30	150
11	0.0.55	0.1.50	0. 2.45	0. 3.40	0. 4.35	0. 5.30	0. 6.25	0. 7.20	0. 8.15	0. 9.10	0.18.20	0.27.30	0.36.40	0.45.50	2.45	165
12	0.1. 0	0.2. 0	0. 3. 0	0. 4. 0	0. 5. 0	0. 6. 0	0. 7. 0	0. 8. 0	0. 9. 0	0.10. 0	0.20. 0	0.30. 0	0.40. 0	0.50. 0	3. 0	180
13	0.1. 5	0.2.10	0. 3.15	0. 4.20	0. 5.25	0. 6.30	0. 7.35	0. 8.40	0. 9.45	0.10.50	0.21.40	0.32.30	0.43.20	0.54.10	3.15	
14	0.1.10	0.2.20	0. 3.30	0. 4.40	0. 5.50	0. 7. 0	0. 8.10	0. 9.20	0.10.30	0.11.40	0.23.20	0.35. 0	0.46.40	0.58.20	3.30	
15	0.1.15	0.2.30	0. 3.45	0. 5. 0	0. 6.15	0. 7.30	0. 8.45	0.10. 0	0.11.15	0.12.30	0.25. 0	0.37.30	0.50. 0	1. 2.30	3.45	
16	0.1.20	0.2.40	0. 4. 0	0. 5.20	0. 6.40	0. 8. 0	0. 9.20	0.10.40	0.12. 0	0.13.20	0.26.40	0.40. 0	0.53.20	1. 6.40	4. 0	
17	0.1.25	0.2.50	0. 4.15	0. 5.40	0. 7. 5	0. 8.30	0. 9.55	0.11.20	0.12.45	0.14.10	0.28.20	0.42.30	0.56.40	1.10.50	4.15	
18	0.1.30	0.3. 0	0. 4.30	0. 6. 0	0. 7.30	0. 9. 0	0.10.30	0.12. 0	0.13.30	0.15. 0	0.30. 0	0.45. 0	1. 0. 0	1.15. 0	4.30	
19	0.1.35	0.3.10	0. 4.45	0. 6.20	0. 7.55	0. 9.30	0.11. 5	0.12.40	0.14.15	0.15.50	0.31.40	0.47.30	1. 3.20	1.19.10	4.45	
20	0.1.40	0.3.20	0. 5. 0	0. 6.40	0. 8.20	0.10. 0	0.11.40	0.13.20	0.15. 0	0.16.40	0.33.20	0.50. 0	1. 6.40	1.23.20	5. 0	
21	0.1.45	0.3.30	0. 5.15	0. 7. 0	0. 8.45	0.10.30	0.12.15	0.14. 0	0.15.45	0.17.30	0.35. 0	0.52.30	1.10. 0	1.27.30	5.15	
22	0.1.50	0.3.40	0. 5.30	0. 7.20	0. 9.10	0.11. 0	0.12.50	0.14.40	0.16.30	0.18.20	0.36.40	0.55. 0	1.13.20	1.31.40	5.30	
23	0.1.55	0.3.50	0. 5.45	0. 7.40	0. 9.35	0.11.30	0.13.25	0.15.20	0.17.15	0.19.10	0.38.20	0.57.30	1.16.40	1.35.50	5.45	
24	0.2. 0	0.4. 0	0. 6. 0	0. 8. 0	0.10. 0	0.12. 0	0.14. 0	0.16. 0	0.18. 0	0.20. 0	0.40. 0	1. 0. 0	1.20. 0	1.40. 0	6. 0	
25	0.2. 5	0.4.10	0. 6.15	0. 8.20	0.10.25	0.12.30	0.14.35	0.16.40	0.18.45	0.20.50	0.41.40	1. 2.30	1.23.20	1.44.10	6.15	
26	0.2.10	0.4.20	0. 6.30	0. 8.40	0.10.50	0.13. 0	0.15.10	0.17.20	0.19.30	0.21.40	0.43.20	1. 5. 0	1.26.40	1.48.20	6.30	
27	0.2.15	0.4.30	0. 6.45	0. 9. 0	0.11.15	0.13.30	0.15.45	0.18. 0	0.20.15	0.22.30	0.45. 0	1. 7.30	1.30. 0	1.52.30	6.45	
28	0.2.20	0.4.40	0. 7. 0	0. 9.20	0.11.40	0.14. 0	0.16.20	0.18.40	0.21. 0	0.23.20	0.46.40	1.10. 0	1.33.20	1.56.40	7. 0	
29	0.2.25	0.4.50	0. 7.15	0. 9.40	0.12. 5	0.14.30	0.16.55	0.19.20	0.21.45	0.24.10	0.48.20	1.12.30	1.36.40	2. 0.50	7.15	
30	0.2.30	0.5. 0	0. 7.30	0.10. 0	0.12.30	0.15. 0	0.17.30	0.20. 0	0.22.30	0.25. 0	0.50. 0	1.15. 0	1.40. 0	2. 5. 0	7.30	
31	0.2.35	0.5.10	0. 7.45	0.10.20	0.12.55	0.15.30	0.18. 5	0.20.40	0.23.15	0.25.50	0.51.40	1.17.30	1.43.20	2. 9.10	7.45	
32	0.2.40	0.5.20	0. 8. 0	0.10.40	0.13.20	0.16. 0	0.18.40	0.21.20	0.24. 0	0.26.40	0.53.20	1.20. 0	1.46.40	2.13.20	8. 0	
33	0.2.45	0.5.30	0. 8.15	0.11. 0	0.13.45	0.16.30	0.19.15	0.22. 0	0.24.45	0.27.30	0.55. 0	1.22.30	1.50. 0	2.17.30	8.15	
34	0.2.50	0.5.40	0. 8.30	0.11.20	0.14.10	0.17. 0	0.19.50	0.22.40	0.25.30	0.28.20	0.56.40	1.25. 0	1.53.20	2.21.40	8.30	
35	0.2.55	0.5.50	0. 8.45	0.11.40	0.14.35	0.17.30	0.20.25	0.23.20	0.26.15	0.29.10	0.58.20	1.27.30	1.56.40	2.25.50	8.45	
36	0.3. 0	0.6. 0	0. 9. 0	0.12. 0	0.15. 0	0.18. 0	0.21. 0	0.24. 0	0.27. 0	0.30. 0	1. 0. 0	1.30. 0	2. 0. 0	2.30. 0	9. 0	
37	0.3. 5	0.6.10	0. 9.15	0.12.20	0.15.25	0.18.30	0.21.35	0.24.40	0.27.45	0.30.50	1. 1.40	1.32.30	2. 3.20	2.34.10	9.15	
38	0.3.10	0.6.20	0. 9.30	0.12.40	0.15.50	0.19. 0	0.22.10	0.25.20	0.28.30	0.31.40	1. 3.20	1.35. 0	2. 6.40	2.38.20	9.30	
39	0.3.15	0.6.30	0. 9.45	0.13. 0	0.16.15	0.19.30	0.22.45	0.26. 0	0.29.15	0.32.30	1. 5. 0	1.37.30	2.10. 0	2.42.30	9.45	
40	0.3.20	0.6.40	0.10. 0	0.13.20	0.16.40	0.20. 0	0.23.20	0.26.40	0.30. 0	0.33.20	1. 6.40	1.40. 0	2.13.20	2.46.40	10. 0	
41	0.3.25	0.6.50	0.10.15	0.13.40	0.17. 5	0.20.30	0.23.55	0.27.20	0.30.45	0.34.10	1. 8.20	1.42.30	2.16.40	2.50.50	10.15	
42	0.3.30	0.7. 0	0.10.30	0.14. 0	0.17.30	0.21. 0	0.24.30	0.28. 0	0.31.30	0.35. 0	1.10. 0	1.45. 0	2.20. 0	2.55. 0	10.30	
43	0.3.35	0.7.10	0.10.45	0.14.20	0.17.55	0.21.30	0.25. 5	0.28.40	0.32.15	0.35.50	1.11.40	1.47.30	2.23.20	2.59.10	10.45	
44	0.3.40	0.7.20	0.11. 0	0.14.40	0.18.20	0.22. 0	0.25.40	0.29.20	0.33. 0	0.36.40	1.13.20	1.50. 0	2.26.40	3. 3.20	11. 0	
45	0.3.45	0.7.30	0.11.15	0.15. 0	0.18.45	0.22.30	0.26.15	0.30. 0	0.33.45	0.37.30	1.15. 0	1.52.30	2.30. 0	3. 7.30	11.15	
46	0.3.50	0.7.40	0.11.30	0.15.20	0.19.10	0.23. 0	0.26.50	0.30.40	0.34.30	0.38.20	1.16.40	1.55. 0	2.33.20	3.11.40	11.30	
47	0.3.55	0.7.50	0.11.45	0.15.40	0.19.35	0.23.30	0.27.25	0.31.20	0.35.15	0.39.10	1.18.20	1.57.30	2.36.40	3.15.50	11.45	
48	0.4. 0	0.8. 0	0.12. 0	0.16. 0	0.20. 0	0.24. 0	0.28. 0	0.32. 0	0.36. 0	0.40. 0	1.20. 0	2. 0. 0	2.40. 0	3.20. 0	12. 0	
49	0.4. 5	0.8.10	0.12.15	0.16.20	0.20.25	0.24.30	0.28.35	0.32.40	0.36.45	0.40.50	1.21.40	2. 2.30	2.43.20	3.24.10	12.15	
50	0.4.10	0.8.20	0.12.30	0.16.40	0.20.50	0.25. 0	0.29.10	0.33.20	0.37.30	0.41.40	1.23.20	2. 5. 0	2.46.40	3.28.20	12.30	
51	0.4.15	0.8.30	0.12.45	0.17. 0	0.21.15	0.25.30	0.29.45	0.34. 0	0.38.15	0.42.30	1.25. 0	2. 7.30	2.50. 0	3.32.30	12.45	
52	0.4.20	0.8.40	0.13. 0	0.17.20	0.21.40	0.26. 0	0.30.20	0.34.40	0.39. 0	0.43.20	1.26.40	2.10. 0	2.53.20	3.36.40	13. 0	
53	0.4.25	0.8.50	0.13.15	0.17.40	0.22. 5	0.26.30	0.30.55	0.35.20	0.39.45	0.44.10	1.28.20	2.12.30	2.56.40	3.40.50	13.15	
54	0.4.30	0.9. 0	0.13.30	0.18. 0	0.22.30	0.27. 0	0.31.30	0.36. 0	0.40.30	0.45. 0	1.30. 0	2.15. 0	3. 0. 0	3.45. 0	13.30	
55	0.4.35	0.9.10	0.13.45	0.18.20	0.22.55	0.27.30	0.32. 5	0.36.40	0.41.15	0.45.50	1.31.40	2.17.30	3. 3.20	3.49.10	13.45	
56	0.4.40	0.9.20	0.14. 0	0.18.40	0.23.20	0.28. 0	0.32.40	0.37.20	0.42. 0	0.46.40	1.33.20	2.20. 0	3. 6.40	3.53.20	14. 0	
57	0.4.45	0.9.30	0.14.15	0.19. 0	0.23.45	0.28.30	0.33.15	0.38. 0	0.42.45	0.47.30	1.35. 0	2.22.30	3.10. 0	3.57.30	14.15	
58	0.4.50	0.9.40	0.14.30	0.19.20	0.24.10	0.29. 0	0.33.50	0.38.40	0.43.30	0.48.20	1.36.40	2.25. 0	3.13.20	4. 1.40	14.30	
59	0.4.55	0.9.50	0.14.45	0.19.40	0.24.35	0.29.30	0.34.25	0.39.20	0.44.15	0.49.10	1.38.20	2.27.30	3.16.40	4. 5.50	14.45	
Ap. time past N. or Midn.	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	20′	30′	40′	50′	Longitude of the Ship or place.	

Variation in 12 hours.

The proportion corresponding to the intermediate minutes of longitude betwixt 0 and 15 may be found by taking out the reduction corresponding to the numeral degrees 1, 2, 3, &c. to 15, (esteemed as minutes,) agreeably to the signs expressed in the lower horizontal column at top, marked 0′ to 15′.

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Table XVI.

TO REDUCE THE MOON'S LONGITUDE, LATITUDE, RIGHT ASCENSION, DECLINAT
DIAMETER, AND HORIZONTAL PARALLAX, AS GIVEN IN THE NAUTICAL ALMAN
ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDI

Variation in 12 hours.

	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
	O. I. II	O. I. II	O. I. II	O. I. II	O. I. II	O. I. II	O. I. II	O. I. II	O. I. II	O. I.
	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II. III	I. II.
	II. III. IV	II. III. IV	II. III. IV	II. III. IV	II. III. IV	II. III. IV	II. III. IV	II. III. IV	II. III. IV	II. III.
0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0
1	0. 5.0	0.10.0	0.15.0	0.20.0	0.25.0	0.30.0	0.35.0	0.40.0	0.45.0	0.50.0
2	0.10.0	0.20.0	0.30.0	0.40.0	0.50.0	1. 0.0	1.10.0	1.20.0	1.30.0	1.40.0
3	0.15.0	0.30.0	0.45.0	1. 0.0	1.15.0	1.30.0	1.45.0	2. 0.0	2.15.0	2.30.0
4	0.20.0	0.40.0	1. 0.0	1.20.0	1.40.0	2. 0.0	2.20.0	2.40.0	3. 0.0	3.20.0
5	0.25.0	0.50.0	1.15.0	1.40.0	2. 5.0	2.30.0	2.55.0	3.20.0	3.45.0	4.10.0
6	0.30.0	1. 0.0	1.30.0	2. 0.0	2.30.0	3. 0.0	3.30.0	4. 0.0	4.30.0	5. 0.0
7	0.35.0	1.10.0	1.45.0	2.20.0	2.55.0	3.30.0	4. 5.0	4.40.0	5.15.0	5.50.0
8	0.40.0	1.20.0	2. 0.0	2.40.0	3.20.0	4. 0.0	4.40.0	5.20.0	6. 0.0	6.40.0
9	0.45.0	1.30.0	2.15.0	3. 0.0	3.45.0	4.30.0	5.15.0	6. 0.0	6.45.0	7.30.0
10	0.50.0	1.40.0	2.30.0	3.20.0	4.10.0	5. 0.0	5.50.0	6.40.0	7.30.0	8.20.0
11	0.55.0	1.50.0	2.45.0	3.40.0	4.35.0	5.30.0	6.25.0	7.20.0	8.15.0	9.10.0
12	1. 0.0	2. 0.0	3. 0.0	4. 0.0	5. 0.0	6. 0.0	7. 0.0	8. 0.0	9. 0.0	10. 0.0
13	1. 5.0	2.10.0	3.15.0	4.20.0	5.25.0	6.30.0	7.35.0	8.40.0	9.45.0	10.50.0
14	1.10.0	2.20.0	3.30.0	4.40.0	5.50.0	7. 0.0	8.10.0	9.20.0	10.30.0	11.40.0
15	1.15.0	2.30.0	3.45.0	5. 0.0	6.15.0	7.30.0	8.45.0	10. 0.0	11.15.0	12.30.0
16	1.20.0	2.40.0	4. 0.0	5.20.0	6.40.0	8. 0.0	9.20.0	10.40.0	12. 0.0	13.20.0
17	1.25.0	2.50.0	4.15.0	5.40.0	7. 5.0	8.30.0	9.55.0	11.20.0	12.45.0	14.10.0
18	1.30.0	3. 0.0	4.30.0	6. 0.0	7.30.0	9. 0.0	10.30.0	12. 0.0	13.30.0	15. 0.0
19	1.35.0	3.10.0	4.45.0	6.20.0	7.55.0	9.30.0	11. 5.0	12.40.0	14.15.0	15.50.0
20	1.40.0	3.20.0	5. 0.0	6.40.0	8.20.0	10. 0.0	11.40.0	13.20.0	15. 0.0	16.40.0
21	1.45.0	3.30.0	5.15.0	7. 0.0	8.45.0	10.30.0	12.15.0	14. 0.0	15.45.0	17.30.0
22	1.50.0	3.40.0	5.30.0	7.20.0	9.10.0	11. 0.0	12.50.0	14.40.0	16.30.0	18.20.0
23	1.55.0	3.50.0	5.45.0	7.40.0	9.35.0	11.30.0	13.25.0	15.20.0	17.15.0	19.10.0
24	2. 0.0	4. 0.0	6. 0.0	8. 0.0	10. 0.0	12. 0.0	14. 0.0	16. 0.0	18. 0.0	20. 0.0
25	2. 5.0	4.10.0	6.15.0	8.20.0	10.25.0	12.30.0	14.35.0	16.40.0	18.45.0	20.50.0
26	2.10.0	4.20.0	6.30.0	8.40.0	10.50.0	13. 0.0	15.10.0	17.20.0	19.30.0	21.40.0
27	2.15.0	4.30.0	6.45.0	9. 0.0	11.15.0	13.30.0	15.45.0	18. 0.0	20.15.0	22.30.0
28	2.20.0	4.40.0	7. 0.0	9.20.0	11.40.0	14. 0.0	16.20.0	18.40.0	21. 0.0	23.20.0
29	2.25.0	4.50.0	7.15.0	9.40.0	12. 5.0	14.30.0	16.55.0	19.20.0	21.45.0	24.10.0
30	2.30.0	5. 0.0	7.30.0	10. 0.0	12.30.0	15. 0.0	17.30.0	20. 0.0	22.30.0	25. 0.0
31	2.35.0	5.10.0	7.45.0	10.20.0	12.55.0	15.30.0	18. 5.0	20.40.0	23.15.0	25.50.0
32	2.40.0	5.20.0	8. 0.0	10.40.0	13.20.0	16. 0.0	18.40.0	21.20.0	24. 0.0	26.40.0
33	2.45.0	5.30.0	8.15.0	11. 0.0	13.45.0	16.30.0	19.15.0	22. 0.0	24.45.0	27.30.0
34	2.50.0	5.40.0	8.30.0	11.20.0	14.10.0	17. 0.0	19.50.0	22.40.0	25.30.0	28.20.0
35	2.55.0	5.50.0	8.45.0	11.40.0	14.35.0	17.30.0	20.25.0	23.20.0	26.15.0	29.10.0
36	3. 0.0	6. 0.0	9. 0.0	12. 0.0	15. 0.0	18. 0.0	21. 0.0	24. 0.0	27. 0.0	30. 0.0
37	3. 5.0	6.10.0	9.15.0	12.20.0	15.25.0	18.30.0	21.35.0	24.40.0	27.45.0	30.50.0
38	3.10.0	6.20.0	9.30.0	12.40.0	15.50.0	19. 0.0	22.10.0	25.20.0	28.30.0	31.40.0
39	3.15.0	6.30.0	9.45.0	13. 0.0	16.15.0	19.30.0	22.45.0	26. 0.0	29.15.0	32.30.0
40	3.20.0	6.40.0	10. 0.0	13.20.0	16.40.0	20. 0.0	23.20.0	26.40.0	30. 0.0	33.20.0
41	3.25.0	6.50.0	10.15.0	13.40.0	17. 5.0	20.30.0	23.55.0	27.20.0	30.45.0	34.10.0
42	3.30.0	7. 0.0	10.30.0	14. 0.0	17.30.0	21. 0.0	24.30.0	28. 0.0	31.30.0	35. 0.0
43	3.35.0	7.10.0	10.45.0	14.20.0	17.55.0	21.30.0	25. 5.0	28.40.0	32.15.0	35.50.0
44	3.40.0	7.20.0	11. 0.0	14.40.0	18.20.0	22. 0.0	25.40.0	29.20.0	33. 0.0	36.40.0
45	3.45.0	7.30.0	11.15.0	15. 0.0	18.45.0	22.30.0	26.15.0	30. 0.0	33.45.0	37.30.0
46	3.50.0	7.40.0	11.30.0	15.20.0	19.10.0	23. 0.0	26.50.0	30.40.0	34.30.0	38.20.0
47	3.55.0	7.50.0	11.45.0	15.40.0	19.35.0	23.30.0	27.25.0	31.20.0	35.15.0	39.10.0
48	4. 0.0	8. 0.0	12. 0.0	16. 0.0	20. 0.0	24. 0.0	28. 0.0	32. 0.0	36. 0.0	40. 0.0
49	4. 5.0	8.10.0	12.15.0	16.20.0	20.25.0	24.30.0	28.35.0	32.40.0	36.45.0	40.50.0
50	4.10.0	8.20.0	12.30.0	16.40.0	20.50.0	25. 0.0	29.10.0	33.20.0	37.30.0	41.40.0
51	4.15.0	8.30.0	12.45.0	17. 0.0	21.15.0	25.30.0	29.45.0	34. 0.0	38.15.0	42.30.0
52	4.20.0	8.40.0	13. 0.0	17.20.0	21.40.0	26. 0.0	30.20.0	34.40.0	39. 0.0	43.20.0
53	4.25.0	8.50.0	13.15.0	17.40.0	22. 5.0	26.30.0	30.55.0	35.20.0	39.45.0	44.10.0
54	4.30.0	9. 0.0	13.30.0	18. 0.0	22.30.0	27. 0.0	31.30.0	36. 0.0	40.30.0	45. 0.0
55	4.35.0	9.10.0	13.45.0	18.20.0	22.55.0	27.30.0	32. 5.0	36.40.0	41.15.0	45.50.0
56	4.40.0	9.20.0	14. 0.0	18.40.0	23.20.0	28. 0.0	32.40.0	37.20.0	42. 0.0	46.40.0
57	4.45.0	9.30.0	14.15.0	19. 0.0	23.45.0	28.30.0	33.15.0	38. 0.0	42.45.0	47.30.0
58	4.50.0	9.40.0	14.30.0	19.20.0	24.10.0	29. 0.0	33.50.0	38.40.0	43.30.0	48.20.0
59	4.55.0	9.50.0	14.45.0	19.40.0	24.35.0	29.30.0	34.25.0	39.20.0	44.15.0	49.10.0
	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°

Variation in 12 hours.

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EQUATION OF SECOND DIFFERENCE.

Apparent time past Noon, or Midnight	Second Difference of the Moon's place. 1″	2″	3″	4″	5″	6″	7″	8″	9″	10″	15″	20″	25″	30″	40″	50″	Apparent time past Noon, or Midnight
h. m.	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	h. m.
0. 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12. 0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	50
20	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.7	40
30	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.0	30
40	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.3	20
50	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.6	0.8	1.0	1.3	1.6	10
1. 0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.8	0.9	1.1	1.5	1.9	11. 0
10	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.7	0.9	1.1	1.3	1.8	2.2	50
20	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.7	1.0	1.2	1.6	2.0	2.5	40
30	0.0	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.8	1.1	1.4	1.6	2.2	2.7	30
40	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.9	1.2	1.5	1.8	2.4	3.0	20
50	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	1.0	1.3	1.6	1.9	2.6	3.2	10
2. 0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.7	1.0	1.4	1.7	2.1	2.8	3.5	10. 0
10	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.7	1.1	1.5	1.8	2.2	3.0	3.7	50
20	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	1.2	1.6	2.0	2.3	3.1	3.9	40
30	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	1.2	1.6	2.1	2.5	3.3	4.1	30
40	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.3	1.7	2.2	2.6	3.5	4.3	20
50	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.3	1.8	2.2	2.7	3.6	4.5	10
3. 0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9	1.4	1.9	2.3	2.8	3.8	4.7	9. 0
10	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.5	1.9	2.4	2.9	3.9	4.9	50
20	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.5	2.0	2.5	3.0	4.0	5.0	40
30	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.5	2.1	2.6	3.1	4.1	5.2	30
40	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.1	1.6	2.1	2.6	3.2	4.2	5.3	20
50	0.1	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.6	2.2	2.7	3.3	4.3	5.4	10
4. 0	0.1	0.2	0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.1	1.7	2.2	2.8	3.3	4.4	5.6	8. 0
20	0.1	0.2	0.3	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.7	2.3	2.9	3.5	4.6	5.8	40
40	0.1	0.2	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.8	2.4	3.0	3.6	4.8	5.9	20
5. 0	0.1	0.2	0.4	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.8	2.4	3.0	3.6	4.9	6.1	7. 0
6. 0	0.1	0.2	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.3	1.9	2.5	3.1	3.8	5.0	6.3	6. 0

App. time past noon or Midnight.	Second Difference of the Moon's place. 1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	12′	13′	14′	15′	20′	App. time past noon or Midnight.
h. m.	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	h. m.
0. 0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	12. 0
10	0. 0.4	0. 0.8	0. 1.2	0. 1.6	0. 2.1	0. 2.5	0. 2.9	0. 3.3	0. 3.7	0. 4.1	0. 4.5	0. 4.9	0. 5.3	0. 5.7	0. 6.1	0. 8.2	50
20	0. 0.8	0. 1.6	0. 2.4	0. 3.2	0. 4.1	0. 4.9	0. 5.7	0. 6.5	0. 7.3	0. 8.1	0. 8.9	0. 9.7	0.10.5	0.11.3	0.12.1	0.16.2	40
30	0. 1.2	0. 2.4	0. 3.6	0. 4.8	0. 6.0	0. 7.2	0. 8.4	0. 9.6	0.10.8	0.12.0	0.13.2	0.14.4	0.15.6	0.16.8	0.18.0	0.24.0	30
40	0. 1.6	0. 3.1	0. 4.7	0. 6.3	0. 7.9	0. 9.4	0.11.0	0.12.6	0.14.2	0.15.7	0.17.3	0.18.9	0.20.5	0.22.0	0.23.6	0.31.5	20
50	0. 1.9	0. 3.9	0. 5.8	0. 7.8	0. 9.7	0.11.6	0.13.6	0.15.5	0.17.4	0.19.4	0.21.3	0.23.3	0.25.2	0.27.2	0.29.1	0.38.8	10
1. 0	0. 2.3	0. 4.6	0. 6.9	0. 9.2	0.11.5	0.13.8	0.16.0	0.18.3	0.20.6	0.22.9	0.25.2	0.27.5	0.29.8	0.32.1	0.34.4	0.45.8	11. 0
10	0. 2.6	0. 5.3	0. 7.9	0.10.5	0.13.2	0.15.8	0.18.4	0.21.1	0.23.7	0.26.3	0.29.0	0.31.6	0.34.2	0.36.9	0.39.5	0.52.7	50
20	0. 3.0	0. 5.9	0. 8.9	0.11.9	0.14.8	0.17.8	0.20.7	0.23.7	0.26.7	0.29.6	0.32.6	0.35.6	0.38.6	0.41.5	0.44.5	0.59.3	40
30	0. 3.3	0. 6.6	0. 9.8	0.13.1	0.16.4	0.19.7	0.23.0	0.26.3	0.29.6	0.32.8	0.36.1	0.39.4	0.42.7	0.46.0	0.49.2	1. 5.6	30
40	0. 3.6	0. 7.2	0.10.8	0.14.4	0.17.9	0.21.5	0.25.1	0.28.7	0.32.3	0.35.9	0.39.5	0.43.1	0.46.7	0.50.3	0.53.9	1.11.8	20
50	0. 3.9	0. 7.8	0.11.6	0.15.5	0.19.4	0.23.3	0.27.2	0.31.1	0.34.9	0.38.8	0.42.7	0.46.6	0.50.5	0.54.4	0.58.2	1.17.7	10
2. 0	0. 4.2	0. 8.3	0.12.5	0.16.7	0.20.8	0.25.0	0.29.2	0.33.3	0.37.5	0.41.7	0.45.8	0.50.0	0.54.2	0.58.3	1. 2.5	1.25.3	10. 0
10	0. 4.4	0. 8.9	0.13.3	0.17.8	0.22.2	0.26.6	0.31.1	0.35.5	0.39.9	0.44.4	0.48.8	0.53.3	0.57.7	1. 2.2	1. 6.6	1.38.8	50
20	0. 4.7	0. 9.4	0.14.1	0.18.8	0.23.5	0.28.2	0.32.9	0.37.6	0.42.3	0.47.0	0.51.7	0.56.4	1. 1.1	1. 5.8	1.10.5	1.34.0	40
30	0. 4.9	0. 9.9	0.14.8	0.19.8	0.24.7	0.29.7	0.34.6	0.39.6	0.44.5	0.49.5	0.54.4	0.59.4	1. 4.3	1. 9.3	1.14.2	1.39.0	30
40	0. 5.2	0.10.4	0.15.6	0.20.7	0.25.9	0.31.1	0.36.3	0.41.5	0.46.7	0.51.9	0.57.0	1. 2.2	1. 7.4	1.12.6	1.17.8	1.43.7	20
50	0. 5.4	0.10.8	0.16.2	0.21.6	0.27.1	0.32.5	0.37.9	0.43.3	0.48.7	0.54.1	0.59.5	1. 4.9	1.10.3	1.15.7	1.21.1	1.48.2	10
3. 0	0. 5.6	0.11.3	0.16.9	0.22.5	0.28.1	0.33.8	0.39.4	0.45.0	0.50.6	0.56.3	1. 1.9	1. 7.5	1.13.1	1.18.8	1.24.4	1.52.5	9. 0
10	0. 5.8	0.11.7	0.17.5	0.23.3	0.29.1	0.35.0	0.40.8	0.46.6	0.52.4	0.58.3	1. 4.1	1. 9.9	1.15.7	1.21.6	1.27.4	1.56.6	50
20	0. 6.0	0.12.0	0.18.1	0.24.1	0.30.1	0.36.1	0.42.1	0.48.1	0.54.2	1. 0.2	1. 6.2	1.12.2	1.18.2	1.24.2	1.30.3	2. 0.4	40
30	0. 6.2	0.12.4	0.18.6	0.24.8	0.31.0	0.37.2	0.43.4	0.49.6	0.55.8	1. 2.0	1. 8.2	1.14.4	1.20.6	1.26.8	1.33.0	2. 4.0	30
40	0. 6.4	0.12.7	0.19.1	0.25.5	0.31.8	0.38.2	0.44.6	0.50.9	0.57.3	1. 3.7	1.10.0	1.16.4	1.22.8	1.29.1	1.35.5	2. 7.3	20
50	0. 6.5	0.13.0	0.19.6	0.26.1	0.32.6	0.39.1	0.45.7	0.52.2	0.58.7	1. 5.2	1.11.7	1.18.3	1.24.8	1.31.3	1.37.9	2.10.4	10
4. 0	0. 6.7	0.13.3	0.20.0	0.26.7	0.33.3	0.40.1	0.46.7	0.53.3	1. 0.0	1. 6.7	1.13.3	1.20.0	1.26.7	1.33.3	1.40.0	2.13.3	8. 0
20	0. 6.9	0.13.8	0.20.8	0.27.7	0.34.6	0.41.5	0.48.4	0.55.4	1. 2.3	1. 9.2	1.16.1	1.23.1	1.30.0	1.36.9	1.43.9	2.18.4	40
40	0. 7.1	0.14.3	0.21.4	0.28.5	0.35.6	0.42.8	0.49.9	0.57.0	1. 4.2	1.11.3	1.18.4	1.25.6	1.32.7	1.39.9	1.47.0	2.22.6	20
5. 0	0. 7.3	0.14.6	0.21.9	0.29.2	0.36.5	0.43.8	0.51.0	0.58.3	1. 5.6	1.12.9	1.20.2	1.27.5	1.34.8	1.42.1	1.49.4	2.25.8	7. 0
20	0. 7.4	0.14.8	0.22.2	0.29.6	0.37.0	0.44.4	0.51.9	0.59.3	1. 6.7	1.14.1	1.21.5	1.28.9	1.36.3	1.43.7	1.51.1	2.28.2	40
40	0. 7.5	0.15.0	0.22.4	0.29.9	0.37.4	0.44.9	0.52.3	0.59.8	1. 7.3	1.14.8	1.22.2	1.29.7	1.37.2	1.44.7	1.52.1	2.29.5	20
6. 0	0. 7.5	0.15.0	0.22.5	0.30.0	0.37.5	0.45.0	0.52.5	1. 0.0	1. 7.5	1.15.0	1.22.5	1.30.0	1.37.5	1.45.0	1.52.5	2.30.0	6. 0
Time past N. or Mid.	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	12′	13′	14′	15′	20′	Time past N. or Mid.

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.

Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
0	20. 0	21. 0	22. 0	23. 0	24. 0	25. 0	26. 0	27. 0	28. 0
10	21.38	22.38	23.38	24.38	25.38	26.38	27.38	28.38	29.38
20	23.10	24.10	25.10	26.10	27.10	28.10	29.10	30.10	31.10
30	24.37	25.37	26.37	27.37	28.37	29.37	30.37	31.37	32.37
40	26. 0	27. 0	28. 0	29. 0	30. 0	31. 0	32. 0	33. 0	34. 0
50	27.18	28.18	29.18	30.18	31.18	32.18	33.18	34.18	35.18
0	28.31	29.31	30.31	31.31	32.31	33.31	34.31	35.31	36.31
10	29.40	30.40	31.40	32.40	33.40	34.40	35.40	36.40	37.40
20	30.44	31.44	32.44	33.44	34.44	35.44	36.44	37.44	38.44
30	31.44	32.44	33.44	34.44	35.44	36.44	37.44	38.44	39.44
40	32.41	33.41	34.41	35.41	36.41	37.41	38.41	39.41	40.41
50	33.33	34.34	35.34	36.34	37.34	38.34	39.34	40.34	41.34
0	34.23	35.23	36.23	37.23	38.23	39.23	40.23	41.23	42.23
10	35.10	36.10	37.10	38.10	39.10	40. 9	41. 9	42. 9	43. 9
20	35.53	36.53	37.53	38.53	39.53	40.53	41.53	42.53	43.53
30	36.34	37.34	38.33	39.33	40.33	41.33	42.33	43.33	44.33
40	37.12	38.12	39.12	40.11	41.11	42.11	43.11	44.11	45.11
50	37.47	38.47	39.47	40.47	41.47	42.47	43.47	44.47	45.47
0	38.21	39.21	40.20	41.20	42.20	43.20	44.20	45.20	46.20
10	38.52	39.52	40.52	41.52	42.52	43.51	44.51	45.51	46.51
20	39.21	40.21	41.21	42.21	43.21	44.21	45.21	46.21	47.20
30	39.49	40.49	41.49	42.49	43.48	44.48	45.48	46.48	47.48
40	40.13	41.13	42.13	43.13	44.13	45.13	46.13	47.13	48.13
50	40.39	41.39	42.39	43.39	44.39	45.38	46.38	47.38	48.38
0	41. 2	42. 2	43. 2	44. 2	45. 1	46. 1	47. 1	48. 1	49. 1
10	41.24	42.24	43.23	44.23	45.23	46.23	47.23	48.23	49.22
20	41.44	42.44	43.44	44.44	45.43	46.43	47.43	48.43	49.43
30	42. 3	43. 3	44. 3	45. 3	46. 3	47. 2	48. 2	49. 2	50. 2
40	42.21	43.21	44.21	45.21	46.21	47.21	48.20	49.20	50.20
50	42.39	43.39	44.38	45.38	46.38	47.38	48.37	49.37	50.37
0	42.55	43.55	44.54	45.54	46.54	47.54	48.54	49.53	50.53
10	43.10	44.10	45.10	46.10	47. 9	48. 9	49. 9	50. 9	51. 8
20	43.23	44.23	45.23	46.23	47.23	48.23	49.23	50.23	51.23
30	43.37	44.37	45.37	46.37	47.37	48.37	49.37	50.37	51.36
40	43.51	44.51	45.51	46.51	47.51	48.50	49.50	50.50	51.49
50	44. 3	45. 3	46. 3	47. 3	48. 3	49. 3	50. 2	51. 2	52. 2
6 0	44.15	45.15	46.15	47.15	48.15	49.14	50.14	51.14	52.13
10	44.27	45.27	46.26	47.26	48.26	49.25	50.25	51.25	52.24
20	44.38	45.37	46.37	47.37	48.36	49.36	50.35	51.35	52.35
30	44.49	45.48	46.48	47.47	48.46	49.46	50.45	51.45	52.45
40	44.58	45.57	46.57	47.56	48.56	49.55	50.55	51.55	52.54
50	45. 7	46. 6	47. 6	48. 5	49. 5	50. 4	51. 4	52. 4	53. 3
7 0	45.16	46.15	47.14	48.14	49.13	50.13	51.13	52.12	53.12
10	45.24	46.23	47.22	48.22	49.21	50.21	51.21	52.20	53.20
20	45.32	46.31	47.30	48.30	49.29	50.29	51.28	52.28	53.27
30	45.40	46.39	47.38	48.37	49.37	50.36	51.36	52.35	53.35
40	45.47	46.46	47.45	48.44	49.44	50.43	51.43	52.42	53.42
50	45.53	46.52	47.52	48.51	49.51	50.50	51.49	52.49	53.48
8 0	46. 0	46.59	47.58	48.58	49.57	50.56	51.56	52.55	53.55
10	46. 6	47. 5	48. 4	49. 4	50. 3	51. 2	52. 2	53. 1	54. 1
20	46.11	47.11	48.10	49. 9	50. 9	51. 8	52. 8	53. 7	54. 6
30	46.17	47.16	48.16	49.15	50.14	51.14	52.13	53.12	54.12
40	46.23	47.22	48.21	49.20	50.20	51.19	52.18	53.17	54.17
50	46.28	47.27	48.26	49.25	50.25	51.24	52.23	53.22	54.22
9 0	46.33	47.32	48.31	49.30	50.29	51.29	52.28	53.27	54.26
10	46.37	47.36	48.35	49.35	50.34	51.33	52.32	53.31	54.31
20	46.41	47.40	48.40	49.39	50.38	51.37	52.36	53.36	54.35
30	46.45	47.45	48.44	49.43	50.42	51.41	52.40	53.40	54.39
40	46.49	47.48	48.47	49.47	50.46	51.45	52.44	53.43	54.43
50	46.53	47.52	48.51	49.50	50.50	51.49	52.48	53.47	54.46
	53′	54′	55′	56′	57′	58′	59′	60′	61′

Moon's Horizontal Parallax.

Proportional p

Seconds of Paralla

″	0″	1″	2″	3″	4″	5″	6″
	″	″	″	″	″	″	″
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	31	32	33	34	35	36
40	40	41	42	43	44	45	46
50	50	51	52	53	54	55	56
0	0	1	2	3	4	5	6
10	10	11	12	13	14	15	16
20	20	21	22	23	24	25	26
30	30	30	31	32	33	34	35
40	39	40	41	42	43	44	45
50	49	50	51	52	53	54	55
″	0″	1″	2″	3″	4″	5″	6″

Seconds of Parall

Proportional p

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
°	′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
10	0	46. 57	47. 56	48. 55	49. 54	50. 53	51. 52	52. 51	53. 50	54. 49
	10	47. 0	47. 59	48. 58	49. 57	50. 56	51. 55	52. 54	53. 53	54. 52
	20	47. 3	48. 2	49. 1	50. 0	50. 59	51. 58	52. 57	53. 56	54. 55
	30	47. 6	48. 5	49. 4	50. 3	51. 2	52. 1	53. 0	53. 59	54. 58
	40	47. 9	48. 8	49. 7	50. 6	51. 5	52. 4	53. 3	54. 2	55. 1
	50	47. 12	48. 11	49. 10	50. 9	51. 8	52. 7	53. 6	54. 4	55. 3
11	0	47. 14	48. 13	49. 12	50. 11	51. 10	52. 9	53. 8	54. 7	55. 6
	10	47. 17	48. 16	49. 15	50. 14	51. 12	52. 11	53. 10	54. 9	55. 8
	20	47. 19	48. 18	49. 17	50. 16	51. 15	52. 13	53. 12	54. 11	55. 10
	30	47. 22	48. 21	49. 20	50. 19	51. 17	52. 16	53. 15	54. 14	55. 13
	40	47. 23	48. 22	49. 21	50. 20	51. 19	52. 17	53. 16	54. 15	55. 14
	50	47. 25	48. 24	49. 23	50. 22	51. 20	52. 19	53. 18	54. 16	55. 15
12	0	47. 27	48. 26	49. 25	50. 23	51. 22	52. 21	53. 19	54. 18	55. 17
	10	47. 29	48. 27	49. 26	50. 25	51. 23	52. 22	53. 21	54. 19	55. 18
	20	47. 31	48. 29	49. 28	50. 26	51. 25	52. 23	53. 22	54. 21	55. 19
	30	47. 32	48. 30	49. 29	50. 27	51. 26	52. 25	53. 23	54. 22	55. 20
	40	47. 34	48. 32	49. 30	50. 29	51. 27	52. 26	53. 24	54. 23	55. 21
	50	47. 35	48. 33	49. 31	50. 30	51. 28	52. 27	53. 25	54. 24	55. 22
13	0	47. 35	48. 34	49. 32	50. 31	51. 29	52. 28	53. 26	54. 25	55. 23
	10	47. 36	48. 35	49. 33	50. 32	51. 30	52. 28	53. 27	54. 25	55. 24
	20	47. 37	48. 36	49. 34	50. 32	51. 31	52. 29	53. 28	54. 26	55. 24
	30	47. 38	48. 36	49. 35	50. 33	51. 31	52. 30	53. 28	54. 26	55. 25
	40	47. 39	48. 37	49. 35	50. 34	51. 32	52. 30	53. 29	54. 27	55. 25
	50	47. 40	48. 38	49. 36	50. 34	51. 32	52. 31	53. 29	54. 27	55. 25
14	0	47. 40	48. 38	49. 36	50. 35	51. 33	52. 31	53. 29	54. 27	55. 26
	10	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 29	54. 28	55. 26
	20	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 30	54. 28	55. 26
	30	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 30	54. 28	55. 26
	40	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 30	54. 28	55. 26
	50	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 29	54. 27	55. 25
15	0	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 29	54. 27	55. 25
	10	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 29	54. 27	55. 25
	20	47. 41	48. 39	49. 37	50. 35	51. 33	52. 31	53. 28	54. 26	55. 24
	30	47. 41	48. 39	49. 37	50. 34	51. 32	52. 30	53. 28	54. 26	55. 24
	40	47. 41	48. 39	49. 36	50. 34	51. 32	52. 30	53. 27	54. 25	55. 23
	50	47. 40	48. 38	49. 36	50. 34	51. 31	52. 29	53. 27	54. 24	55. 22
16	0	47. 40	48. 38	49. 35	50. 33	51. 31	52. 28	53. 26	54. 24	55. 21
	10	47. 40	48. 37	49. 35	50. 32	51. 30	52. 28	53. 25	54. 23	55. 21
	20	47. 39	48. 37	49. 34	50. 32	51. 29	52. 27	53. 25	54. 22	55. 20
	30	47. 39	48. 36	49. 33	50. 31	51. 29	52. 26	53. 24	54. 21	55. 19
	40	47. 39	48. 35	49. 33	50. 30	51. 28	52. 25	53. 23	54. 20	55. 18
	50	47. 38	48. 34	49. 32	50. 29	51. 27	52. 24	53. 22	54. 19	55. 16
17	0	47. 37	48. 34	49. 31	50. 29	51. 26	52. 23	53. 21	54. 18	55. 15
	10	47. 35	48. 33	49. 30	50. 27	51. 25	52. 22	53. 19	54. 17	55. 14
	20	47. 34	48. 32	49. 29	50. 26	51. 24	52. 21	53. 18	54. 15	55. 13
	30	47. 34	48. 31	49. 28	50. 25	51. 22	52. 20	53. 17	54. 14	55. 11
	40	47. 33	48. 30	49. 27	50. 24	51. 21	52. 18	53. 16	54. 13	55. 10
	50	47. 32	48. 29	49. 26	50. 23	51. 20	52. 17	53. 14	54. 11	55. 8
18	0	47. 30	48. 27	49. 24	50. 22	51. 19	52. 16	53. 13	54. 10	55. 7
	10	47. 30	48. 26	49. 23	50. 20	51. 17	52. 14	53. 11	54. 8	55. 5
	20	47. 28	48. 25	49. 22	50. 19	51. 16	52. 13	53. 10	54. 7	55. 4
	30	47. 26	48. 23	49. 20	50. 17	51. 14	52. 11	53. 8	54. 5	55. 2
	40	47. 25	48. 22	49. 19	50. 16	51. 13	52. 9	53. 6	54. 3	55. 0
	50	47. 24	48. 21	49. 17	50. 14	51. 11	52. 8	53. 5	54. 1	54. 58
19	0	47. 23	48. 19	49. 16	50. 13	51. 9	52. 6	53. 3	54. 0	54. 56
	10	47. 21	48. 18	49. 14	50. 11	51. 8	52. 4	53. 1	53. 58	54. 54
	20	47. 20	48. 16	49. 13	50. 9	51. 6	52. 2	52. 59	53. 56	54. 52
	30	47. 18	48. 14	49. 11	50. 7	51. 4	52. 1	52. 57	53. 54	54. 50
	40	47. 16	48. 13	49. 9	50. 6	51. 2	51. 59	52. 55	53. 52	54. 48
	50	47. 14	48. 11	49. 7	50. 4	51. 0	51. 57	52. 53	53. 49	54. 46
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
″	″	″	″	″	″	″	″	″	″	″
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	55	56	57	58
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	47	48	49	50	51	52	53	54	55	56
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
	Seconds of Parallax.									
	Proportional parts to									

Minutes of Altitude

Add. 1′ = 0″ 2. 0 3. 1 4. 1 5. 1 6. 1 7. 2 8. 2 9. 2

Add. 1′ = 0″ 2. 0 3. 0 4. 0 5. 0 6. 1 7. 1 8. 1 9. 1

Subt. 1′ = 0″ 2. 0 3. 0 4. 0 5. 0 6. 0 7. 0 8. 0 9. 0

Subt. 1′ = 0″ 2. 0 3. 0 4. 0 5. 0 6. 1 7. 1 8. 1 9. 1

Subt. 1′ = 0″ 2. 0 3. 1 4. 1 5. 1 6. 1 7. 1 8. 2 9. 2

Minutes of Altitude

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
° ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
20 0	47.13	48. 9	49. 5	50. 2	50.58	51.55	52.51	53.47	54.44
10	47.11	48. 7	49. 3	50. 0	50.56	51.52	52.49	53.45	54.41
20	47.10	48. 5	49. 1	49.58	50.54	51.50	52.46	53.43	54.39
30	47. 8	48. 3	48.59	49.56	50.52	51.48	52.44	53.40	54.37
40	47. 6	48. 1	48.57	49.53	50.50	51.46	52.42	53.38	54.34
50	47. 4	47.59	48.55	49.51	50.47	51.44	52.40	53.36	54.32
21 0	47. 2	47.57	48.53	49.49	50.45	51.41	52.37	53.33	54.29
10	47. 0	47.55	48.51	49.47	50.43	51.39	52.35	53.31	54.27
20	46.57	47.53	48.49	49.45	50.40	51.36	52.32	53.28	54.24
30	46.55	47.51	48.46	49.42	50.38	51.34	52.30	53.26	54.21
40	46.53	47.48	48.44	49.40	50.36	51.31	52.27	53.23	54.19
50	46.51	47.46	48.42	49.37	50.33	51.29	52.25	53.20	54.16
22 0	46.49	47.44	48.39	49.35	50.31	51.26	52.22	53.18	54.13
10	46.46	47.41	48.37	49.32	50.28	51.24	52.19	53.15	54.10
20	46.43	47.39	48.34	49.30	50.25	51.21	52.16	53.12	54. 7
30	46.41	47.36	48.32	49.27	50.23	51.18	52.14	53. 9	54. 4
40	46.39	47.34	48.29	49.25	50.20	51.15	52 11	53. 6	54. 1
50	46.36	47.31	48.27	49.22	50.17	51.13	52. 8	53. 3	53.58
23 0	46.33	47.29	48.24	49.19	50.14	51.10	52. 5	53. 0	53.55
10	46.30	47.26	48.21	49.16	50.12	51. 7	52. 2	52.57	53.52
20	46.27	47.23	48.19	49.14	50. 9	51. 4	51.59	52.54	53.49
30	46.25	47.21	48.16	49.11	50. 6	51. 1	51.56	52.51	53.46
40	46.22	47.18	48.13	49. 8	50. 3	50.58	51.53	52.48	53.43
50	46.20	47.15	48.10	49. 5	50. 0	50.55	51.50	52.44	53.39
24 0	46.17	47.12	48. 7	49. 2	49.57	50.52	51.47	52.41	53.36
10	46.14	47.10	48. 4	48.59	49.54	50.48	51.43	52.38	53.33
20	46.11	47. 7	48. 1	48.56	49.51	50.45	51.40	52.35	53.29
30	46. 8	47. 4	47.58	48.53	49.47	50.42	51.37	52.31	53.26
40	46. 5	47. 1	47.55	48.50	49.44	50.39	51.33	52.28	53.22
50	46. 3	46.58	47.52	48.47	49.41	50.35	51.30	52.24	53.19
25 0	46. 0	46.55	47.49	48.43	49.38	50.32	51.27	52.21	53.15
10	45.57	46.52	47.46	48.40	49.34	50.29	51.23	52.17	53.12
20	45.54	46.48	47.43	48.37	49.31	50.25	51.20	52.14	53. 8
30	45.51	46.45	47.39	48.34	49.28	50.22	51.16	52.10	53. 4
40	45.48	46.42	47.36	48.30	49.24	50.18	51.13	52. 7	53. 1
50	45.45	46.39	47.33	48.27	49.21	50.15	51. 9	52. 3	52.57
26 0	45.42	46.36	47.30	48.23	49.17	50.11	51. 5	51.59	52.53
10	45.39	46.32	47.26	48.20	49.14	50. 8	51. 2	51.55	52.49
20	45.35	46.29	47.23	48.17	49.10	50. 4	50.58	51.52	52.45
30	45.32	46.26	47.19	48.13	49. 7	50. 0	50.54	51.48	52.41
40	45.29	46.22	47.16	48. 9	49. 3	49.57	50.50	51.44	52.38
50	45.26	46.19	47.12	48. 6	48.59	49.53	50.46	51.40	52.34
27 0	45.22	46.15	47. 9	48. 2	48.56	49.49	50.43	51.36	52.30
10	45.19	46.12	47. 5	47.59	48.52	49.45	50.39	51.32	52.26
20	45.15	46. 8	47. 2	47.55	48.48	49.42	50.35	51.28	52.21
30	45.12	46. 5	46.58	47.51	48.44	49.38	50.31	51.24	52.17
40	45. 8	46. 1	46.54	47.47	48.40	49.34	50.27	51.20	52.13
50	45. 4	45.58	46.51	47.44	48.37	49.30	50.23	51.16	52. 9
28 0	45. 1	45.54	46.47	47.40	48.33	49.26	50.19	51.12	52. 5
10	44.57	45.50	46.43	47.36	48.29	49.22	50.15	51. 8	52. 0
20	44.53	45.46	46.39	47.32	48.25	49.18	50.10	51. 4	51.56
30	44.50	45.43	46.35	47.28	48.21	49.14	50. 6	50.59	51.52
40	44.46	45.39	46.32	47.24	48.17	49. 9	50. 2	50.55	51.47
50	44.42	45.35	46.28	47.20	48.13	49. 5	49.58	50.50	51.43
29 0	44.39	45.31	46.24	47.16	48. 9	49. 1	49.54	50.46	51.39
10	44.35	45.27	46.20	47.12	48. 5	48.57	49.49	50.42	51.34
20	44.31	45.23	46.16	47. 8	48. 0	48.53	49.45	50.37	51.30
30	44.28	45.19	46.12	47. 4	47.56	48.48	49.41	50.33	51.25
40	44.24	45.15	46. 8	47. 0	47.52	48.44	49.36	50.28	51.20
50	44.20	45.11	46. 4	46.56	47.48	48.40	49.32	50.24	51.16
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′
	Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax.	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	″	″	″	″	″	″	″	″	″	″	
0	0	1	2	3	4	5	6	7	7	8	
10	9	10	11	12	13	14	15	16	17	18	Subt.
20	19	20	20	21	22	23	24	25	26	27	1′ = 0″
30	28	29	30	31	32	33	34	35	36	37	2. 0
40	37	38	39	40	41	42	43	44	45	46	3. 1
50	47	48	49	50	50	51	52	53	54	55	4. 1
0	0	1	2	3	4	5	6	7	7	8	5. 1
10	9	10	11	12	13	14	15	16	17	18	6. 1
20	19	20	20	21	22	23	24	25	26	27	7. 2
30	28	29	30	31	32	33	34	35	36	37	8. 2
40	37	38	39	40	41	42	43	44	45	46	9. 2
50	47	47	48	49	50	51	52	53	54	55	
0	0	1	2	3	4	5	6	6	7	8	
10	9	10	11	12	13	14	15	16	17	17	Subt.
20	18	19	20	21	22	23	24	25	26	27	1′ = 0″
30	28	29	29	30	31	32	33	34	35	36	2. 1
40	37	38	39	40	40	41	42	43	44	45	3. 1
50	46	47	48	49	50	51	52	52	53	54	4. 1
0	0	1	2	3	4	5	5	6	7	8	5. 1
10	9	10	11	12	13	14	15	15	16	17	6. 2
20	18	19	20	21	22	23	24	25	26	7. 2
30	27	28	29	30	31	32	33	34	35	8. 2
40	36	37	38	39	40	41	42	43	44	45	9. 3
50	45	46	47	48	49	50	51	52	53	54	
0	0	1	2	3	4	5	5	6	7	8	
10	9	10	11	12	13	14	14	15	16	17	Subt.
20	18	19	20	21	22	23	23	24	25	26	1′ = 0″
30	27	28	29	30	31	32	32	33	34	35	2. 1
40	36	37	38	39	40	41	41	42	43	44	3. 1
50	45	46	47	48	49	50	50	51	52	53	4. 1
0	0	1	2	3	4	5	5	6	7	8	5. 2
10	9	10	11	12	13	14	14	15	16	17	6. 2
20	18	19	20	21	22	23	23	24	25	26	7. 2
30	27	28	29	30	31	32	32	33	34	35	8. 3
40	36	37	38	39	40	41	41	42	43	44	9. 3
50	45	46	47	48	49	50	50	51	52	53	
0	0	1	2	3	4	4	5	6	7	8	
10	9	10	11	12	12	13	14	15	16	17	Subt.
20	18	19	20	20	21	22	23	24	25	26	1′ = 0″
30	27	28	28	29	30	31	32	33	34	35	2. 1
40	36	36	37	38	39	40	41	42	43	44	3. 1
50	45	45	46	47	48	49	50	51	52	53	4. 1
0	0	1	2	3	4	4	5	6	7	8	5. 2
10	9	10	11	12	12	13	14	15	16	17	6. 2
20	18	19	20	20	21	22	23	24	25	26	7. 3
30	27	27	28	29	30	31	32	33	34	35	8. 3
40	35	36	37	38	39	40	41	42	43	43	9. 3
50	44	45	46	47	48	49	50	51	51	52	
0	0	1	2	3	4	4	5	6	7	8	
10	9	10	11	11	12	13	14	15	16	17	Subt.
20	18	18	19	20	21	22	23	24	25	25	1′ = 0″
30	26	27	28	29	30	31	32	32	33	34	2. 1
40	35	36	37	38	39	40	40	41	42	43	3. 1
50	44	45	46	47	47	48	49	50	51	52	4. 2
0	0	1	2	3	4	4	5	6	7	8	5. 2
10	9	10	10	11	12	13	14	15	16	17	6. 2
20	17	18	19	20	21	22	23	23	24	25	7. 3
30	26	27	28	29	30	30	31	32	33	34	8. 3
40	35	36	37	37	38	39	40	41	42	43	9. 4
50	44	44	45	46	47	48	49	50	50	51	
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Seconds of Parallax.										
	Proportional parts to										

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
°	′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
30	0	44. 16	45. 7	45. 59	46. 51	47. 43	48. 35	49. 27	50. 19	51. 11
	10	44. 12	45. 3	45. 55	46. 47	47. 39	48. 31	49. 23	50. 15	51. 7
	20	44. 8	44. 59	45. 51	46. 43	47. 35	48. 26	49. 18	50. 10	51. 2
	30	44. 4	44. 55	45. 47	46. 39	47. 30	48. 22	49. 14	50. 5	50. 57
	40	44. 0	44. 51	45. 43	46. 34	47. 26	48. 17	49. 9	50. 1	50. 52
	50	43. 55	44. 47	45. 38	46. 30	47. 21	48. 13	49. 4	49. 56	50. 47
31	0	43. 51	44. 43	45. 34	46. 25	47. 17	48. 8	49. 0	49. 51	50. 43
	10	43. 47	44. 38	45. 30	46. 21	47. 12	48. 4	48. 55	49. 46	50. 38
	20	43. 43	44. 34	45. 25	46. 17	47. 8	47. 59	48. 50	49. 42	50. 33
	30	43. 39	44. 30	45. 21	46. 12	47. 3	47. 54	48. 46	49. 37	50. 28
	40	43. 35	44. 25	45. 16	46. 8	46. 59	47. 50	48. 41	49. 32	50. 23
	50	43. 30	44. 21	45. 12	46. 3	46. 54	47. 45	48. 36	49. 27	50. 18
32	0	43. 25	44. 17	45. 8	45. 58	46. 49	47. 40	48. 31	49. 22	50. 13
	10	43. 21	44. 12	45. 3	45. 54	46. 45	47. 35	48. 26	49. 17	50. 8
	20	43. 17	44. 8	44. 58	45. 49	46. 40	47. 31	48. 21	49. 12	50. 3
	30	43. 13	44. 3	44. 54	45. 45	46. 35	47. 26	48. 16	49. 7	49. 58
	40	43. 8	43. 59	44. 49	45. 40	46. 30	47. 21	48. 11	49. 2	49. 52
	50	43. 4	43. 54	44. 45	45. 35	46. 26	47. 16	48. 6	48. 57	49. 47
33	0	43. 0	43. 50	44. 40	45. 30	46. 21	47. 11	48. 1	48. 52	49. 42
	10	42. 56	43. 45	44. 35	45. 26	46. 16	47. 6	47. 56	48. 46	49. 37
	20	42. 51	43. 40	44. 31	45. 21	46. 11	47. 1	47. 51	48. 41	49. 31
	30	42. 46	43. 36	44. 26	45. 16	46. 6	46. 56	47. 46	48. 36	49. 26
	40	42. 42	43. 31	44. 21	45. 11	46. 1	46. 51	47. 41	48. 31	49. 21
	50	42. 37	43. 26	44. 16	45. 6	45. 56	46. 46	47. 36	48. 26	49. 15
34	0	42. 32	43. 22	44. 12	45. 1	45. 51	46. 41	47. 30	48. 20	49. 10
	10	42. 27	43. 17	44. 7	44. 56	45. 46	46. 36	47. 25	48. 15	49. 5
	20	42. 22	43. 12	44. 2	44. 51	45. 41	46. 30	47. 20	48. 9	48. 59
	30	42. 18	43. 7	43. 57	44. 46	45. 36	46. 25	47. 15	48. 4	48. 54
	40	42. 14	43. 3	43. 52	44. 41	45. 31	46. 20	47. 9	47. 59	48. 48
	50	42. 9	42. 58	43. 47	44. 36	45. 25	46. 15	47. 4	47. 53	48. 42
35	0	42. 4	42. 53	43. 42	44. 31	45. 20	46. 9	46. 59	47. 48	48. 37
	10	41. 59	42. 48	43. 37	44. 26	45. 15	46. 4	46. 53	47. 42	48. 31
	20	41. 55	42. 43	43. 32	44. 21	45. 10	45. 59	46. 48	47. 37	48. 26
	30	41. 50	42. 38	43. 27	44. 16	45. 5	45. 53	46. 42	47. 31	48. 20
	40	41. 45	42. 33	43. 22	44. 10	44. 59	45. 48	46. 37	47. 26	48. 14
	50	41. 40	42. 28	43. 17	44. 5	44. 54	45. 43	46. 31	47. 20	48. 8
36	0	41. 35	42. 23	43. 11	44. 0	44. 49	45. 37	46. 26	47. 14	48. 3
	10	41. 30	42. 18	43. 6	43. 55	44. 43	45. 32	46. 20	47. 8	47. 57
	20	41. 25	42. 13	43. 1	43. 49	44. 38	45. 26	46. 14	47. 3	47. 51
	30	41. 20	42. 8	42. 56	43. 44	44. 32	45. 21	46. 9	46. 57	47. 45
	40	41. 14	42. 2	42. 51	43. 39	44. 27	45. 15	46. 3	46. 51	47. 39
	50	41. 9	41. 57	42. 45	43. 33	44. 21	45. 9	45. 57	46. 45	47. 33
37	0	41. 4	41. 52	42. 40	43. 28	44. 16	45. 3	45. 52	46. 40	47. 28
	10	40. 59	41. 47	42. 35	43. 22	44. 10	44. 58	45. 46	46. 34	47. 22
	20	40. 54	41. 42	42. 29	43. 17	44. 5	44. 52	45. 40	46. 28	47. 16
	30	40. 49	41. 36	42. 24	43. 11	43. 59	44. 47	45. 34	46. 22	47. 9
	40	40. 43	41. 31	42. 18	43. 6	43. 53	44. 41	45. 28	46. 16	47. 3
	50	40. 38	41. 26	42. 13	43. 0	43. 48	44. 35	45. 23	46. 10	46. 57
38	0	40. 33	41. 20	42. 8	42. 55	43. 42	44. 29	45. 17	46. 4	46. 51
	10	40. 27	41. 15	42. 2	42. 49	43. 36	44. 24	45. 11	45. 58	46. 45
	20	40. 22	41. 10	41. 57	42. 44	43. 31	44. 18	45. 5	45. 52	46. 39
	30	40. 17	41. 4	41. 51	42. 38	43. 25	44. 12	44. 59	45. 46	46. 33
	40	40. 12	40. 59	41. 45	42. 32	43. 19	44. 6	44. 53	45. 40	46. 27
	50	40. 7	40. 53	41. 40	42. 27	43. 13	44. 0	44. 47	45. 34	46. 20
39	0	40. 2	40. 48	41. 34	42. 21	43. 8	43. 54	44. 41	45. 27	46. 14
	10	39. 56	40. 42	41. 29	42. 15	43. 2	43. 48	44. 35	45. 21	46. 8
	20	39. 50	40. 37	41. 23	42. 9	42. 56	43. 42	44. 29	45. 15	46. 1
	30	39. 45	40. 31	41. 17	42. 4	42. 50	43. 36	44. 22	45. 9	45. 55
	40	39. 39	40. 25	41. 12	41. 58	42. 44	43. 30	44. 16	45. 3	45. 49
	50	39. 34	40. 20	41. 6	41. 52	42. 38	43. 24	44. 10	44. 56	45. 42
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. ″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	″	″	″	″	″	″	″	″	″	″	
0	0	1	2	3	3	4	5	6	7	8	
10	9	9	10	11	12	13	14	15	16	16	Subt.
20	17	18	19	20	21	22	22	23	24	25	1′ = 0″
30	26	27	28	28	29	30	31	32	33	34	2. 1
40	34	35	36	37	38	39	40	41	41	42	3. 1
50	43	44	45	46	47	47	48	49	50	51	4. 2
0	0	1	2	3	3	4	5	6	7	8	5. 2
10	9	9	10	11	12	13	14	15	15	16	6. 3
20	17	18	19	20	20	21	22	23	24	25	7. 3
30	26	26	27	28	29	30	31	32	32	33	8. 4
40	34	35	36	37	38	38	39	40	41	42	9. 4
50	43	44	44	45	46	47	48	49	49	50	
0	0	1	2	3	3	4	5	6	7	8	
10	8	9	10	11	12	13	13	14	15	16	Subt.
20	17	18	19	19	20	21	22	23	24	24	1′ = 0″
30	25	26	27	28	28	29	30	31	32	33	2. 1
40	33	34	35	36	37	38	38	39	40	41	3. 1
50	42	43	44	45	46	47	47	48	49	50	4. 2
0	0	1	2	3	3	4	5	6	7	8	5. 2
10	8	9	10	11	12	13	13	14	15	16	6. 3
20	17	18	18	19	20	21	22	23	24	25	7. 3
30	25	26	27	28	28	29	30	31	32	33	8. 4
40	33	34	35	36	37	38	38	39	40	41	9. 4
50	42	43	43	44	45	46	46	47	48	49	
0	0	1	2	2	3	4	5	6	7	7	
10	8	9	10	11	12	12	13	14	15	16	Subt.
20	16	17	18	19	20	21	21	22	23	24	1′ = 1″
30	25	26	26	27	28	29	30	30	31	32	2. 1
40	33	34	35	35	36	37	38	39	40	40	3. 2
50	41	42	43	44	44	45	46	47	48	49	4. 2
0	0	1	2	2	3	4	5	6	7	7	5. 3
10	8	9	10	11	11	12	13	14	15	15	6. 3
20	16	17	18	19	20	20	21	22	23	24	7. 4
30	24	25	26	27	28	28	29	30	31	32	8. 4
40	33	33	34	35	36	37	37	38	39	40	9. 5
50	41	42	42	43	44	45	46	46	47	48	
0	0	1	2	2	3	4	5	6	6	7	
10	8	9	10	10	11	12	13	14	14	15	Subt.
20	16	17	18	18	19	20	21	22	23	23	1′ = 1″
30	24	25	26	27	27	28	29	30	31	31	2. 1
40	32	33	34	35	35	36	37	38	39	39	3. 2
50	40	41	42	43	43	44	45	46	47	47	4. 2
0	0	1	2	2	3	4	5	6	6	7	5. 3
10	8	9	10	10	11	12	13	13	14	15	6. 3
20	16	17	17	18	19	20	21	22	22	23	7. 4
30	24	25	25	26	27	28	29	29	30	31	8. 4
40	32	33	33	34	35	36	36	37	38	39	9. 5
50	40	40	41	42	43	44	44	45	46	47	
0	0	1	2	2	3	4	5	5	6	7	
10	8	9	9	10	11	12	13	13	14	15	Subt.
20	16	16	17	18	19	20	20	21	22	23	1′ = 1″
30	23	24	25	26	27	27	28	29	30	31	2. 1
40	31	32	33	34	34	35	36	37	38	38	3. 2
50	39	40	41	41	42	43	44	45	45	46	4. 2
0	0	1	2	2	3	4	5	5	6	7	5. 3
10	8	9	9	10	11	12	12	13	14	15	6. 3
20	15	16	17	18	19	19	20	21	22	23	7. 4
30	23	24	25	25	26	27	28	29	29	30	8. 5
40	31	32	32	33	34	35	36	36	37	38	9. 5
50	39	39	40	41	42	42	43	44	45	46	
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
Seconds of Parallax. Proportional parts to											

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional parts to Seconds of Parallax. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
° ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
40 0	39. 28	40. 14	41. 0	41. 46	42. 32	43. 18	44. 4	44. 50	45. 36	0	0	1	1	2	3	4	5	5	6	7
10	39. 22	40. 8	40. 54	41. 40	42. 26	43. 12	43. 58	44. 44	45. 29	10	8	8	9	10	11	11	12	13	14	14
20	39. 17	40. 3	40. 49	41. 34	42. 20	43. 6	43. 51	44. 37	45. 22	20	15	16	17	17	18	19	20	21	21	22
30	39. 11	39. 57	40. 43	41. 28	42. 14	43. 0	43. 45	44. 31	45. 16	30	23	24	24	25	26	27	27	28	29	30
40	39. 6	39. 51	40. 37	41. 22	42. 8	42. 53	43. 39	44. 24	45. 10	40	30	31	32	33	33	34	35	36	36	37
50	39. 1	39. 46	40. 31	41. 16	42. 2	42. 47	43. 33	44. 18	45. 3	50	38	39	40	40	41	42	43	43	44	45
41 0	38. 55	39. 40	40. 25	41. 10	41. 56	42. 41	43. 26	44. 11	44. 57	0	0	1	1	2	3	4	4	5	6	7
10	38. 49	39. 34	40. 19	41. 4	41. 49	42. 35	43. 20	44. 5	44. 50	10	7	8	9	10	10	11	12	13	13	14
20	38. 44	39. 28	40. 13	40. 58	41. 43	42. 28	43. 13	43. 58	44. 43	20	15	16	16	17	18	19	19	20	21	22
30	38. 38	39. 22	40. 7	40. 52	41. 37	42. 22	43. 7	43. 52	44. 37	30	22	23	24	25	25	26	27	28	28	29
40	38. 32	39. 16	40. 1	40. 46	41. 31	42. 16	43. 1	43. 45	44. 30	40	30	31	31	32	33	34	34	35	36	37
50	38. 26	39. 10	39. 55	40. 40	41. 25	42. 9	42. 54	43. 39	44. 23	50	37	38	39	40	40	41	42	43	43	44
42 0	38. 20	39. 5	39. 49	40. 34	41. 18	42. 3	42. 47	43. 32	44. 17	0	0	1	1	2	3	4	4	5	6	7
10	38. 14	38. 59	39. 43	40. 28	41. 12	41. 57	42. 41	43. 25	44. 10	10	7	8	9	10	10	11	12	13	13	14
20	38. 9	38. 53	39. 37	40. 21	41. 6	41. 50	42. 34	43. 19	44. 3	20	15	15	16	17	18	18	19	20	21	21
30	38. 3	38. 47	39. 31	40. 15	40. 59	41. 44	42. 28	43. 12	43. 56	30	22	23	24	24	25	26	27	27	28	29
40	37. 57	38. 41	39. 25	40. 9	40. 53	41. 37	42. 21	43. 5	43. 49	40	29	30	31	32	32	33	34	35	35	36
50	37. 51	38. 35	39. 19	40. 3	40. 47	41. 31	42. 15	42. 59	43. 43	50	37	38	38	39	40	41	41	42	43	43
43 0	37. 45	38. 29	39. 12	39. 56	40. 40	41. 24	42. 8	42. 52	43. 36	0	0	1	1	2	3	4	4	5	6	7
10	37. 39	38. 22	39. 6	39. 50	40. 34	41. 18	42. 1	42. 45	43. 29	10	7	8	9	9	10	11	12	12	13	14
20	37. 33	38. 16	39. 0	39. 44	40. 27	41. 11	41. 55	42. 38	43. 22	20	15	15	16	17	17	18	19	20	20	21
30	37. 27	38. 10	38. 54	39. 37	40. 21	41. 4	41. 48	42. 31	43. 15	30	22	22	23	24	25	25	26	27	28	28
40	37. 21	38. 4	38. 47	39. 31	40. 14	40. 58	41. 41	42. 24	43. 8	40	29	30	30	31	32	33	33	34	35	36
50	37. 15	37. 58	38. 41	39. 24	40. 8	40. 51	41. 34	42. 18	43. 1	50	36	37	38	38	39	40	41	41	42	43
44 0	37. 8	37. 52	38. 35	39. 18	40. 1	40. 44	41. 28	42. 11	42. 54	0	0	1	1	2	3	4	4	5	6	6
10	37. 2	37. 46	38. 29	39. 12	39. 55	40. 38	41. 21	42. 4	42. 47	10	7	8	9	9	10	11	11	12	13	14
20	36. 56	37. 39	38. 22	39. 5	39. 48	40. 31	41. 14	41. 57	42. 40	20	14	15	16	16	17	18	19	19	20	21
30	36. 50	37. 33	38. 16	38. 59	39. 41	40. 24	41. 7	41. 50	42. 33	30	21	22	23	24	24	25	26	26	27	28
40	36. 45	37. 27	38. 9	38. 52	39. 35	40. 17	41. 0	41. 43	42. 25	40	29	29	30	31	31	32	33	33	34	35
50	36. 39	37. 20	38. 3	38. 46	39. 28	40. 11	40. 53	41. 36	42. 18	50	36	36	37	38	39	39	40	41	41	42
45 0	36. 32	37. 14	37. 57	38. 39	39. 21	40. 4	40. 46	41. 29	42. 11	0	0	1	1	2	3	4	4	5	6	6
10	36. 25	37. 8	37. 50	38. 32	39. 15	39. 57	40. 39	41. 22	42. 4	10	7	8	8	9	10	11	11	12	13	13
20	36. 19	37. 1	37. 43	38. 26	39. 8	39. 50	40. 32	41. 14	41. 57	20	14	15	15	16	17	18	18	19	20	20
30	36. 13	36. 55	37. 37	38. 19	39. 1	39. 43	40. 25	41. 7	41. 49	30	21	22	22	23	24	25	25	26	27	27
40	36. 6	36. 49	37. 31	38. 12	38. 54	39. 36	40. 18	41. 0	41. 42	40	28	29	29	30	31	32	32	33	34	34
50	36. 0	36. 42	37. 24	38. 6	38. 48	39. 29	40. 11	40. 53	41. 35	50	35	36	36	37	38	39	39	40	41	41
46 0	35. 54	36. 36	37. 17	37. 59	38. 41	39. 22	40. 4	40. 46	41. 27	0	0	1	1	2	3	4	4	5	6	6
10	35. 47	36. 29	37. 11	37. 52	38. 34	39. 15	39. 57	40. 39	41. 20	10	7	8	8	9	10	10	11	12	12	13
20	35. 41	36. 23	37. 4	37. 46	38. 27	39. 8	39. 50	40. 31	41. 13	20	14	14	15	16	17	17	18	19	19	20
30	35. 35	36. 16	36. 58	37. 39	38. 20	39. 1	39. 43	40. 24	41. 5	30	21	21	22	23	23	24	25	25	26	27
40	35. 28	36. 10	36. 51	37. 32	38. 13	38. 54	39. 36	40. 17	40. 58	40	28	28	29	30	30	31	32	32	33	34
50	35. 22	36. 3	36. 44	37. 25	38. 6	38. 47	39. 28	40. 9	40. 50	50	34	35	36	36	37	38	39	39	40	41
47 0	35. 16	35. 57	36. 38	37. 18	37. 59	38. 40	39. 21	40. 2	40. 43	0	0	1	1	2	3	3	4	5	5	6
10	35. 9	35. 50	36. 31	37. 12	37. 52	38. 33	39. 14	39. 55	40. 36	10	7	7	8	9	9	10	11	11	12	13
20	35. 3	35. 43	36. 24	37. 5	37. 45	38. 26	39. 7	39. 47	40. 28	20	14	14	15	16	16	17	18	18	19	20
30	34. 56	35. 37	36. 17	36. 58	37. 38	38. 19	38. 59	39. 40	40. 20	30	20	21	22	22	23	24	24	25	26	26
40	34. 50	35. 30	36. 10	36. 51	37. 31	38. 12	38. 52	39. 32	40. 13	40	27	28	28	29	30	30	31	32	32	33
50	34. 44	35. 23	36. 3	36. 44	37. 24	38. 5	38. 45	39. 25	40. 5	50	34	34	35	36	37	37	38	39	39	40
48 0	34. 37	35. 17	35. 57	36. 37	37. 17	37. 57	38. 37	39. 18	39. 58	0	0	1	1	2	3	3	4	5	5	6
10	34. 30	35. 10	35. 50	36. 30	37. 10	37. 50	38. 30	39. 10	39. 50	10	7	7	8	9	9	10	11	11	12	13
20	34. 24	35. 3	35. 43	36. 23	37. 3	37. 43	38. 23	39. 3	39. 42	20	13	14	15	15	16	17	17	18	19	19
30	34. 17	34. 56	35. 36	36. 16	36. 56	37. 36	38. 15	38. 55	39. 35	30	20	21	21	22	23	23	24	25	25	26
40	34. 10	34. 50	35. 29	36. 9	36. 49	37. 28	38. 8	38. 47	39. 27	40	27	27	28	29	29	30	31	31	32	33
50	34. 4	34. 43	35. 22	36. 2	36. 41	37. 21	38. 0	38. 40	39. 19	50	33	34	34	35	36	36	37	38	38	39
49 0	33. 57	34. 36	35. 15	35. 55	36. 34	37. 14	37. 53	38. 32	39. 12	0	0	1	1	2	3	3	4	5	5	6
10	33. 50	34. 29	35. 9	35. 48	36. 27	37. 6	37. 45	38. 25	39. 4	10	6	7	8	8	9	10	10	11	12	12
20	33. 43	34. 22	35. 2	35. 41	36. 20	36. 59	37. 38	38. 17	38. 56	20	13	14	14	15	16	16	17	18	18	19
30	33. 36	34. 16	34. 55	35. 34	36. 12	36. 51	37. 30	38. 9	38. 48	30	19	20	21	21	22	23	23	24	25	25
40	33. 29	34. 9	34. 48	35. 26	36. 5	36. 44	37. 23	38. 2	38. 41	40	26	27	27	28	29	29	30	31	31	32
50	33. 23	34. 2	34. 40	35. 19	35. 58	36. 37	37. 15	37. 54	38. 33	50	32	33	34	34	35	36	36	37	38	38
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Moon's Horizontal Parallax. Seconds of Parallax. Proportional parts to

Subt. 1′ = 1″ 2. 1 3. 2 4. 2 5. 3 6. 4 7. 4 8. 5 9. 5

Subt. 1′ = 1″ 2. 1 3. 2 4. 2 5. 3 6. 4 7. 4 8. 5 9. 6

Subt. 1′ = 1″ 2. 1 3. 2 4. 2 5. 3 6. 4 7. 4 8. 5 9. 6

Subt. 1′ = 1″ 2. 1 3. 2 4. 3 5. 4 6. 4 7. 5 8. 6 9. 6

Subt. 1′ = 1″ 2. 1 3. 2 4. 3 5. 4 6. 4 7. 5 8. 6 9. 6

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
°	′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
50	0	33. 16	33. 55	34. 33	35. 12	35. 51	36. 29	37. 8	37. 46	38. 25
	10	33. 9	33. 48	34. 26	35. 5	35. 43	36. 22	37. 0	37. 39	38. 17
	20	33. 3	33. 41	34. 19	34. 58	35. 36	36. 14	36. 52	37. 31	38. 9
	30	32. 56	33. 34	34. 12	34. 50	35. 28	36. 7	36. 45	37. 23	38. 1
	40	32. 49	33. 27	34. 5	34. 43	35. 21	35. 59	36. 37	37. 15	37. 53
	50	32. 42	33. 20	33. 58	34. 36	35. 14	35. 52	36. 29	37. 7	37. 45
51	0	32. 35	33. 13	33. 51	34. 28	35. 6	35. 44	36. 22	36. 59	37. 37
	10	32. 28	33. 6	33. 43	34. 21	34. 59	35. 36	36. 14	36. 52	37. 29
	20	32. 21	32. 59	33. 36	34. 14	34. 51	35. 29	36. 6	36. 44	37. 21
	30	32. 14	32. 52	33. 29	34. 6	34. 44	35. 21	35. 59	36. 36	37. 13
	40	32. 7	32. 45	33. 22	33. 59	34. 36	35. 13	35. 51	36. 28	37. 5
	50	32. 0	32. 37	33. 14	33. 52	34. 29	35. 6	35. 43	36. 20	36. 57
52	0	31. 53	32. 30	33. 7	33. 44	34. 21	34. 58	35. 35	36. 12	36. 49
	10	31. 46	32. 23	33. 0	33. 37	34. 13	34. 50	35. 27	36. 4	36. 41
	20	31. 39	32. 16	32. 53	33. 29	34. 6	34. 43	35. 19	35. 56	36. 33
	30	31. 32	32. 9	32. 45	33. 22	33. 58	34. 35	35. 11	35. 48	36. 24
	40	31. 25	32. 1	32. 38	33. 14	33. 51	34. 27	35. 3	35. 40	36. 16
	50	31. 18	31. 54	32. 30	33. 7	33. 43	34. 19	34. 55	35. 32	36. 8
53	0	31. 11	31. 47	32. 23	32. 59	33. 35	34. 11	34. 48	35. 24	36. 0
	10	31. 3	31. 40	32. 16	32. 52	33. 28	34. 4	34. 40	35. 15	35. 51
	20	30. 56	31. 32	32. 8	32. 44	33. 20	33. 56	34. 32	35. 7	35. 43
	30	30. 49	31. 25	32. 1	32. 36	33. 12	33. 48	34. 24	34. 59	35. 35
	40	30. 42	31. 18	31. 53	32. 29	33. 4	33. 40	34. 15	34. 51	35. 27
	50	30. 35	31. 10	31. 46	32. 21	32. 57	33. 32	34. 7	34. 43	35. 18
54	0	30. 28	31. 3	31. 38	32. 13	32. 49	33. 24	33. 59	34. 35	35. 10
	10	30. 21	30. 56	31. 31	32. 6	32. 41	33. 16	33. 51	34. 26	35. 2
	20	30. 13	30. 48	31. 23	31. 58	32. 33	33. 8	33. 43	34. 18	34. 53
	30	30. 6	30. 41	31. 16	31. 51	32. 25	33. 0	33. 35	34. 10	34. 45
	40	29. 59	30. 33	31. 8	31. 43	32. 18	32. 52	33. 27	34. 2	34. 36
	50	29. 52	30. 26	31. 1	31. 35	32. 10	32. 44	33. 19	33. 53	34. 28
55	0	29. 44	30. 19	30. 53	31. 27	32. 2	32. 36	33. 11	33. 45	34. 19
	10	29. 36	30. 11	30. 45	31. 20	31. 54	32. 28	33. 2	33. 37	34. 11
	20	29. 29	30. 4	30. 38	31. 12	31. 46	32. 20	32. 54	33. 28	34. 2
	30	29. 21	29. 56	30. 30	31. 4	31. 38	32. 12	32. 46	33. 20	33. 54
	40	29. 14	29. 48	30. 22	30. 56	31. 30	32. 4	32. 38	33. 12	33. 45
	50	29. 7	29. 41	30. 15	30. 48	31. 22	31. 56	32. 29	33. 3	33. 37
56	0	29. 0	29. 33	30. 7	30. 40	31. 14	31. 48	32. 21	32. 55	33. 28
	10	28. 53	29. 26	29. 59	30. 33	31. 6	31. 39	32. 13	32. 46	33. 20
	20	28. 45	29. 18	29. 51	30. 25	30. 58	31. 31	32. 4	32. 38	33. 11
	30	28. 37	29. 11	29. 44	30. 17	30. 50	31. 23	31. 56	32. 29	33. 2
	40	28. 30	29. 3	29. 36	30. 9	30. 42	31. 15	31. 48	32. 21	32. 54
	50	28. 23	28. 55	29. 28	30. 1	30. 34	31. 7	31. 39	32. 12	32. 45
57	0	28. 15	28. 48	29. 20	29. 53	30. 26	30. 58	31. 31	32. 4	32. 36
	10	28. 7	28. 40	29. 12	29. 45	30. 18	30. 50	31. 23	31. 55	32. 28
	20	28. 0	28. 32	29. 5	29. 37	30. 9	30. 42	31. 14	31. 47	32. 19
	30	27. 53	28. 25	28. 57	29. 29	30. 1	30. 34	31. 6	31. 38	32. 10
	40	27. 45	28. 17	28. 49	29. 21	29. 53	30. 25	30. 57	31. 29	32. 1
	50	27. 38	28. 9	28. 41	29. 13	29. 45	30. 17	30. 49	31. 21	31. 53
58	0	27. 30	28. 1	28. 33	29. 5	29. 37	30. 9	30. 40	31. 12	31. 44
	10	27. 22	27. 54	28. 25	28. 57	29. 29	30. 0	30. 32	31. 3	31. 35
	20	27. 14	27. 46	28. 17	28. 49	29. 20	29. 52	30. 23	30. 55	31. 26
	30	27. 7	27. 38	28. 9	28. 41	29. 12	29. 43	30. 15	30. 46	31. 17
	40	27. 0	27. 30	28. 1	28. 33	29. 4	29. 35	30. 6	30. 37	31. 9
	50	26. 52	27. 22	27. 53	28. 24	28. 55	29. 27	29. 58	30. 29	31. 0
59	0	26. 44	27. 15	27. 45	28. 16	28. 47	29. 18	29. 49	30. 20	30. 51
	10	26. 36	27. 7	27. 37	28. 8	28. 39	29. 10	29. 40	30. 11	30. 42
	20	26. 28	26. 59	27. 29	28. 0	28. 31	29. 1	29. 32	30. 2	30. 33
	30	26. 20	26. 51	27. 21	27. 52	28. 22	28. 53	29. 23	29. 54	30. 24
	40	26. 13	26. 43	27. 13	27. 44	28. 14	28. 44	29. 14	29. 45	30. 15
	50	26. 5	26. 35	27. 5	27. 35	28. 6	28. 36	29. 6	29. 36	30. 6
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
	″	″	″	″	″	″	″	″	″	″
0	0	1	1	2	3	3	4	4	5	6
10	6	7	8	8	9	10	10	11	11	12
20	13	13	14	15	15	16	17	17	18	18
30	19	20	20	21	22	22	23	24	24	25
40	25	26	27	27	28	29	29	30	31	31
50	32	32	33	34	34	35	36	36	37	38
0	0	1	1	2	2	3	4	4	5	5
10	6	7	7	8	9	9	10	11	11	12
20	12	13	14	14	15	16	16	17	17	18
30	19	19	20	21	21	22	22	23	24	24
40	25	26	26	27	28	29	29	30	30	31
50	31	32	32	33	34	34	35	35	36	37
0	0	1	1	2	2	3	4	4	5	5
10	6	7	7	8	9	9	10	10	11	12
20	12	13	13	14	15	15	16	16	17	18
30	18	19	19	20	21	21	22	23	23	24
40	24	25	26	26	27	27	28	29	29	30
50	30	31	32	32	33	33	34	35	35	36
0	0	1	1	2	2	3	4	4	5	5
10	6	6	7	8	8	9	10	10	11	11
20	12	12	13	14	14	15	15	16	17	17
30	18	18	19	19	20	21	21	22	23	23
40	24	24	25	26	26	27	27	28	29	29
50	30	30	31	32	32	33	33	34	35	35
0	0	1	1	2	2	3	3	4	4	5
10	6	6	7	7	8	8	9	10	10	11
20	11	12	12	13	14	14	15	15	16	16
30	17	18	18	19	19	20	20	21	22	22
40	23	23	24	24	25	25	26	27	27	28
50	28	29	29	30	31	31	32	32	33	33
0	0	1	1	2	2	3	3	4	4	5
10	6	6	7	7	8	8	9	9	10	10
20	11	12	12	13	13	14	14	15	15	16
30	17	17	18	18	19	19	20	20	21	22
40	22	23	23	24	24	25	25	26	26	27
50	28	28	29	29	30	30	31	31	32	33
0	0	1	1	2	2	3	3	4	4	5
10	5	6	6	7	8	8	9	9	10	10
20	11	11	12	12	13	13	14	14	15	16
30	16	17	17	18	18	19	19	20	20	21
40	21	22	23	23	24	24	25	25	26	26
50	27	27	28	28	29	30	30	31	31	32
0	0	1	1	2	2	3	3	4	4	5
10	5	6	6	7	7	8	8	9	9	10
20	10	11	11	12	13	13	14	14	15	15
30	16	16	17	17	18	18	19	19	20	20
40	21	21	22	22	23	23	24	25	25	26
50	26	27	27	28	28	29	29	30	30	31
0	0	1	1	2	2	3	3	4	4	5
10	5	6	6	7	7	8	8	9	9	10
20	10	11	11	12	12	13	13	14	14	15
30	15	16	16	17	17	18	18	19	19	20
40	20	21	21	22	22	23	23	24	24	25
50	25	26	26	27	27	28	28	29	29	30
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax.

Proportional parts to

Digitized by Google

CORRECTION OF THE MOON'S APPARENT ALTITUDE

Moon's App. Alt. ° ′	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
60 0	25. 57	26. 27	26. 57	27. 27	27. 57	28. 27	28. 57	29. 27	29. 57
10	25. 49	26. 19	26. 49	27. 19	27. 49	28. 19	28. 48	29. 18	29. 48
20	25. 41	26. 11	26. 41	27. 11	27. 40	28. 10	28. 40	29. 9	29. 39
30	25. 33	26. 3	26. 33	27. 2	27. 32	28. 1	28. 31	29. 0	29. 30
40	25. 26	25. 55	26. 25	26. 54	27. 23	27. 53	28. 22	28. 52	29. 21
50	25. 18	25. 47	26. 16	26. 46	27. 15	27. 44	28. 13	28. 43	29. 12
61 0	25. 10	25. 39	26. 8	26. 37	27. 6	27. 36	28. 5	28. 34	29. 3
10	25. 2	25. 31	26. 0	26. 29	26. 58	27. 27	27. 56	28. 25	28. 54
20	24. 54	25. 23	25. 52	26. 21	26. 49	27. 18	27. 47	28. 16	28. 45
30	24. 47	25. 15	25. 44	26. 12	26. 41	27. 10	27. 38	28. 7	28. 35
40	24. 39	25. 7	25. 35	26. 4	26. 32	27. 1	27. 29	27. 58	28. 26
50	24. 31	24. 59	25. 27	25. 56	26. 24	26. 52	27. 21	27. 49	28. 17
62 0	24. 23	24. 51	25. 19	25. 47	26. 15	26. 43	27. 12	27. 40	28. 8
10	24. 15	24. 43	25. 11	25. 39	26. 7	26. 35	27. 3	27. 31	27. 59
20	24. 7	24. 35	25. 2	25. 30	25. 58	26. 26	26. 54	27. 22	27. 50
30	23. 59	24. 26	24. 54	25. 22	25. 50	26. 17	26. 45	27. 13	27. 40
40	23. 51	24. 18	24. 46	25. 13	25. 41	26. 8	26. 36	27. 4	27. 31
50	23. 43	24. 10	24. 37	25. 5	25. 32	26. 0	26. 27	26. 54	27. 22
63 0	23. 35	24. 2	24. 29	24. 56	25. 24	25. 51	26. 18	26. 45	27. 13
10	23. 27	23. 54	24. 21	24. 48	25. 15	25. 42	26. 9	26. 36	27. 3
20	23. 18	23. 45	24. 12	24. 39	25. 6	25. 33	26. 0	26. 27	26. 54
30	23. 10	23. 37	24. 4	24. 31	24. 58	25. 24	25. 51	26. 18	26. 45
40	23. 2	23. 29	23. 56	24. 22	24. 49	25. 15	25. 42	26. 9	26. 35
50	22. 54	23. 21	23. 47	24. 14	24. 40	25. 7	25. 33	26. 0	26. 26
64 0	22. 46	23. 13	23. 39	24. 5	24. 31	24. 58	25. 24	25. 50	26. 17
10	22. 38	23. 4	23. 30	23. 57	24. 22	24. 49	25. 15	25. 41	26. 7
20	22. 29	22. 56	23. 22	23. 48	24. 14	24. 40	25. 6	25. 32	25. 58
30	22. 21	22. 48	23. 14	23. 39	24. 5	24. 31	24. 57	25. 23	25. 48
40	22. 13	22. 39	23. 5	23. 31	23. 56	24. 22	24. 48	25. 13	25. 39
50	22. 5	22. 31	22. 57	23. 22	23. 48	24. 13	24. 39	25. 4	25. 30
65 0	21. 57	22. 23	22. 48	23. 13	23. 39	24. 4	24. 30	24. 55	25. 20
10	21. 49	22. 14	22. 40	23. 5	23. 30	23. 55	24. 20	24. 46	25. 11
20	21. 41	22. 6	22. 31	22. 56	23. 21	23. 46	24. 11	24. 36	25. 1
30	21. 33	21. 58	22. 23	22. 47	23. 12	23. 37	24. 2	24. 27	24. 52
40	21. 25	21. 49	22. 14	22. 39	23. 3	23. 28	23. 53	24. 18	24. 43
50	21. 17	21. 41	22. 5	22. 30	22. 55	23. 19	23. 44	24. 8	24. 33
66 0	21. 9	21. 32	21. 57	22. 22	22. 46	23. 10	23. 34	23. 59	24. 23
10	21. 0	21. 24	21. 48	22. 13	22. 37	23. 1	23. 25	23. 50	24. 14
20	20. 51	21. 16	21. 40	22. 4	22. 28	22. 52	23. 16	23. 40	24. 4
30	20. 43	21. 7	21. 31	21. 55	22. 19	22. 43	23. 7	23. 31	23. 55
40	20. 35	20. 59	21. 22	21. 46	22. 10	22. 34	22. 58	23. 21	23. 45
50	20. 27	20. 50	21. 14	21. 37	22. 1	22. 25	22. 48	23. 12	23. 35
67 0	20. 19	20. 42	21. 5	21. 29	21. 52	22. 16	22. 39	23. 2	23. 26
10	20. 10	20. 33	20. 57	21. 20	21. 43	22. 6	22. 30	22. 53	23. 16
20	20. 1	20. 25	20. 48	21. 11	21. 34	21. 57	22. 20	22. 44	23. 7
30	19. 53	20. 16	20. 39	21. 2	21. 25	21. 48	22. 11	22. 34	22. 57
40	19. 45	20. 7	20. 31	20. 53	21. 16	21. 39	22. 2	22. 25	22. 47
50	19. 37	19. 59	20. 22	20. 45	21. 7	21. 30	21. 52	22. 15	22. 38
68 0	19. 28	19. 51	20. 13	20. 36	20. 58	21. 21	21. 43	22. 6	22. 28
10	19. 20	19. 42	20. 4	20. 27	20. 49	21. 11	21. 34	21. 56	22. 18
20	19. 11	19. 34	19. 56	20. 18	20. 40	21. 2	21. 24	21. 47	22. 9
30	19. 3	19. 25	19. 47	20. 9	20. 31	20. 53	21. 15	21. 37	21. 59
40	18. 55	19. 16	19. 38	20. 0	20. 22	20. 44	21. 6	21. 27	21. 49
50	18. 46	19. 8	19. 30	19. 51	20. 13	20. 35	20. 56	21. 18	21. 39
69 0	18. 38	18. 59	19. 21	19. 42	20. 4	20. 25	20. 47	21. 8	21. 30
10	18. 29	18. 51	19. 12	19. 33	19. 55	20. 16	20. 37	20. 58	21. 20
20	18. 20	18. 42	19. 3	19. 24	19. 46	20. 7	20. 28	20. 49	21. 10
30	18. 12	18. 34	18. 54	19. 15	19. 36	19. 57	20. 18	20. 39	21. 0
40	18. 4	18. 25	18. 46	19. 6	19. 27	19. 48	20. 9	20. 30	20. 50
50	17. 55	18. 16	18. 37	18. 57	19. 18	19. 39	19. 59	20. 20	20. 40
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′
	Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. ″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	″	″	″	″	″	″	″	″	″	″	
0	0	0	1	1	2	2	3	3	4	4	
10	5	5	6	6	7	7	8	8	9	9	Subt.
20	10	10	11	11	12	12	13	13	14	14	1′ = 1″
30	15	15	16	16	17	17	18	18	19	19	2. 2
40	20	20	21	21	22	22	23	23	24	24	3. 3
50	25	25	26	26	27	27	28	28	29	29	4. 3
0	0	0	1	1	2	2	3	3	4	4	5. 4
10	5	5	6	6	7	7	8	8	9	9	6. 5
20	10	10	10	11	11	12	12	13	13	14	7. 6
30	14	15	15	16	16	17	17	18	18	19	8. 7
40	19	20	20	21	21	21	22	22	23	23	9. 8
50	24	24	25	25	26	26	27	27	28	28	
0	0	0	1	1	2	2	3	3	4	4	
10	5	5	6	6	6	7	7	8	8	9	Subt.
20	9	10	10	11	11	12	12	12	13	13	1′ = 1″
30	14	14	15	15	16	16	17	17	18	18	2. 2
40	18	19	19	20	20	21	21	22	22	23	3. 3
50	23	24	24	24	25	25	26	26	27	27	4. 3
0	0	0	1	1	2	2	3	3	4	4	5. 4
10	4	5	5	6	6	7	7	8	8	8	6. 5
20	9	9	10	10	11	11	12	12	12	13	7. 6
30	13	14	14	15	15	16	16	17	17	17	8. 7
40	18	18	19	19	20	20	21	21	22	22	9. 8
50	22	23	23	24	24	25	25	25	26	26	
0	0	0	1	1	2	2	3	3	3	4	
10	4	5	5	6	6	6	7	7	8	8	Subt.
20	9	9	9	10	10	11	11	12	12	12	1′ = 1″
30	13	13	14	14	15	15	15	16	16	17	2. 2
40	17	18	18	18	19	19	20	20	21	21	3. 3
50	22	22	22	23	23	24	24	25	25	25	4. 3
0	0	0	1	1	2	2	3	3	4	4	5. 4
10	4	5	5	5	6	6	7	7	7	8	6. 5
20	8	9	9	10	10	10	11	11	12	12	7. 6
30	12	13	13	14	14	14	15	15	16	16	8. 7
40	17	17	17	18	18	19	19	19	20	20	9. 8
50	21	21	22	22	22	23	23	24	24	24	
0	0	0	1	1	2	2	2	3	3	4	
10	4	4	5	5	6	6	6	7	7	8	Subt.
20	8	8	9	9	10	10	10	11	11	12	1′ = 1″
30	12	12	13	13	14	14	14	15	15	16	2. 2
40	16	16	17	17	18	18	18	19	19	20	3. 3
50	20	20	21	21	21	22	22	23	23	23	4. 4
0	0	0	1	1	2	2	3	3	3	3	5. 4
10	4	4	5	5	5	6	6	6	7	7	6. 5
20	8	8	8	9	9	10	10	10	11	11	7. 6
30	11	12	12	13	13	13	14	14	14	15	8. 7
40	15	16	16	16	17	17	18	18	18	19	9. 8
50	19	19	20	20	21	21	21	22	22	22	
0	0	0	1	1	2	2	2	3	3	3	
10	4	4	4	5	5	5	6	6	7	7	Subt.
20	7	8	8	8	9	9	9	10	10	11	1′ = 1″
30	11	11	12	12	12	13	13	14	14	14	2. 2
40	15	15	15	16	16	16	17	17	18	18	3. 3
50	18	19	19	19	20	20	20	21	21	22	4. 4
0	0	0	1	1	2	2	2	3	3	3	5. 5
10	4	4	4	5	5	5	6	6	6	7	6. 5
20	7	7	8	8	8	9	9	9	10	10	7. 6
30	11	11	11	12	12	12	13	13	13	14	8. 7
40	14	14	15	15	15	16	16	16	17	17	9. 8
50	18	18	18	19	19	19	20	20	20	21	
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Seconds of Parallax.										
	Proportional parts to										

Digitized by Google

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
°	′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
70	0	17. 47	18. 7	18. 28	18. 48	19. 9	19. 30	19. 50	20. 11	20. 31
	10	17. 38	17. 59	18. 19	18. 39	19. 0	19. 20	19. 41	20. 1	20. 21
	20	17. 29	17. 50	18. 10	18. 30	18. 51	19. 11	19. 31	19. 51	20. 11
	30	17. 21	17. 41	18. 1	18. 21	18. 41	19. 1	19. 22	19. 42	20. 2
	40	17. 13	17. 33	17. 53	18. 12	18. 32	18. 52	19. 12	19. 32	19. 52
	50	17. 5	17. 24	17. 44	18. 3	18. 23	18. 43	19. 2	19. 22	19. 42
71	0	16. 56	17. 15	17. 35	17. 54	18. 14	18. 33	18. 53	19. 12	19. 32
	10	16. 47	17. 6	17. 26	17. 45	18. 5	18. 24	18. 43	19. 3	19. 22
	20	16. 39	16. 58	17. 17	17. 36	17. 55	18. 15	18. 34	18. 53	19. 12
	30	16. 30	16. 49	17. 8	17. 27	17. 46	18. 5	18. 24	18. 43	19. 2
	40	16. 22	16. 40	16. 59	17. 18	17. 37	17. 56	18. 15	18. 33	18. 52
	50	16. 13	16. 31	16. 50	17. 9	17. 28	17. 46	18. 5	18. 24	18. 42
72	0	16. 4	16. 23	16. 41	17. 0	17. 18	17. 37	17. 55	18. 14	18. 32
	10	15. 56	16. 14	16. 32	16. 51	17. 9	17. 27	17. 46	18. 4	18. 23
	20	15. 47	16. 5	16. 23	16. 42	17. 0	17. 18	17. 36	17. 54	18. 13
	30	15. 38	15. 56	16. 14	16. 32	16. 50	17. 9	17. 26	17. 45	18. 3
	40	15. 30	15. 48	16. 5	16. 23	16. 41	16. 59	17. 17	17. 35	17. 53
	50	15. 22	15. 39	15. 56	16. 14	16. 32	16. 50	17. 7	17. 25	17. 43
73	0	15. 13	15. 30	15. 47	16. 5	16. 22	16. 40	16. 58	17. 15	17. 33
	10	15. 4	15. 21	15. 38	15. 56	16. 13	16. 31	16. 48	17. 5	17. 23
	20	14. 55	15. 12	15. 29	15. 47	16. 4	16. 21	16. 38	16. 55	17. 13
	30	14. 46	15. 3	15. 20	15. 37	15. 54	16. 12	16. 29	16. 46	17. 3
	40	14. 38	14. 54	15. 11	15. 28	15. 45	16. 2	16. 19	16. 36	16. 53
	50	14. 29	14. 46	15. 2	15. 19	15. 36	15. 52	16. 9	16. 26	16. 43
74	0	14. 21	14. 37	14. 53	15. 10	15. 26	15. 43	15. 59	16. 16	16. 33
	10	14. 12	14. 28	14. 44	15. 1	15. 17	15. 33	15. 50	16. 6	16. 22
	20	14. 3	14. 19	14. 35	14. 51	15. 8	15. 24	15. 40	15. 56	16. 12
	30	13. 54	14. 10	14. 26	14. 42	14. 58	15. 14	15. 30	15. 46	16. 2
	40	13. 46	14. 1	14. 17	14. 33	14. 49	15. 5	15. 20	15. 36	15. 52
	50	13. 37	13. 52	14. 8	14. 24	14. 39	14. 55	15. 11	15. 26	15. 42
75	0	13. 28	13. 43	13. 59	14. 14	14. 30	14. 45	15. 1	15. 16	15. 32
	10	13. 19	13. 34	13. 50	14. 5	14. 20	14. 36	14. 51	15. 7	15. 22
	20	13. 10	13. 25	13. 41	13. 56	14. 11	14. 26	14. 41	14. 57	15. 12
	30	13. 1	13. 16	13. 32	13. 47	14. 2	14. 17	14. 32	14. 47	15. 2
	40	12. 52	13. 8	13. 22	13. 37	13. 52	14. 7	14. 22	14. 37	14. 52
	50	12. 43	12. 59	13. 13	13. 28	13. 43	13. 57	14. 12	14. 27	14. 41
76	0	12. 35	12. 50	13. 4	13. 19	13. 33	13. 48	14. 2	14. 17	14. 31
	10	12. 26	12. 41	12. 55	13. 9	13. 24	13. 38	13. 52	14. 7	14. 21
	20	12. 17	12. 32	12. 46	13. 0	13. 14	13. 28	13. 43	13. 57	14. 11
	30	12. 8	12. 23	12. 37	12. 51	13. 5	13. 19	13. 33	13. 47	14. 1
	40	11. 59	12. 14	12. 28	12. 41	12. 55	13. 9	13. 23	13. 37	13. 51
	50	11. 51	12. 5	12. 18	12. 32	12. 46	12. 59	13. 13	13. 27	13. 40
77	0	11. 42	11. 56	12. 9	12. 23	12. 36	12. 50	13. 3	13. 17	13. 30
	10	11. 33	11. 47	12. 0	12. 13	12. 27	12. 40	12. 53	13. 7	13. 20
	20	11. 24	11. 38	11. 51	12. 4	12. 17	12. 30	12. 43	12. 57	13. 10
	30	11. 15	11. 29	11. 42	11. 55	12. 8	12. 21	12. 34	12. 47	13. 0
	40	11. 6	11. 20	11. 32	11. 45	11. 58	12. 11	12. 24	12. 37	12. 49
	50	10. 58	11. 11	11. 23	11. 36	11. 49	12. 1	12. 14	12. 26	12. 39
78	0	10. 49	11. 2	11. 14	11. 26	11. 39	11. 51	12. 4	12. 16	12. 29
	10	10. 40	10. 52	11. 5	11. 17	11. 29	11. 42	11. 54	12. 6	12. 19
	20	10. 31	10. 43	10. 56	11. 8	11. 20	11. 32	11. 44	11. 56	12. 8
	30	10. 22	10. 34	10. 46	10. 58	11. 10	11. 22	11. 34	11. 46	11. 58
	40	10. 14	10. 25	10. 37	10. 49	11. 1	11. 12	11. 24	11. 36	11. 48
	50	10. 5	10. 16	10. 28	10. 39	10. 51	11. 3	11. 14	11. 26	11. 38
79	0	9. 56	10. 7	10. 19	10. 30	10. 41	10. 53	11. 4	11. 16	11. 27
	10	9 47	9. 58	10. 9	10. 21	10. 32	10. 43	10. 54	11. 6	11. 17
	20	9. 38	9. 49	10. 0	10. 11	10. 22	10. 33	10. 44	10. 56	11. 7
	30	9. 29	9. 40	9. 51	10. 2	10. 13	10. 24	10. 35	10. 46	10. 57
	40	9. 20	9. 31	9. 42	9. 52	10. 3	10. 14	10. 25	10. 35	10. 46
	50	9. 11	9. 22	9. 32	9. 43	9. 53	10. 4	10. 15	10. 25	10. 36
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
″	″	″	″	″	″	″	″	″	″	″
0	0	0	1	1	1	2	2	2	3	3
10	3	4	4	4	5	5	5	6	6	6
20	7	7	7	8	8	8	9	9	9	10
30	10	10	11	11	11	12	12	12	13	13
40	13	14	14	14	15	15	15	16	16	16
50	17	17	17	18	18	18	19	19	19	20
0	0	0	1	1	1	2	2	2	3	3
10	3	3	4	4	4	5	5	5	6	6
20	6	7	7	7	8	8	8	9	9	9
30	10	10	10	10	11	11	11	12	12	12
40	13	13	13	14	14	14	15	15	15	16
50	16	16	16	17	17	17	18	18	18	19
0	0	0	1	1	1	2	2	2	3	3
10	3	3	4	4	4	5	5	5	5	6
20	6	6	7	7	7	8	8	8	8	9
30	9	9	10	10	10	11	11	11	11	12
40	12	12	13	13	13	14	14	14	14	15
50	15	15	16	16	16	17	17	17	17	18
0	0	0	1	1	1	1	2	2	2	3
10	3	3	3	4	4	4	5	5	5	5
20	6	6	6	7	7	7	8	8	8	8
30	9	9	9	9	10	10	10	11	11	11
40	11	12	12	12	12	13	13	13	14	14
50	14	14	15	15	15	16	16	16	16	17
0	0	0	1	1	1	1	2	2	2	2
10	3	3	3	3	4	4	4	5	5	5
20	5	6	6	6	6	7	7	7	7	8
30	8	8	9	9	9	9	10	10	10	10
40	11	11	11	11	12	12	12	13	13	13
50	13	14	14	14	14	15	15	15	15	16
0	0	0	1	1	1	1	2	2	2	2
10	3	3	3	3	4	4	4	4	5	5
20	5	5	6	6	6	7	7	7	7	7
30	8	8	8	8	9	9	9	9	10	10
40	10	10	11	11	11	11	12	12	12	12
50	13	13	13	13	14	14	14	14	15	15
0	0	0	0	1	1	1	1	2	2	2
10	2	3	3	3	3	3	4	4	4	4
20	5	5	5	5	6	6	6	6	7	7
30	7	7	7	8	8	8	8	9	9	9
40	9	10	10	10	10	10	11	11	11	11
50	12	12	12	12	13	13	13	13	14	14
0	0	0	0	1	1	1	1	2	2	2
10	2	2	3	3	3	3	4	4	4	4
20	4	5	5	5	5	6	6	6	6	6
30	7	7	7	7	7	8	8	8	8	9
40	9	9	9	9	10	10	10	10	10	11
50	11	11	11	12	12	12	12	12	13	13
0	0	0	0	1	1	1	1	1	2	2
10	2	2	2	3	3	3	3	3	4	4
20	4	4	4	5	5	5	5	5	6	6
30	6	6	6	7	7	7	7	7	8	8
40	8	8	8	9	9	9	9	9	10	10
50	10	10	10	11	11	11	11	11	12	12
0	0	0	0	1	1	1	1	1	1	2
10	2	2	2	2	3	3	3	3	3	3
20	4	4	4	4	4	5	5	5	5	5
30	5	6	6	6	6	6	7	7	7	7
40	7	7	8	8	8	8	8	9	9	9
50	9	9	9	10	10	10	10	10	11	11
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax.

Proportional parts to

Minutes of Altitude

Subt. 1′ = 1″ 2. 2 3. 3 4. 4 5. 5 6. 6 7. 6 8. 7 9. 8

Subt. 1′ = 1″ 2. 2 3. 3 4. 4 5. 5 6. 6 7. 6 8. 7 9. 8

Subt. 1′ = 1″ 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 8

Subt. 1′ = 1″ 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9

Subt. 1′ = 1″ 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9

Minutes of Altitude

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
° ′		′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
80	0	9. 2	9.13	9.23	9.33	9.44	9.54	10. 5	10.15	10.25
	10	8.53	9. 3	9.14	9.24	9.34	9.44	9.55	10. 5	10.15
	20	8.44	8.54	9. 4	9.15	9.25	9.35	9.45	9.55	10. 5
	30	8.35	8.45	8.55	9. 5	9.15	9.25	9.35	9.45	9.55
	40	8.26	8.36	8.46	8.56	9. 5	9.15	9.25	9.34	9.44
	50	8.17	8.27	8.37	8.46	8.56	9. 5	9.15	9.24	9.34
81	0	8. 8	8.18	8.27	8.37	8.46	8.55	9. 5	9.14	9.24
	10	7.59	8. 9	8.18	8.27	8.36	8.46	8.55	9. 4	9.13
	20	7.50	8. 0	8. 9	8.18	8.27	8.36	8.45	8.54	9. 3
	30	7.41	7.50	7.59	8. 8	8.17	8.26	8.35	8.44	8.52
	40	7.32	7.41	7.50	7.59	8. 7	8.16	8.25	8.33	8.42
	50	7.23	7.32	7.41	7.49	7.58	8. 6	8.15	8.23	8.32
82	0	7.14	7.23	7.31	7.40	7.48	7.56	8. 5	8.13	8.21
	10	7. 5	7.14	7.22	7.30	7.38	7.46	7.55	8. 3	8.11
	20	6.56	7. 5	7.13	7.21	7.29	7.37	7.45	7.53	8. 1
	30	6.47	6.55	7. 3	7.11	7.19	7.27	7.35	7.42	7.50
	40	6.38	6.46	6.54	7. 2	7. 9	7.17	7.25	7.32	7.40
	50	6.29	6.37	6.45	6.52	7. 0	7. 7	7.14	7.22	7.29
83	0	6.20	6.28	6.35	6.42	6.50	6.57	7. 4	7.12	7.19
	10	6.11	6.19	6.26	6.33	6.40	6.47	6.54	7. 2	7. 9
	20	6. 2	6. 9	6.16	6.23	6.30	6.37	6.44	6.51	6.58
	30	5.53	6. 0	6. 7	6.14	6.21	6.27	6.34	6.41	6.48
	40	5.44	5.51	5.58	6. 4	6.11	6.18	6.24	6.31	6.37
	50	5.35	5.42	5.48	5.55	6. 1	6. 8	6.14	6.21	6.27
84	0	5.26	5.33	5.39	5.45	5.52	5.58	6. 4	6.10	6.17
	10	5.17	5.23	5.30	5.36	5.42	5.48	5.54	6. 0	6. 6
	20	5. 8	5.14	5.20	5.26	5.32	5.38	5.44	5.50	5.56
	30	4.59	5. 5	5.11	5.17	5.22	5.28	5.34	5.40	5.45
	40	4.50	4.55	5. 1	5. 7	5.13	5.18	5.24	5.29	5.35
	50	4.41	4.46	4.52	4.57	5. 3	5. 8	5.14	5.19	5.24
85	0	4.32	4.37	4.43	4.48	4.53	4.58	5. 4	5. 9	5.14
	10	4.23	4.28	4.33	4.38	4.43	4.48	4.53	4.59	5. 4
	20	4.14	4.19	4.24	4.29	4.34	4.38	4.43	4.48	4.53
	30	4. 5	4.10	4.14	4.19	4.24	4.29	4.33	4.38	4.43
	40	3.56	4. 0	4. 5	4.10	4.14	4.19	4.23	4.28	4.32
	50	3.47	3.51	3.56	4. 0	4. 4	4. 9	4.13	4.17	4.22
86	0	3.38	3.42	3.46	3.50	3.55	3.59	4. 3	4. 7	4.11
	10	3.29	3.33	3.37	3.41	3.45	3.49	3.53	3.57	4. 1
	20	3.20	3.24	3.27	3.31	3.35	3.39	3.43	3.47	3.50
	30	3.11	3.14	3.18	3.22	3.25	3.29	3.33	3.36	3.40
	40	3. 2	3. 5	3. 9	3.12	3.16	3.19	3.23	3.26	3.30
	50	2.53	2.56	2.59	3. 2	3. 6	3. 9	3.12	3.16	3.19
87	0	2.43	2.46	2.50	2.53	2.56	2.59	3. 2	3. 5	3. 9
	10	2.34	2.37	2.40	2.43	2.46	2.49	2.52	2.55	2.58
	20	2.25	2.28	2.31	2.34	2.36	2.39	2.42	2.45	2.48
	30	2.16	2.19	2.21	2.24	2.27	2.29	2.32	2.35	2.37
	40	2. 7	2.10	2.12	2.14	2.17	2.19	2.22	2.24	2.27
	50	1.58	2. 0	2. 3	2. 5	2. 7	2. 9	2.12	2.14	2.16
88	0	1.49	1.51	1.53	1.55	1.57	1.59	2. 2	2. 4	2. 6
	10	1.40	1.42	1.44	1.46	1.48	1.50	1.51	1.53	1.55
	20	1.31	1.33	1.34	1.36	1.38	1.40	1.41	1.43	1.45
	30	1.22	1.23	1.25	1.26	1.28	1.30	1.31	1.33	1.34
	40	1.13	1.14	1.15	1.17	1.18	1.20	1.21	1.22	1.24
	50	1. 4	1. 5	1. 6	1. 7	1. 8	1.10	1.11	1.12	1.13
89	0	0.55	0.56	0.57	0.58	0.59	1. 0	1. 1	1. 2	1. 3
	10	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.52
	20	0.36	0.37	0.38	0.38	0.39	0.40	0.41	0.41	0.42
	30	0.27	0.28	0.28	0.29	0.29	0.30	0.30	0.31	0.31
	40	0.18	0.18	0.19	0.19	0.20	0.20	0.20	0.21	0.21
	50	0. 9	0. 9	0. 9	0.10	0.10	0.10	0.10	0.10	0.10
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax.	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
″	″	″	″	″	″	″	″	″	″	″	
0	0	0	0	0	1	1	1	1	1	1	
10	2	2	2	2	2	2	3	3	3	3	Subt.
20	3	3	4	4	4	4	4	4	5	5	1′ = 1″
30	5	5	5	5	6	6	6	6	6	6	2. 2
40	7	7	7	7	7	7	8	8	8	8	3. 3
50	8	8	9	9	9	9	9	9	10	10	4. 4
0	0	0	0	0	1	1	1	1	1	1	5. 5
10	1	2	2	2	2	2	2	3	3	3	6. 6
20	3	3	3	3	4	4	4	4	4	4	7. 7
30	4	5	5	5	5	5	5	5	6	6	8. 8
40	6	6	6	6	7	7	7	7	7	7	9. 9
50	7	8	8	8	8	8	8	8	9	9	
0	0	0	0	0	1	1	1	1	1	1	
10	1	1	2	2	2	2	2	2	2	2	Subt.
20	3	3	3	3	3	3	3	4	4	4	1′ = 1″
30	4	4	4	4	4	5	5	5	5	5	2. 2
40	5	5	5	6	6	6	6	6	6	6	3. 3
50	7	7	7	7	7	7	7	7	8	8	4. 4
0	0	0	0	0	0	1	1	1	1	1	5. 5
10	1	1	1	1	2	2	2	2	2	2	6. 6
20	2	2	2	3	3	3	3	3	3	3	7. 7
30	3	4	4	4	4	4	4	4	4	4	8. 8
40	5	5	5	5	5	5	5	5	5	6	9. 9
50	6	6	6	6	6	6	6	6	7	7	
0	0	0	0	0	0	0	1	1	1	1	
10	1	1	1	1	1	1	2	2	2	2	Subt.
20	2	2	2	2	2	2	2	3	3	3	1′ = 1″
30	3	3	3	3	3	3	3	4	4	4	2. 2
40	4	4	4	4	4	4	4	5	5	5	3. 3
50	5	5	5	5	5	5	5	5	6	6	4. 4
0	0	0	0	0	0	0	0	1	1	1	5. 5
10	1	1	1	1	1	1	1	1	1	1	6. 6
20	2	2	2	2	2	2	2	2	2	2	7. 7
30	2	2	2	3	3	3	3	3	3	3	8. 8
40	3	3	3	3	3	4	4	4	4	4	9. 9
50	4	4	4	4	4	4	4	4	5	5	
0	0	0	0	0	0	0	0	0	0	1	
10	1	1	1	1	1	1	1	1	1	1	Subt.
20	1	1	1	1	1	2	2	2	2	2	1′ = 1″
30	2	2	2	2	2	2	2	2	2	2	2. 2
40	2	3	3	3	3	3	3	3	3	3	3. 3
50	3	3	3	3	3	3	3	3	4	4	4. 4
0	0	0	0	0	0	0	0	0	0	0	5. 5
10	0	0	1	1	1	1	1	1	1	1	6. 6
20	1	1	1	1	1	1	1	1	1	1	7. 7
30	1	1	1	1	1	2	2	2	2	2	8. 8
40	2	2	2	2	2	2	2	2	2	2	9. 9
50	2	2	2	2	2	2	2	2	3	3	
0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	Subt.
20	1	1	1	1	1	1	1	1	1	1	1′ = 1″
30	1	1	1	1	1	1	1	1	1	1	2. 2
40	1	1	1	1	1	1	1	1	1	1	3. 3
50	1	1	1	1	1	1	1	1	2	2	4. 4
0	0	0	0	0	0	0	0	0	0	0	5. 5
10	0	0	0	0	0	0	0	0	0	0	6. 6
20	0	0	0	0	0	0	0	0	0	0	7. 7
30	0	0	0	0	0	0	0	0	0	0	8. 8
40	0	0	0	0	0	0	0	0	0	0	9. 9
50	1	1	1	1	1	1	1	1	1	1	
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
Seconds of Parallax. Proportional parts to											

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TO REDUCE THE TRUE ALTITUDES OF THE SUN, MOON, STARS, AND PLANETS TO THEIR APPARENT ALTITUDES.

True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1′ of Alt. for Sun, or Star.	Moon's true Alt.	Reduction of the Moon's true Altitude. Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Difference to 1′ of Moon's true Altitude	Differ. to 1″ of Moon's Horizontal Parallax
° ′	′ ″	′ ″	″	° ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″
1. 0	21. 53	22. 2	5. 40	1. 0	25. 15	26. 8	27. 1	27. 54	28. 47	29. 40	30. 32	31. 25	32. 18	7. 20	0. 88
10	20. 59	21. 8	5. 20	10	26. 28	27. 21	28. 13	29. 6	29. 59	30. 52	31. 45	32. 38	33. 31	7. 00	0. 88
20	20. 7	20. 16	4. 80	20	27. 36	28. 29	29. 23	30. 16	31. 9	32. 3	32. 56	33. 49	34. 42	6. 60	0. 88
30	19. 19	19. 28	4. 60	30	28. 40	29. 34	30. 27	31. 21	32. 15	33. 9	34. 2	34. 56	35. 50	6. 20	0. 90
40	18. 33	18. 42	4. 40	40	29. 42	30. 36	31. 29	32. 23	33. 17	34. 11	35. 5	35. 59	36. 53	6. 00	0. 90
50	17. 49	17. 58	4. 20	50	30. 40	31. 34	32. 28	33. 22	34. 16	35. 11	36. 5	36. 59	37. 53	5. 70	0. 90
2. 0	17. 7	17. 16	3. 90	2. 0	31. 35	32. 29	33. 24	34. 19	35. 13	36. 8	37. 3	37. 57	38. 52	5. 40	0. 91
10	16. 28	16. 37	3. 70	10	32. 27	33. 22	34. 17	35. 12	36. 7	37. 1	37. 56	38. 51	39. 46	5. 10	0. 91
20	15. 51	16. 0	3. 40	20	33. 17	34. 12	35. 7	36. 2	36. 57	37. 53	38. 48	39. 43	40. 38	4. 65	0. 91
40	14. 43	14. 52	3. 00	40	34. 48	35. 43	36. 39	37. 35	38. 30	39. 25	40. 20	41. 16	42. 12	4. 20	0. 92
3. 0	13. 43	13. 52	2. 70	3. 0	36. 9	37. 5	38. 1	38. 58	39. 54	40. 50	41. 46	42. 42	43. 38	3. 70	0. 92
20	12. 49	12. 58	2. 40	20	37. 22	38. 19	39. 15	40. 12	41. 8	42. 4	42. 59	43. 56	44. 53	3. 30	0. 92
40	12. 1	12. 10	2. 20	40	38. 26	39. 23	40. 19	41. 16	42. 13	43. 10	44. 7	45. 4	46. 1	2. 90	0. 95
4. 0	11. 17	11. 26	1. 95	4. 0	39. 23	40. 20	41. 17	42. 14	43. 11	44. 9	45. 6	46. 3	47. 0	2. 60	0. 95
20	10. 38	10. 47	1. 80	20	40. 13	41. 11	42. 8	43. 6	44. 3	45. 1	45. 58	46. 55	47. 53	2. 35	0. 95
40	10. 2	10. 11	1. 65	40	40. 58	41. 56	42. 54	43. 52	44. 50	45. 47	46. 44	47. 42	48. 40	2. 15	0. 96
5. 0	9. 29	9. 38	1. 45	5. 0	41. 40	42. 38	43. 36	44. 34	45. 32	46. 30	47. 28	48. 26	49. 23	1. 85	0. 97
20	9. 0	9. 9	1. 35	20	42. 14	43. 14	44. 13	45. 11	46. 9	47. 7	48. 4	49. 2	50. 0	1. 65	0. 97
40	8. 33	8. 42	1. 25	40	42. 47	43. 47	44. 46	45. 43	46. 41	47. 40	48. 37	49. 35	50. 34	1. 55	0. 98
6. 0	8. 8	8. 17	1. 20	6. 0	43. 18	44. 17	45. 15	46. 14	47. 12	48. 11	49. 9	50. 7	51. 5	1. 35	0. 98
20	7. 44	7. 53	1. 05	20	43. 44	44. 44	45. 42	46. 41	47. 39	48. 37	49. 36	50. 34	51. 32	1. 25	0. 98
40	7. 23	7. 32	0. 95	40	44. 9	45. 9	46. 8	47. 6	48. 4	49. 3	50. 3	51. 0	51. 58	1. 10	0. 98
7. 0	7. 4	7. 13	0. 90	7. 0	44. 32	45. 30	46. 29	47. 28	48. 26	49. 25	50. 24	51. 22	52. 20	1. 05	0. 98
20	6. 46	6. 55	0. 80	20	44. 54	45. 50	46. 49	47. 49	48. 46	49. 46	50. 45	51. 43	52. 42	0. 95	0. 99
40	6. 30	6. 39	0. 75	40	45. 11	46. 9	47. 8	48. 6	49. 5	50. 3	51. 3	52. 2	53. 0	0. 90	0. 99
8. 0	6. 15	6. 24	0. 70	8. 0	45. 28	46. 27	47. 26	48. 24	49. 23	50. 22	51. 21	52. 20	53. 19	0. 70	0. 99
20	6. 1	6. 10	0. 65	20	45. 42	46. 40	47. 39	48. 38	49. 37	50. 35	51. 35	52. 34	53. 33	0. 65	0. 99
40	5. 48	5. 57	0. 60	40	45. 55	46. 53	47. 53	48. 52	49. 51	50. 49	51. 48	52. 47	53. 45	0. 60	0. 99
9. 0	5. 36	5. 45	0. 55	9. 0	46. 8	47. 7	48. 6	49. 5	50. 4	51. 2	52. 1	53. 0	53. 59	0. 50	0. 99
10°	5. 3	5. 12	0. 45	10°	46. 38	47. 37	48. 36	49. 35	50. 34	51. 32	52. 31	53. 30	54. 29	0. 38	0. 99
11	4. 36	4. 45	0. 40	11	47. 1	48. 0	48. 59	49. 58	50. 57	51. 55	52. 54	53. 53	54. 51	0. 27	0. 99
12	4. 12	4. 21	0. 32	12	47. 18	48. 16	49. 15	50. 14	51. 13	52. 11	53. 10	54. 9	55. 8	0. 18	0. 99
13	3. 53	4. 2	0. 30	13	47. 29	48. 28	49. 26	50. 25	51. 23	52. 22	53. 21	54. 19	55. 18	0. 11	0. 99
14	3. 35	3. 44	0. 25	14	47. 36	48. 35	49. 33	50. 32	51. 30	52. 29	53. 27	54. 25	55. 23	0. 07	0. 99
15	3. 20	3. 29	0. 22	15	47. 42	48. 40	49. 38	50. 36	51. 34	52. 33	53. 31	54. 29	55. 27	0. 00	0. 99
16	3. 7	3. 16	0. 20	16	47. 42	48. 40	49. 38	50. 36	51. 34	52. 32	53. 30	54. 28	55. 26	0. 07	0. 99
17	2. 55	3. 4	0. 17	17	47. 39	48. 37	49. 34	50. 32	51. 30	52. 27	53. 25	54. 23	55. 21	0. 08	0. 98
18	2. 45	2. 54	0. 16	18	47. 36	48. 33	49. 31	50. 28	51. 26	52. 23	53. 20	54. 18	55. 15	0. 13	0. 98
19	2. 35	2. 44	0. 15	19	47. 29	48. 26	49. 23	50. 21	51. 18	52. 15	53. 12	54. 9	55. 6	0. 17	0. 98
20	2. 27	2. 35	0. 13	20	47. 21	48. 18	49. 14	50. 11	51. 8	52. 5	53. 2	53. 59	54. 56	0. 19	0. 96
21	2. 19	2. 27	0. 11	21	47. 11	48. 8	49. 4	50. 0	50. 57	51. 53	52. 50	53. 47	54. 43	0. 21	0. 96
22	2. 12	2. 20	0. 10	22	46. 59	47. 55	48. 51	49. 47	50. 44	51. 40	52. 36	53. 32	54. 28	0. 27	0. 95
23	2. 6	2. 14	0. 09	23	46. 45	47. 41	48. 37	49. 32	50. 28	51. 24	52. 20	53. 16	54. 11	0. 28	0. 94
24	2. 0	2. 8	0. 09	24	46. 30	47. 26	48. 21	49. 16	50. 11	51. 7	52. 3	52. 58	53. 53	0. 29	0. 94
25	1. 54	2. 2	0. 09	25	46. 14	47. 9	48. 4	48. 59	49. 54	50. 49	51. 44	52. 39	53. 35	0. 31	0. 93
26	1. 48	1. 56	0. 08	26	45. 56	46. 51	47. 45	48. 40	49. 35	50. 29	51. 24	52. 18	53. 13	0. 35	0. 93
27	1. 43	1. 51	0. 07	27	45. 37	46. 31	47. 26	48. 20	49. 14	50. 8	51. 3	51. 57	52. 51	0. 37	0. 92
28	1. 39	1. 47	0. 07	28	45. 17	46. 11	47. 4	47. 58	48. 52	49. 46	50. 39	51. 33	52. 27	0. 40	0. 90
29	1. 34	1. 42	0. 07	29	44. 55	45. 49	46. 42	47. 35	48. 28	49. 22	50. 15	51. 8	52. 2	0. 41	0. 90
30	1. 30	1. 38	0. 06	30	44. 33	45. 26	46. 19	47. 12	48. 4	48. 57	49. 50	50. 43	51. 35	0. 43	0. 90
31	1. 27	1. 35	0. 06	31	44. 9	45. 2	45. 54	46. 46	47. 38	48. 31	49. 23	50. 15	51. 7	0. 45	0. 89
32	1. 23	1. 31	0. 05	32	43. 44	44. 36	45. 28	46. 19	47. 11	48. 2	48. 55	49. 46	50. 38	0. 47	0. 89
33	1. 20	1. 28	0. 05	33	43. 18	44. 10	45. 1	45. 51	46. 43	47. 34	48. 25	49. 17	50. 8	0. 48	0. 87
34	1. 17	1. 24	0. 05	34	42. 51	43. 42	44. 33	45. 23	46. 14	47. 5	47. 55	48. 46	49. 36	0. 50	0. 87
35	1. 14	1. 21	0. 05	35	42. 24	43. 14	44. 4	44. 54	45. 44	46. 34	47. 24	48. 14	49. 4	0. 51	0. 85
True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1′ of Alt. for Sun, or Star.	Moon's true Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	Difference to 1′ of Moon's true Altitude	Differ. to 1″ of Moon's Horizontal Parallax

Moon's Horizontal Parallax.

Reduction of the Moon's true Altitude.

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TO REDUCE THE TRUE ALTITUDES OF THE SUN, MOON, STARS, AND PLANETS TO THEIR APPARENT ALTITUDES.

True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1′ of Alt. for Sun, or Star.	Moon's true Alt.	Reduction of the Moon's true Altitude. — Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Difference to 1′ of Moon's true Altitude.	Differ. to 1″ of Moon's Horizontal Parallax.
°	′ ″	′ ″	″	°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″
36	1. 11	1. 18	0. 05	36	41. 55	42. 44	43. 34	44. 23	45. 13	46. 2	46. 52	47. 41	48. 30	0. 55	0. 83
37	1. 9	1. 16	0. 05	37	41. 25	42. 14	43. 3	43. 51	44. 40	45. 29	46. 18	47. 6	47. 56	0. 56	0. 81
38	1. 6	1. 13	0. 05	38	40. 54	41. 42	42. 30	43. 19	44. 7	44. 55	45. 43	46. 31	47. 19	0. 57	0 80
39	1. 3	1. 10	0. 05	39	40. 23	41. 10	41. 57	42. 45	43. 33	44. 20	45. 8	45. 56	46. 43	0. 58	0. 79
40	1. 1	1. 8	0. 05	40	39. 50	40. 37	41. 24	42. 11	42. 58	43. 44	44. 31	45. 19	46. 5	0. 60	0. 78
41	0. 58	1. 5	0. 04	41	39. 17	40. 3	40. 49	41. 35	42. 21	43. 8	43. 54	44. 40	45. 27	0. 61	0. 77
42	0. 56	1. 3	0. 04	42	38. 43	39. 28	40. 14	40. 59	41. 45	42. 30	43. 16	44. 1	44. 47	0. 63	0. 76
43	0. 54	1. 1	0. 04	43	38. 7	38. 52	39. 36	40. 22	41. 7	41. 51	42. 36	43. 21	44. 6	0. 65	0. 75
44	0. 53	0. 59	0. 04	44	37. 31	38. 16	38. 59	39. 43	40. 27	41. 11	41. 55	42. 40	43. 24	0. 67	0. 74
45	0. 51	0. 57	0. 04	45	36. 54	37. 38	38. 21	39. 4	39. 48	40. 31	41. 14	41. 58	42. 42	0. 69	0. 73
46	0. 49	0. 55	0. 04	46	36. 17	36. 59	37. 42	38. 25	39. 7	39 50	40. 32	41. 15	41. 58	0. 70	0. 72
47	0. 47	0. 53	0. 04	47	35. 39	36. 21	37. 2	37. 44	38. 26	39. 8	39. 50	40. 32	41. 13	0. 71	0. 71
48	0. 45	0. 51	0. 04	48	35. 0	35. 41	36. 22	37. 3	37. 44	38. 25	39. 6	39. 47	40. 28	0. 71	0. 70
49	0. 43	0. 49	0. 03	49	34. 20	35. 0	35. 40	36. 20	37. 1	37. 42	38. 22	39. 2	39. 42	0. 72	0. 68
50	0 42	0. 48	0. 03	50	33. 39	34. 19	34. 58	35. 37	36. 17	36. 57	37. 36	38. 16	38. 55	0. 73	0. 67
51	0. 40	0. 46	0. 03	51	32. 58	33. 37	34. 16	34. 54	35. 33	36. 11	36. 50	37. 29	38. 7	0. 75	0. 66
52	0. 39	0. 44	0. 03	52	32. 16	32. 54	33. 32	34. 10	34. 47	35. 25	36. 3	36. 41	37. 19	0. 76	0. 64
53	0. 37	0. 43	0. 03	53	31. 34	32. 11	32. 48	33. 25	34. 2	34. 39	35. 16	35. 53	36. 30	0. 77	0. 62
54	0. 36	0. 41	0. 03	54	30. 50	31. 26	32. 2	32. 39	33. 15	33. 51	34. 28	35. 4	35. 40	0. 79	0. 60
55	0. 35	0. 40	0. 03	55	30. 6	30. 42	31. 17	31. 51	32. 27	33. 2	33. 38	34. 14	34. 49	0. 80	0. 59
56	0. 33	0. 38	0. 03	56	29. 22	29. 57	30. 31	31. 5	31. 39	32. 14	32. 49	33. 23	33. 58	0. 81	0. 58
57	0. 32	0. 37	0. 03	57	28. 36	29. 10	29. 43	30. 17	30. 51	31. 24	31. 58	32. 32	33. 5	0. 82	0. 57
58	0. 30	0. 35	0. 02	58	27. 51	28. 24	28. 56	29. 29	30. 1	30. 34	31. 7	31. 40	32. 12	0. 82	0. 56
59	0. 29	0. 34	0. 02	59	27. 5	27. 37	28. 9	28. 40	29. 11	29. 43	30. 15	30. 47	31. 19	0. 83	0. 53
60	0. 28	0. 33	0. 02	60	26. 18	26. 48	27. 19	27. 50	28. 21	28. 51	29. 22	29. 53	30. 24	0. 84	0. 51
61	0. 27	0. 32	0. 02	61	25. 30	26. 0	26. 30	27. 0	27. 29	27. 59	28. 29	28. 59	29. 29	0. 85	0. 50
62	0. 26	0. 30	0. 02	62	24. 42	25. 11	25. 40	26. 9	26. 38	27. 7	27. 36	28. 5	28. 34	0. 86	0. 49
63	0. 25	0. 29	0. 02	63	23. 54	24. 22	24. 50	25. 18	25. 46	26. 14	26. 42	27. 10	27. 38	0. 87	0. 47
64	0. 24	0. 28	0. 02	64	23. 5	23. 32	23. 59	24. 26	24. 53	25. 20	25. 47	26. 14	26. 42	0. 88	0. 45
65	0. 22	0. 26	0. 02	65	22. 16	22. 42	23. 8	23. 34	24 0	24. 26	24. 52	25. 18	25. 45	0. 89	0. 43
66	0. 21	0. 25	0. 02	66	21. 26	21. 51	22. 16	22. 42	23. 7	23. 32	23. 57	24. 22	24. 47	0. 90	0. 42
67	0. 20	0. 24	0. 02	67	20. 36	21. 0	21. 24	21. 48	22. 12	22. 36	23. 0	23. 25	23. 49	0. 91	0. 40
68	0. 19	0. 23	0. 02	68	19. 45	20. 8	20. 31	20. 54	21. 17	21. 41	22. 4	22. 27	22. 50	0. 92	0. 39
69	0. 18	0. 22	0. 02	69	18. 54	19. 16	19. 38	20. 0	20. 22	20. 44	21. 7	21. 29	21. 51	0. 93	0. 37
70	0. 17	0. 21	0. 02	70	18. 2	18. 23	18. 44	19. 5	19. 27	19. 48	20. 9	20. 30	20. 51	0. 94	0. 35
71	0. 16	0. 19	0. 02	71	17. 11	17. 31	17. 51	18. 11	18. 31	18. 51	19. 11	19. 32	19. 52	0. 94	0. 33
72	0. 15	0. 18	0. 01	72	16. 19	16. 38	16. 57	17. 16	17. 35	17. 54	18. 13	18. 32	18. 52	0. 95	0. 32
73	0. 14	0. 17	0. 01	73	15. 26	15. 44	16. 2	16. 20	16. 38	16. 56	17. 15	17. 33	17. 51	0. 96	0. 30
74	0. 14	0. 16	0. 01	74	14. 34	14. 50	15. 7	15. 24	15. 41	15. 58	16. 16	16. 33	16. 50	0. 96	0. 28
75	0. 13	0. 15	0. 01	75	13. 40	13. 56	14. 12	14. 28	14. 44	15. 0	15. 16	15. 32	15. 48	0. 97	0. 26
76	0. 12	0. 14	0. 01	76	12. 46	13. 1	13. 16	13. 31	13. 46	14. 1	14. 16	14. 31	14. 46	0. 97	0. 25
77	0. 11	0. 13	0. 01	77	11. 53	12. 7	12. 20	12. 34	12. 48	13. 2	13. 16	13. 30	13. 44	0. 97	0. 23
78	0. 10	0. 12	0. 01	78	10. 59	11. 12	11. 25	11. 38	11. 50	12. 3	12. 16	12. 29	12. 42	0. 97	0. 22
79	0. 9	0. 11	0. 01	79	10. 5	10. 16	10. 28	10. 40	10. 52	11. 4	11. 15	11. 27	11. 39	0. 98	0. 20
80	0. 8	0. 10	0. 01	80	9. 10	9. 21	9. 32	9. 42	9. 53	10. 4	10. 15	10. 26	10. 37	0. 98	0. 19
81	0. 8	0. 9	0. 01	81	8. 16	8. 26	8. 35	8. 45	8. 55	9. 4	9. 14	9. 24	9. 34	0. 98	0. 17
82	0. 7	0. 8	0. 01	82	7. 21	7. 30	7. 38	7. 47	7. 56	8. 4	8. 13	8. 21	8. 30	0. 98	0. 15
83	0. 6	0. 7	0. 01	83	6. 26	6. 34	6. 41	6. 49	6. 57	7. 4	7. 11	7. 19	7. 26	0. 99	0. 13
84	0. 5	0. 6	0. 01	84	5. 31	5. 38	5. 44	5. 51	5. 57	6. 4	6. 10	6. 17	6. 24	0. 99	0. 12
85	0. 4	0. 5	0. 01	85	4. 36	4. 41	4. 47	4. 53	4. 58	5. 3	5. 9	5. 14	5. 20	0. 99	0. 10
86	0. 3	0. 4	0. 01	86	3. 41	3. 45	3. 50	3. 54	3. 59	4. 3	4. 7	4. 11	4. 15	1. 00	0. 08
87	0. 3	0. 3	0. 01	87	2. 46	2. 50	2. 53	2. 56	2. 59	3. 2	3. 5	3. 8	3. 12	1. 00	0. 06
88	0. 2	0. 2	0. 01	88	1. 51	1. 53	1. 55	1. 57	1 59	2. 1	2. 4	2. 6	2. 8	1. 00	0. 03
89	0. 1	0. 1	0 01	89	0. 56	0. 57	0. 58	0. 59	1. 0	1. 1	1. 2	1. 3	1. 4	1. 00	0. 01
90	0. 0	0. 0	0. 00	90	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 00	0. 00
True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1′ of Alt. for Sun, or Star.	Moon's true Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	Difference to 1′ of Moon's true Altitude.	Differ. to 1″ of Moon's Horizontal Parallax

Moon's Horizontal Parallax. — Reduction of the Moon's true Altitude.

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AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
° ′	° ′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
0 0	59. 59. 29	59. 29	59. 30	59. 30	59. 30	59. 30	59. 30	59. 31	59. 31
10	59. 59. 32	59. 32	59. 32	59. 33	59. 33	59. 33	59. 34	59. 34	59. 34
20	59. 59. 34	59. 35	59. 35	59. 36	59. 36	59. 37	59. 37	59. 38	59. 38
30	59. 59. 37	59. 38	59. 39	59. 39	59. 40	59. 40	59. 41	59. 42	59. 42
40	59. 59. 41	59. 42	59. 42	59. 43	59. 44	59. 45	59. 45	59. 46	59. 47
50	59. 59. 45	59. 45	59. 46	59. 47	59. 48	59. 49	59. 50	59. 50	59. 51
1 0	59. 59. 48	59. 49	59. 50	59. 51	59. 52	59. 53	59. 54	59. 55	59. 56
10	59. 59. 53	59. 53	59. 54	59. 55	59. 56	59. 57	59. 59	0. 0	0. 1
20	59. 59. 57	59. 58	59. 59	0. 0	0. 1	0. 2	0. 4	0. 5	0. 6
30	60. 0. 1	0. 2	0. 4	0. 5	0. 6	0. 7	0. 8	0. 10	0. 11
40	60. 0. 5	0. 7	0. 8	0. 10	0. 11	0. 12	0. 14	0. 15	0. 16
50	60. 0. 10	0. 11	0. 13	0. 14	0. 16	0. 17	0. 19	0. 21	0. 22
2 0	60. 0. 15	0. 16	0. 18	0. 19	0. 21	0. 22	0. 24	0. 26	0. 27
10	60. 0. 20	0. 21	0. 23	0. 24	0. 26	0. 28	0. 30	0. 32	0. 33
20	60. 0. 24	0. 26	0. 28	0. 30	0. 32	0. 33	0. 35	0. 37	0. 39
30	60. 0. 29	0. 31	0. 33	0. 35	0. 37	0. 39	0. 41	0. 43	0. 45
40	60. 0. 34	0. 36	0. 38	0. 40	0. 42	0. 44	0. 46	0. 48	0. 50
50	60. 0. 39	0. 41	0. 43	0. 46	0. 48	0. 50	0. 52	0. 54	0. 56
3 0	60. 0. 44	0. 46	0. 49	0. 51	0. 53	0. 55	0. 57	1. 0	1. 2
10	60. 0. 49	0. 51	0. 54	0. 57	0. 59	1. 1	1. 3	1. 6	1. 8
20	60. 0. 54	0. 57	1. 0	1. 2	1. 4	1. 6	1. 9	1. 12	1. 14
30	60. 0. 59	1. 2	1. 5	1. 8	1. 10	1. 12	1. 15	1. 18	1. 20
40	60. 1. 5	1. 7	1. 10	1. 13	1. 15	1. 18	1. 20	1. 23	1. 26
50	60. 1. 10	1. 13	1. 16	1. 19	1. 21	1. 23	1. 26	1. 29	1. 32
4 0	60. 1. 15	1. 18	1. 21	1. 24	1. 26	1. 29	1. 32	1. 35	1. 38
10	60. 1. 20	1. 23	1. 26	1. 29	1. 32	1. 35	1. 38	1. 41	1. 44
20	60. 1. 26	1. 29	1. 32	1. 35	1. 38	1. 41	1. 44	1. 47	1. 50
30	60. 1. 31	1. 34	1. 37	1. 40	1. 43	1. 47	1. 50	1. 53	1. 56
40	60. 1. 36	1. 39	1. 42	1. 46	1. 49	1. 52	1. 55	1. 59	2. 2
50	60. 1. 41	1. 45	1. 48	1. 51	1. 54	1. 58	2. 1	2. 5	2. 8
5 0	60. 1. 46	1. 50	1. 53	1. 57	2. 0	2. 4	2. 7	2. 11	2. 14
10	60. 1. 52	1. 55	1. 59	2. 3	2. 6	2. 10	2. 13	2. 17	2. 20
20	60. 1. 57	2. 1	2. 4	2. 8	2. 12	2. 16	2. 19	2. 23	2. 26
30	60. 2. 2	2. 6	2. 10	2. 14	2. 18	2. 22	2. 25	2. 29	2. 33
40	60. 2. 7	2. 11	2. 15	2. 19	2. 23	2. 27	2. 31	2. 35	2. 39
50	60. 2. 13	2. 17	2. 21	2. 25	2. 28	2. 32	2. 36	2. 41	2. 45
6 0	60. 2. 18	2. 22	2. 26	2. 30	2. 34	2. 38	2. 42	2. 47	2. 51
10	60. 2. 24	2. 28	2. 32	2. 36	2. 40	2. 44	2. 48	2. 53	2. 57
20	60. 2. 29	2. 33	2. 37	2. 41	2. 46	2. 50	2. 54	2. 59	3. 3
30	60. 2. 34	2. 39	2. 43	2. 47	2. 52	2. 56	3. 0	3. 5	3. 9
40	60. 2. 39	2. 44	2. 48	2. 53	2. 57	3. 2	3. 6	3. 11	3. 15
50	60. 2. 45	2. 50	2. 54	2. 58	3. 3	3. 8	3. 12	3. 17	3. 21
7 0	60. 2. 50	2. 55	2. 59	3. 4	3. 9	3. 14	3. 18	3. 23	3. 28
10	60. 2. 55	3. 0	3. 5	3. 10	3. 15	3. 20	3. 24	3. 29	3. 34
20	60. 3. 1	3. 6	3. 10	3. 15	3. 20	3. 25	3. 30	3. 35	3. 40
30	60. 3. 6	3. 11	3. 16	3. 21	3. 26	3. 31	3. 36	3. 41	3. 46
40	60. 3. 11	3. 16	3. 21	3. 26	3. 32	3. 37	3. 42	3. 47	3. 52
50	60. 3. 16	3. 22	3. 27	3. 32	3. 37	3. 42	3. 48	3. 53	3. 58
8 0	60. 3. 22	3. 27	3. 32	3. 37	3. 43	3. 48	3. 54	3. 59	4. 4
10	60. 3. 27	3. 33	3. 38	3. 43	3. 49	3. 54	4. 0	4. 5	4. 10
20	60. 3. 32	3. 38	3. 43	3. 48	3. 54	4. 0	4. 6	4. 11	4. 16
30	60. 3. 37	3. 43	3. 49	3. 54	4. 0	4. 6	4. 12	4. 17	4. 23
40	60. 3. 43	3. 48	3. 54	4. 0	4. 6	4. 11	4. 17	4. 23	4. 29
50	60. 3. 48	3. 54	4. 0	4. 5	4. 11	4. 17	4. 23	4. 29	4. 35
9 0	60. 3. 53	3. 59	4. 5	4. 11	4. 17	4. 23	4. 29	4. 35	4. 41
10	60. 3. 59	4. 4	4. 11	4. 17	4. 23	4. 29	4. 35	4. 41	4. 47
20	60. 4. 4	4. 10	4. 16	4. 22	4. 28	4. 34	4. 41	4. 47	4. 53
30	60. 4. 9	4. 15	4. 22	4. 28	4. 34	4. 40	4. 47	4. 53	4. 59
40	60. 4. 14	4. 20	4. 27	4. 33	4. 40	4. 46	4. 52	4. 58	5. 5
50	60. 4. 20	4. 26	4. 33	4. 39	4. 45	4. 51	4. 58	5. 4	5. 11
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′
	Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	″	″	″	″	″	″	″	″	″	″	
0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	Add.
20	0	0	0	0	0	0	0	0	0	0	1′ = 0″
30	0	1	1	1	1	1	1	1	1	1	2. 1
40	1	1	1	1	1	1	1	1	1	1	3. 1
50	1	1	1	1	1	1	1	1	1	1	4. 2
0	0	0	0	0	0	0	0	0	0	0	5. 2
10	0	0	0	0	0	0	1	1	1	1	6. 2
20	1	1	1	1	1	1	1	1	1	1	7. 3
30	1	1	1	1	1	1	1	1	1	1	8. 3
40	1	1	1	1	1	2	2	2	2	2	9. 4
50	2	2	2	2	2	2	2	2	2	2	
0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	1	1	1	1	Add.
20	1	1	1	1	1	1	1	1	1	1	1′ = 1″
30	1	1	1	1	1	1	1	1	1	1	2. 1
40	1	1	1	1	1	1	2	2	2	2	3. 2
50	2	2	2	2	2	2	2	2	2	2	4. 2
0	0	0	0	0	0	0	0	0	0	0	5. 3
10	0	0	0	1	1	1	1	1	1	1	6. 3
20	1	1	1	1	1	1	1	1	1	1	7. 4
30	1	1	1	1	1	1	2	2	2	2	8. 4
40	2	2	2	2	2	2	2	2	2	2	9. 5
50	2	2	2	2	2	2	2	2	2	3	
0	0	0	0	0	0	0	0	0	0	0	
10	0	1	1	1	1	1	1	1	1	1	Add.
20	1	1	1	1	1	1	1	1	1	1	1′ = 1″
30	1	2	2	2	2	2	2	2	2	2	2. 1
40	2	2	2	2	2	2	2	2	2	2	3. 2
50	2	3	3	3	3	3	3	3	3	3	4. 2
0	0	0	0	0	0	0	0	0	1	1	5. 3
10	1	1	1	1	1	1	1	1	1	1	6. 3
20	1	1	1	2	2	2	2	2	2	2	7. 4
30	2	2	2	2	2	2	2	2	3	3	8. 5
40	3	3	3	3	3	3	3	3	3	3	9. 5
50	3	3	3	3	3	4	4	4	4	4	
0	0	0	0	0	0	0	0	1	1	1	
10	1	1	1	1	1	1	1	1	1	1	Add.
20	1	1	2	2	2	2	2	2	2	2	1′ = 1″
30	2	2	2	2	3	3	3	3	3	3	2. 1
40	3	3	3	3	3	3	3	3	4	4	3. 2
50	4	4	4	4	4	4	4	4	4	4	4. 2
0	0	0	0	0	0	0	0	1	1	1	5. 3
10	1	1	1	1	1	1	1	1	1	1	6. 3
20	2	2	2	2	2	2	2	2	2	2	7. 4
30	2	3	3	3	3	3	3	3	3	3	8. 5
40	3	3	3	4	4	4	4	4	4	4	9. 5
50	4	4	4	4	4	4	5	5	5	5	
0	0	0	0	0	0	0	1	1	1	1	
10	1	1	1	1	1	1	1	2	2	2	Add.
20	2	2	2	2	2	2	2	2	2	3	1′ = 1″
30	3	3	3	3	3	3	3	3	3	4	2. 1
40	4	4	4	4	4	4	4	4	4	4	3. 2
50	5	5	5	5	5	5	5	5	5	5	4. 2
0	0	0	0	0	0	0	1	1	1	1	5. 3
10	1	1	1	1	1	1	2	2	2	2	6. 3
20	2	2	2	2	2	3	3	3	3	3	7. 4
30	3	3	3	3	3	3	4	4	4	4	8. 4
40	4	4	4	4	4	4	5	5	5	5	9. 5
50	5	5	5	5	5	6	6	6	6	6	
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude

Seconds of Parallax.

Proportional parts to

Correction of the Auxiliary Angle for the Sun's Apparent Altitude.

Sun's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	15°	20°	25°	26°	30°	40°	44°	45°	50°	64°	65°	70°	80°	90°
Cor.—Additive	21″	12″	8″	5″	4″	3″	2″	2″	2″	2″	2″	2″	2″	3″	3″	3″	3″	4″	4″	4″	5″	5″	5″	5″

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional parts to Seconds of Parallax. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
° ′	° ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
10 0	60. 4.25	4.31	4.38	4.44	4.51	4.57	5. 4	5.10	5.17	0	0	0	0	0	0	0	1	1	1	1
10	60. 4.30	4.37	4.44	4.50	4.57	5. 3	5.10	5.16	5.23	10	1	1	1	1	2	2	2	2	2	2
20	60. 4.35	4.42	4.49	4.55	5. 2	5. 9	5.16	5.22	5.29	20	2	2	2	3	3	3	3	3	3	3
30	60. 4.41	4.47	4.54	5. 1	5. 8	5.15	5.22	5.28	5.35	30	3	3	4	4	4	4	4	4	4	4
40	60. 4.46	4.53	5. 0	5. 7	5.14	5.20	5.27	5.34	5.41	40	4	5	5	5	5	5	5	5	5	5
50	60. 4.51	4.58	5. 5	5.12	5.19	5.26	5.33	5.40	5.47	50	6	6	6	6	6	6	6	6	6	7
11 0	60. 4.56	5. 3	5.11	5.18	5.25	5.32	5.39	5.46	5.53	0	0	0	0	0	0	1	1	1	1	1
10	60. 5. 2	5. 9	5.16	5.24	5.31	5.38	5.45	5.52	5.59	10	1	1	1	2	2	2	2	2	2	2
20	60. 5. 7	5.14	5.22	5.29	5.36	5.43	5.51	5.58	6. 5	20	2	3	3	3	3	3	3	3	3	4
30	60. 5.12	5.19	5.27	5.35	5.42	5.49	5.57	6. 4	6.11	30	4	4	4	4	4	4	4	5	5	5
40	60. 5.17	5.24	5.32	5.40	5.47	5.55	6. 2	6.10	6.17	40	5	5	5	5	5	6	6	6	6	6
50	60. 5.23	5.30	5.38	5.46	5.53	6. 0	6. 8	6.16	6.23	50	6	6	6	6	7	7	7	7	7	7
12 0	60. 5.28	5.35	5.43	5.51	5.58	6. 6	6.14	6.22	6.29	0	0	0	0	0	1	1	1	1	1	1
10	60. 5.33	5.40	5.48	5.56	6. 4	6.12	6.20	6.28	6.35	10	1	1	2	2	2	2	2	2	2	2
20	60. 5.38	5.46	5.54	6. 2	6.10	6.18	6.26	6.34	6.41	20	3	3	3	3	3	3	3	4	4	4
30	60. 5.43	5.51	5.59	6. 7	6.15	6.23	6.31	6.39	6.47	30	4	4	4	4	5	5	5	5	5	5
40	60. 5.49	5.57	6. 5	6.13	6.21	6.29	6.37	6.45	6.53	40	5	5	6	6	6	6	6	6	6	6
50	60. 5.54	6. 2	6.10	6.18	6.27	6.35	6.43	6.51	6.59	50	7	7	7	7	7	7	7	8	8	8
13 0	60. 5.59	6. 7	6.15	6.24	6.32	6.40	6.49	6.57	7. 5	0	0	0	0	0	1	1	1	1	1	1
10	60. 6. 4	6.12	6.21	6.30	6.38	6.46	6.55	7. 3	7.11	10	1	2	2	2	2	2	2	2	3	3
20	60. 6. 9	6.18	6.26	6.35	6.43	6.51	7. 0	7. 9	7.17	20	3	3	3	3	3	3	4	4	4	4
30	60. 6.15	6.23	6.32	6.41	6.49	6.57	7. 6	7.15	7.23	30	4	4	4	5	5	5	5	5	5	5
40	60. 6.20	6.28	6.37	6.46	6.55	7. 3	7.12	7.20	7.29	40	6	6	6	6	6	6	6	7	7	7
50	60. 6.25	6.34	6.43	6.52	7. 0	7. 8	7.17	7.26	7.35	50	7	7	7	7	8	8	8	8	8	8
14 0	60. 6.30	6.39	6.48	6.57	7. 6	7.14	7.23	7.32	7.41	0	0	0	0	0	1	1	1	1	1	1
10	60. 6.35	6.44	6.53	7. 2	7.11	7.20	7.29	7.38	7.47	10	2	2	2	2	2	2	2	3	3	3
20	60. 6.41	6.50	6.59	7. 8	7.17	7.26	7.35	7.44	7.53	20	3	3	3	3	4	4	4	4	4	4
30	60. 6.46	6.55	7. 4	7.13	7.22	7.31	7.41	7.50	7.59	30	4	5	5	5	5	5	5	6	6	6
40	60. 6.51	7. 0	7. 9	7.18	7.28	7.37	7.46	7.55	8. 5	40	6	6	6	6	7	7	7	7	7	7
50	60. 6.56	7. 6	7.15	7.24	7.33	7.42	7.52	8. 1	8.11	50	8	8	8	8	8	8	8	9	9	9
15 0	60. 7. 1	7.11	7.20	7.29	7.39	7.48	7.58	8. 7	8.17	0	0	0	0	0	1	1	1	1	1	1
10	60. 7. 6	7.16	7.25	7.35	7.45	7.54	8. 4	8.13	8.23	10	2	2	2	2	2	2	3	3	3	3
20	60. 7.11	7.21	7.31	7.40	7.50	7.59	8. 9	8.19	8.29	20	3	3	4	4	4	4	4	4	4	5
30	60. 7.17	7.27	7.36	7.46	7.56	8. 5	8.15	8.25	8.35	30	5	5	5	5	5	6	6	6	6	6
40	60. 7.22	7.32	7.41	7.51	8. 1	8.11	8.21	8.30	8.40	40	6	7	7	7	7	7	8	8	8	8
50	60. 7.27	7.37	7.47	7.57	8. 7	8.16	8.26	8.36	8.46	50	8	8	8	8	9	9	9	9	9	9
16 0	60. 7.32	7.42	7.52	8. 2	8.12	8.22	8.32	8.42	8.52	0	0	0	0	1	1	1	1	1	1	2
10	60. 7.37	7.47	7.57	8. 7	8.18	8.28	8.38	8.48	8.58	10	2	2	2	2	2	3	3	3	3	3
20	60. 7.42	7.52	8. 3	8.13	8.23	8.33	8.43	8.54	9. 4	20	3	4	4	4	4	4	5	5	5	5
30	60. 7.47	7.58	8. 8	8.18	8.29	8.39	8.49	9. 0	9.10	30	5	5	6	6	6	6	6	7	7	7
40	60. 7.52	8. 3	8.13	8.23	8.34	8.45	8.55	9. 5	9.15	40	7	7	7	7	8	8	8	8	8	8
50	60. 7.57	8. 8	8.19	8.29	8.40	8.50	9. 0	9.11	9.21	50	9	9	9	9	9	9	10	10	10	10
17 0	60. 8. 2	8.13	8.24	8.34	8.45	8.56	9. 6	9.17	9.27	0	0	0	0	1	1	1	1	1	1	2
10	60. 8. 8	8.18	8.29	8.40	8.51	9. 2	9.12	9.23	9.33	10	2	2	2	2	3	3	3	3	3	3
20	60. 8.13	8.23	8.34	8.45	8.56	9. 7	9.17	9.28	9.39	20	4	4	4	4	4	5	5	5	5	5
30	60. 8.18	8.29	8.39	8.50	9. 1	9.12	9.23	9.34	9.45	30	5	6	6	6	6	6	6	7	7	7
40	60. 8.23	8.34	8.45	8.56	9. 7	9.18	9.29	9.40	9.51	40	7	7	8	8	8	8	8	8	9	9
50	60. 8.28	8.39	8.50	9. 1	9.12	9.23	9.35	9.46	9.57	50	9	9	9	10	10	10	10	10	10	11
18 0	60. 8.33	8.44	8.55	9. 6	9.18	9.29	9.40	9.51	10. 2	0	0	0	0	1	1	1	1	1	2	2
10	60. 8.38	8.49	9. 0	9.11	9.23	9.35	9.46	9.57	10. 8	10	2	2	2	2	3	3	3	3	3	4
20	60. 8.43	8.54	9. 6	9.17	9.29	9.40	9.51	10. 2	10.14	20	4	4	4	4	5	5	5	5	5	6
30	60. 8.48	9. 0	9.11	9.22	9.34	9.46	9.57	10. 8	10.20	30	6	6	6	6	7	7	7	7	7	7
40	60. 8.53	9. 5	9.16	9.27	9.39	9.51	10. 3	10.14	10.25	40	8	8	8	8	8	9	9	9	9	9
50	60. 8.58	9.10	9.22	9.33	9.45	9.57	10. 8	10.19	10.31	50	10	10	10	10	10	10	11	11	11	11
19 0	60. 9. 3	9.15	9.27	9.38	9.50	10. 2	10.14	10.25	10.37	0	0	0	1	1	1	1	1	1	2	2
10	60. 9. 8	9.20	9.32	9.44	9.56	10. 8	10.20	10.31	10.43	10	2	2	2	3	3	3	3	3	4	4
20	60. 9.13	9.25	9.37	9.49	10. 1	10.13	10.25	10.37	10.49	20	4	4	4	5	5	5	5	5	6	6
30	60. 9.18	9.30	9.42	9.54	10. 6	10.19	10.31	10.43	10.55	30	6	6	6	7	7	7	7	7	8	8
40	60. 9.23	9.36	9.48	10. 0	10.12	10.24	10.36	10.48	11. 0	40	8	8	8	9	9	9	9	9	10	10
50	60. 9.28	9.41	9.53	10. 5	10.17	10.30	10.42	10.54	11. 6	50	10	10	10	11	11	11	11	11	12	12
App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
	Moon's Horizontal Parallax.										Seconds of Parallax. Proportional Parts to									Minutes of Altitude

Correction of the Auxiliary Angle for the Star's Apparent Altitude.

Star's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	20°	30°	40°	50°	70°	90°
Cor.—Additive	21″	12″	8″	5″	3″	3″	2″	2″	1″	1″	1″	1″	1″	1″	1″	1″	1″	0″	0″	0″	0″	0″	0″	0″

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AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional Parts to Seconds of Parallax. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
° ′	° ′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
20 0	60. 9. 33	9. 46	9. 58	10. 10	10. 22	10. 35	10. 47	10. 59	11. 12	0	0	0	1	1	1	1	2	2	2	
10	60. 9. 38	9. 51	10. 3	10. 16	10. 28	10. 40	10. 53	11. 5	11. 18	10	2	2	3	3	3	3	4	4	4	Add.
20	60. 9. 43	9. 56	10. 8	10. 21	10. 33	10. 46	10. 58	11. 11	11. 23	20	4	4	5	5	5	5	6	6	6	1′ = 1″
30	60. 9. 48	10. 1	10. 14	10. 26	10. 39	10. 51	11. 4	11. 16	11. 29	30	6	7	7	7	7	8	8	8	8	2. 1
40	60. 9. 53	10. 6	10. 19	10. 31	10. 44	10. 57	11. 10	11. 22	11. 35	40	8	9	9	9	9	9	10	10	10	3. 2
50	60. 9. 58	10. 11	10. 24	10. 37	10. 49	11. 2	11. 15	11. 28	11. 41	50	10	11	11	11	11	12	12	12	12	4. 2
21 0	60. 10. 3	10. 16	10. 29	10. 42	10. 55	11. 8	11. 20	11. 33	11. 46	0	0	0	0	1	1	1	1	2	2	2	5. 3
10	60. 10. 8	10. 21	10. 34	10. 47	11. 0	11. 13	11. 26	11. 39	11. 52	10	2	2	3	3	3	3	4	4	4	6. 3
20	60. 10. 13	10. 26	10. 39	10. 52	11. 5	11. 19	11. 32	11. 45	11. 58	20	4	5	5	5	5	6	6	6	6	7. 4
30	60. 10. 18	10. 31	10. 45	10. 58	11. 11	11. 24	11. 37	11. 50	12. 3	30	7	7	7	7	7	8	8	8	8	8. 4
40	60. 10. 23	10. 36	10. 50	11. 3	11. 16	11. 29	11. 42	11. 56	12. 9	40	9	9	9	9	10	10	10	10	11	9. 5
50	60. 10. 28	10. 41	10. 55	11. 8	11. 21	11. 35	11. 48	12. 1	12. 15	50	11	11	11	12	12	12	12	13	13	13
22 0	60. 10. 33	10. 46	11. 0	11. 13	11. 26	11. 40	11. 53	12. 7	12. 20	0	0	0	0	1	1	1	1	2	2	2	
10	60. 10. 38	10. 51	11. 5	11. 18	11. 32	11. 45	11. 59	12. 12	12. 26	10	2	2	3	3	3	3	4	4	4	Add.
20	60. 10. 43	10. 56	11. 10	11. 23	11. 37	11. 51	12. 5	12. 18	12. 32	20	5	5	5	5	5	6	6	6	7	1′ = 1″
30	60. 10. 48	11. 1	11. 15	11. 29	11. 42	11. 56	12. 10	12. 24	12. 37	30	7	7	7	8	8	8	8	9	9	2. 1
40	60. 10. 53	11. 6	11. 20	11. 34	11. 48	12. 2	12. 15	12. 29	12. 43	40	9	9	9	10	10	10	10	11	11	3. 2
50	60. 10. 57	11. 11	11. 25	11. 39	11. 53	12. 7	12. 21	12. 35	12. 49	50	11	11	12	12	12	12	13	13	13	4. 2
23 0	60. 11. 2	11. 16	11. 30	11. 44	11. 58	12. 12	12. 26	12. 40	12. 54	0	0	0	0	1	1	1	1	2	2	2	5. 3
10	60. 11. 7	11. 21	11. 35	11. 49	12. 3	12. 18	12. 32	12. 46	13. 0	10	2	3	3	3	3	4	4	4	4	6. 3
20	60. 11. 12	11. 26	11. 40	11. 54	12. 9	12. 23	12. 37	12. 51	13. 5	20	5	5	5	5	5	6	6	6	7	7. 4
30	60. 11. 17	11. 31	11. 45	12. 0	12. 14	12. 28	12. 43	12. 57	13. 11	30	7	7	7	8	8	8	8	9	9	8. 4
40	60. 11. 22	11. 36	11. 50	12. 5	12. 19	12. 34	12. 48	13. 2	13. 17	40	9	10	10	10	10	11	11	11	11	12	9. 5
50	60. 11. 27	11. 41	11. 55	12. 10	12. 24	12. 39	12. 53	13. 8	13. 22	50	12	12	12	12	13	13	13	13	14	14	
24 0	60. 11. 32	11. 46	12. 0	12. 15	12. 30	12. 44	12. 59	13. 13	13. 27	0	0	0	0	1	1	1	1	2	2	2	
10	60. 11. 36	11. 51	12. 6	12. 20	12. 35	12. 49	13. 4	13. 19	13. 33	10	2	3	3	3	3	4	4	4	4	5	Add.
20	60. 11. 41	11. 56	12. 11	12. 25	12. 40	12. 55	13. 10	13. 24	13. 39	20	5	5	5	6	6	6	6	7	7	7	1′ = 1″
30	60. 11. 46	12. 1	12. 16	12. 30	12. 45	13. 0	13. 15	13. 30	13. 44	30	7	8	8	8	8	9	9	9	9	10	2. 1
40	60. 11. 51	12. 6	12. 21	12. 36	12. 50	13. 5	13. 20	13. 35	13. 50	40	10	10	10	11	11	11	11	12	12	12	3. 2
50	60. 11. 56	12. 11	12. 26	12. 41	12. 56	13. 11	13. 26	13. 42	13. 55	50	12	13	13	13	13	13	14	14	14	14	4. 2
25 0	60. 12. 0	12. 15	12. 31	12. 46	13. 1	13. 16	13. 31	13. 46	14. 1	0	0	0	0	1	1	1	1	2	2	2	5. 3
10	60. 12. 5	12. 20	12. 36	12. 51	13. 6	13. 21	13. 36	13. 51	14. 7	10	2	3	3	3	3	4	4	4	4	5	6. 3
20	60. 12. 10	12. 25	12. 41	12. 56	13. 11	13. 26	13. 42	13. 57	14. 12	20	5	5	5	6	6	6	6	7	7	7	7. 4
30	60. 12. 15	12. 30	12. 46	13. 1	13. 16	13. 32	13. 47	14. 2	14. 17	30	8	8	8	8	9	9	9	9	10	10	8. 4
40	60. 12. 20	12. 35	12. 50	13. 6	13. 21	13. 37	13. 52	14. 8	14. 23	40	10	10	11	11	11	11	12	12	12	12	9. 5
50	60. 12. 24	12. 40	12. 55	13. 11	13. 27	13. 42	13. 58	14. 13	14. 29	50	13	13	13	13	14	14	14	14	15	15	
26 0	60. 12. 29	12. 45	13. 0	13. 16	13. 32	13. 47	14. 3	14. 18	14. 34	0	0	0	0	1	1	1	1	2	2	2	
10	60. 12. 34	12. 50	13. 5	13. 21	13. 37	13. 52	14. 8	14. 24	14. 39	10	3	3	3	3	4	4	4	4	5	5	Add.
20	60. 12. 39	12. 55	13. 10	13. 26	13. 42	13. 58	14. 13	14. 29	14. 45	20	5	6	6	6	6	7	7	7	7	8	1′ = 1″
30	60. 12. 43	12. 59	13. 15	13. 31	13. 47	14. 3	14. 19	14. 35	14. 50	30	8	8	8	9	9	9	9	10	10	10	2. 1
40	60. 12. 48	13. 4	13. 20	13. 36	13. 52	14. 8	14. 24	14. 40	14. 56	40	11	11	11	11	12	12	12	12	13	13	3. 2
50	60. 12. 53	13. 9	13. 25	13. 41	13. 57	14. 13	14. 29	14. 45	15. 1	50	13	13	14	14	14	15	15	15	15	16	4. 2
27 0	60. 12. 58	13. 14	13. 30	13. 46	14. 2	14. 18	14. 35	14. 51	15. 7	0	0	0	1	1	1	1	2	2	2	2	5. 3
10	60. 13. 2	13. 19	13. 35	13. 51	14. 7	14. 23	14. 40	14. 56	15. 12	10	3	3	3	4	4	4	4	5	5	5	6. 3
20	60. 13. 7	13. 23	13. 40	13. 56	14. 12	14. 29	14. 45	15. 1	15. 17	20	5	6	6	6	6	7	7	7	7	8	7. 4
30	60. 13. 12	13. 28	13. 45	14. 1	14. 17	14. 34	14. 50	15. 7	15. 23	30	8	8	9	9	9	10	10	10	10	11	8. 4
40	60. 13. 17	13. 33	13. 49	14. 6	14. 22	14. 39	14. 55	15. 12	15. 28	40	11	11	11	12	12	12	13	13	13	13	9. 5
50	60. 13. 21	13. 38	13. 54	14. 11	14. 27	14. 44	15. 1	15. 17	15. 34	50	14	14	14	14	15	15	15	16	16	16	
28 0	60. 13. 26	13. 42	13. 59	14. 16	14. 32	14. 49	15. 6	15. 22	15. 39	0	0	0	1	1	1	1	2	2	2	3	
10	60. 13. 30	13. 47	14. 4	14. 21	14. 37	14. 54	15. 11	15. 28	15. 45	10	3	3	3	4	4	4	4	5	5	5	Add.
20	60. 13. 35	13. 52	14. 9	14. 26	14. 42	14. 59	15. 16	15. 33	15. 50	20	6	6	6	6	7	7	7	8	8	8	1′ = 1″
30	60. 13. 40	13. 57	14. 14	14. 31	14. 47	15. 4	15. 21	15. 38	15. 55	30	8	9	9	9	10	10	10	10	11	11	2. 1
40	60. 13. 45	14. 1	14. 18	14. 36	14. 52	15. 9	15. 26	15. 43	16. 1	40	11	11	12	12	12	13	13	13	13	14	3. 2
50	60. 13. 49	14. 6	14. 23	14. 41	14. 57	15. 15	15. 32	15. 49	16. 6	50	14	14	15	15	15	15	16	16	16	17	4. 2
29 0	60. 13. 54	14. 11	14. 28	14. 45	15. 2	15. 20	15. 37	15. 54	16. 11	0	0	0	1	1	1	1	2	2	2	3	5. 3
10	60. 13. 58	14. 16	14. 33	14. 50	15. 7	15. 25	15. 42	15. 59	16. 17	10	3	3	3	4	4	4	5	5	5	6	6. 3
20	60. 14. 3	14. 20	14. 38	14. 55	15. 12	15. 30	15. 47	16. 4	16. 22	20	6	6	6	7	7	7	8	8	8	8	7. 4
30	60. 14. 8	14. 25	14. 42	15. 0	15. 17	15. 35	15. 52	16. 10	16. 27	30	9	9	9	10	10	10	10	11	11	11	8. 4
40	60. 14. 12	14. 30	14. 47	15. 5	15. 22	15. 40	15. 57	16. 15	16. 32	40	12	12	12	12	13	13	13	14	14	14	9. 5
50	60. 14. 17	14. 35	14. 52	15. 10	15. 27	15. 45	16. 2	16. 20	16. 38	50	15	15	15	15	16	16	16	17	17	17	
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″ 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Moon's Horizontal Parallax.									Seconds of Parallax. Proportional parts to										

Correction of the Auxiliary Angle for the Sun's Apparent Altitude.

Sun's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	15°	20°	25°	26°	30°	40°	44°	45°	50°	64°	65°	70°	80°	90°
Cor.—Additive	21″	12″	8″	5″	4″	3″	2″	2″	2″	2″	2″	2″	2″	3″	3″	3″	3″	4″	4″	4″	5″	5″	5″	5″

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional Parts to Seconds of Parallax 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
° ′	° ′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
30 0	60. 14. 21	14. 39	14. 57	15. 14	15. 32	15. 50	16. 7	16. 25	16. 43	0 0	0	1	1	1	2	2	2	2	3	
10	60. 14. 26	14. 44	15. 1	15. 19	15. 37	15. 55	16. 13	16. 30	16. 48	10 3	3	4	4	4	5	5	5	5	6	Add.
20	60. 14. 30	14. 48	15. 6	15. 24	15. 42	16. 0	16. 18	16. 36	16. 53	20 6	6	7	7	7	8	8	8	8	9	1′ = 0″
30	60. 14. 35	14. 53	15. 11	15. 29	15. 47	16. 5	16. 23	16. 41	16. 59	30 9	9	10	10	10	11	11	11	11	12	2. 1
40	60. 14. 40	14. 58	15. 16	15. 34	15. 52	16. 10	16. 28	16. 46	17. 4	40 12	12	13	13	13	14	14	14	14	15	3. 1
50	60. 14. 44	15. 2	15. 20	15. 39	15. 57	16. 15	16. 33	16. 51	17. 9	50 15	15	16	16	16	17	17	17	17	18	4. 2
31 0	60. 14. 49	15. 7	15. 25	15. 43	16. 2	16. 20	16. 38	16. 56	17. 14	0 0	0	1	1	1	2	2	2	2	3	5. 2
10	60. 14. 53	15. 11	15. 30	15. 48	16. 7	16. 25	16. 43	17. 1	17. 19	10 3	3	4	4	4	5	5	5	6	6	6. 3
20	60. 14. 58	15. 16	15. 34	15. 53	16. 11	16. 30	16. 48	17. 6	17. 25	20 6	6	7	7	7	8	8	8	9	9	7. 3
30	60. 15. 2	15. 21	15. 39	15. 58	16. 16	16. 35	16. 53	17. 11	17. 30	30 9	10	10	10	10	11	11	11	12	12	8. 4
40	60. 15. 7	15. 25	15. 44	16. 2	16. 21	16. 40	16. 58	17. 16	17. 35	40 12	13	13	13	14	14	14	14	15	15	9. 4
50	60. 15. 11	15. 30	15. 49	16. 7	16. 26	16. 45	17. 3	17. 22	17. 40	50 15	16	16	16	17	17	17	18	18	18	
32 0	60. 15. 16	15. 35	15. 53	16. 12	16. 31	16. 49	17. 8	17. 27	17. 45	0 0	0	1	1	1	2	2	2	3	3	
10	60. 15. 20	15. 39	15. 58	16. 17	16. 36	16. 54	17. 13	17. 32	17. 51	10 3	3	4	4	4	5	5	5	6	6	Add.
20	60. 15. 25	15. 44	16. 2	16. 21	16. 40	16. 59	17. 18	17. 37	17. 56	20 6	7	7	7	8	8	8	9	9	9	1′ = 0″
30	60. 15. 29	15. 48	16. 7	16. 26	16. 45	17. 4	17. 23	17. 42	18. 1	30 9	10	10	10	11	11	11	12	12	12	2. 1
40	60. 15. 34	15. 53	16. 12	16. 31	16. 50	17. 9	17. 28	17. 47	18. 6	40 13	13	13	14	14	14	15	15	15	15	3. 1
50	60. 15. 38	15. 57	16. 16	16. 36	16. 55	17. 14	17. 33	17. 52	18. 11	50 16	16	16	17	17	17	18	18	18	19	4. 2
33 0	60. 15. 43	16. 2	16. 21	16. 40	16. 59	17. 19	17. 38	17. 57	18. 16	0 0	0	1	1	1	2	2	2	3	3	5. 2
10	60. 15. 48	16. 7	16. 26	16. 45	17. 4	17. 24	17. 43	18. 2	18. 21	10 3	4	4	4	5	5	5	5	6	6	6. 3
20	60. 15. 52	16. 11	16. 30	16. 50	17. 9	17. 28	17. 48	18. 7	18. 26	20 6	7	7	7	8	8	8	9	9	9	7. 3
30	60. 15. 56	16. 15	16. 35	16. 54	17. 14	17. 33	17. 53	18. 12	18. 31	30 10	10	10	11	11	11	12	12	12	13	8. 4
40	60. 16. 0	16. 20	16. 39	16. 59	17. 18	17. 38	17. 57	18. 17	18. 36	40 13	13	14	14	14	14	15	15	15	16	9. 4
50	60. 16. 5	16. 24	16. 44	17. 3	17. 23	17. 43	18. 2	18. 22	18. 41	50 16	16	17	17	17	18	18	18	19	19	
34 0	60. 16. 9	16. 29	16. 48	17. 8	17. 28	17. 47	18. 7	18. 27	18. 46	0 0	0	1	1	1	2	2	2	3	3	
10	60. 16. 13	16. 33	16. 53	17. 13	17. 32	17. 52	18. 12	18. 32	18. 51	10 3	4	4	4	5	5	5	6	6	6	Add.
20	60. 16. 18	16. 37	16. 57	17. 17	17. 37	17. 57	18. 17	18. 37	18. 57	20 7	7	7	8	8	8	9	9	9	10	1′ = 0″
30	60. 16. 22	16. 42	17. 2	17. 22	17. 42	18. 2	18. 22	18. 42	19. 2	30 10	10	11	11	11	12	12	12	13	13	2. 1
40	60. 16. 26	16. 46	17. 6	17. 26	17. 47	18. 7	18. 27	18. 47	19. 7	40 13	14	14	14	15	15	15	16	16	16	3. 1
50	60. 16. 31	16. 51	17. 11	17. 31	17. 51	18. 11	18. 32	18. 52	19. 12	50 17	17	17	18	18	18	19	19	19	20	4. 2
35 0	60. 16. 35	16. 55	17. 15	17. 36	17. 56	18. 16	18. 36	18. 56	19. 17	0 0	0	1	1	1	2	2	2	3	3	5. 2
10	60. 16. 39	17. 0	17. 20	17. 40	18. 0	18. 21	18. 41	19. 1	19. 22	10 3	4	4	4	5	5	5	6	6	6	6. 3
20	60. 16. 44	17. 4	17. 24	17. 45	18. 5	18. 26	18. 46	19. 6	19. 27	20 7	7	7	8	8	9	9	9	10	10	7. 3
30	60. 16. 48	17. 8	17. 29	17. 49	18. 10	18. 30	18. 51	19. 11	19. 32	30 10	11	11	11	12	12	12	13	13	13	8. 4
40	60. 16. 52	17. 13	17. 33	17. 54	18. 14	18. 35	18. 55	19. 16	19. 37	40 14	14	14	15	15	15	16	16	16	17	9. 4
50	60. 16. 57	17. 17	17. 38	17. 58	18. 19	18. 40	19. 0	19. 21	19. 41	50 17	17	18	18	18	19	19	19	20	20	
36 0	60. 17. 1	17. 22	17. 42	18. 3	18. 24	18. 44	19. 5	19. 26	19. 46	0 0	0	1	1	1	2	2	2	3	3	
10	60. 17. 5	17. 26	17. 47	18. 7	18. 28	18. 49	19. 10	19. 30	19. 51	10 4	4	4	5	5	5	6	6	6	7	Add.
20	60. 17. 9	17. 30	17. 51	18. 12	18. 33	18. 53	19. 14	19. 35	19. 56	20 7	7	8	8	8	9	9	9	10	10	1′ = 0″
30	60. 17. 13	17. 34	17. 55	18. 16	18. 37	18. 58	19. 19	19. 40	20. 1	30 11	11	11	12	12	12	13	13	13	14	2. 1
40	60. 17. 18	17. 39	18. 0	18. 21	18. 42	19. 3	19. 24	19. 45	20. 6	40 14	14	15	15	15	16	16	16	17	17	3. 1
50	60. 17. 22	17. 43	18. 4	18. 25	18. 46	19. 8	19. 29	19. 50	20. 11	50 18	18	18	19	19	19	20	20	20	21	4. 2
37 0	60. 17. 26	17. 47	18. 9	18. 30	18. 51	19. 12	19. 33	19. 54	20. 15	0 0	0	1	1	1	2	2	2	3	3	5. 2
10	60. 17. 31	17. 52	18. 13	18. 34	18. 55	19. 17	19. 38	19. 59	20. 20	10 4	4	4	5	5	5	6	6	6	7	6. 3
20	60. 17. 35	17. 56	18. 17	18. 39	19. 0	19. 21	19. 42	20. 4	20. 25	20 7	7	8	8	9	9	9	10	10	10	7. 3
30	60. 17. 39	18. 0	18. 22	18. 43	19. 5	19. 26	19. 47	20. 9	20. 30	30 11	11	11	12	12	12	13	13	13	14	8. 4
40	60. 17. 43	18. 4	18. 26	18. 47	19. 9	19. 31	19. 52	20. 13	20. 35	40 14	15	15	15	16	16	16	17	17	17	9. 4
50	60. 17. 47	18. 9	18. 30	18. 52	19. 14	19. 35	19. 57	20. 18	20. 40	50 18	18	19	19	19	20	20	20	21	21	
38 0	60. 17. 51	18. 13	18. 35	18. 56	19. 18	19. 39	20. 1	20. 23	20. 44	0 0	0	1	1	1	2	2	3	3	3	
10	60. 17. 55	18. 17	18. 39	19. 1	19. 22	19. 44	20. 6	20. 27	20. 49	10 4	4	4	5	5	5	6	6	7	7	Add.
20	60. 18. 0	18. 21	18. 43	19. 5	19. 27	19. 49	20. 10	20. 32	20. 54	20 7	8	8	8	9	9	9	10	10	11	1′ = 0″
30	60. 18. 4	18. 26	18. 48	19. 9	19. 31	19. 53	20. 15	20. 37	20. 59	30 11	11	12	12	12	13	13	13	14	14	2. 1
40	60. 18. 8	18. 30	18. 52	19. 14	19. 36	19. 58	20. 20	20. 42	21. 4	40 15	15	15	16	16	16	17	17	17	18	3. 1
50	60. 18. 12	18. 34	18. 56	19. 18	19. 40	20. 2	20. 24	20. 46	21. 8	50 18	19	19	19	20	20	20	21	21	21	4. 2
39 0	60. 18. 16	18. 38	19. 0	19. 22	19. 44	20. 7	20. 29	20. 51	21. 13	0 0	0	1	1	1	2	2	3	3	3	5. 2
10	60. 18. 20	18. 43	19. 5	19. 27	19. 49	20. 11	20. 33	20. 55	21. 18	10 4	4	4	5	5	6	6	6	7	7	6. 3
20	60. 18. 24	18. 47	19. 9	19. 31	19. 54	20. 16	20. 38	21. 0	21. 22	20 7	8	8	9	9	9	10	10	10	11	7. 3
30	60. 18. 28	18. 51	19. 13	19. 35	19. 58	20. 20	20. 43	21. 5	21. 27	30 11	12	12	12	13	13	13	14	14	15	8. 4
40	60. 18. 33	18. 55	19. 17	19. 40	20. 2	20. 25	20. 47	21. 9	21. 32	40 15	15	16	16	16	17	17	17	18	18	9. 4
50	60. 18. 37	18. 59	19. 22	19. 44	20. 7	20. 29	20. 51	21. 14	21. 36	50 19	19	19	20	20	21	21	21	22	22	
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″ 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Moon's Horizontal Parallax.									Seconds of Parallax. Proportional parts to										

Correction of the Auxiliary Angle for the Star's Apparent Altitude.

Star's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	20°	30°	40°	50°	70°	90°
Cor.—Additive	21″	12″	8″	5″	3″	3″	2″	2″	1″	1″	1″	1″	1″	1″	1″	1″	1″	1″	0″	0″	0″	0″	0″	0″

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional parts to Seconds of Parallax. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
° ′	° ′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
40 0	60. 18. 41	19. 3	19. 26	19. 48	20. 11	20. 33	20. 56	21. 18	21. 41	0	0	0	1	1	2	2	2	3	3	3	
10	60. 18. 45	19. 8	19. 30	19. 53	20. 15	20. 38	21. 0	21. 23	21. 45	10	4	4	5	5	5	6	6	6	7	7	Add.
20	60. 18. 49	19. 12	19. 34	19. 57	20. 20	20. 42	21. 5	21. 28	21. 50	20	8	8	8	9	9	9	10	10	11	11	1′ = 0″
30	60. 18. 53	19. 16	19. 38	20. 1	20. 24	20. 47	21. 9	21. 32	21. 55	30	11	12	12	12	13	13	14	14	14	15	2. 1
40	60. 18. 57	19. 20	19. 42	20. 5	20. 28	20. 51	21. 14	21. 37	22. 0	40	15	15	16	16	17	17	17	18	18	18	3. 1
50	60. 19. 1	19. 24	19. 47	20. 9	20. 32	20. 55	21. 18	21. 41	22. 4	50	19	19	20	20	20	21	21	21	22	22	4. 2
41 0	60. 19. 5	19. 28	19. 51	20. 14	20. 37	21. 0	21. 23	21. 46	22. 9	0	0	0	1	1	2	2	2	3	3	3	5. 2
10	60. 19. 9	19. 32	19. 55	20. 18	20. 41	21. 4	21. 27	21. 50	22. 13	10	4	4	5	5	5	6	6	7	7	7	6. 3
20	60. 19. 13	19. 36	19. 59	20. 22	20. 45	21. 8	21. 31	21. 55	22. 18	20	8	8	8	9	9	10	10	10	11	11	7. 3
30	60. 19. 17	19. 40	20. 3	20. 26	20. 50	21. 13	21. 36	21. 59	22. 22	30	12	12	12	13	13	13	14	14	15	15	8. 3
40	60. 19. 21	19. 44	20. 7	20. 31	20. 54	21. 17	21. 40	22. 4	22. 27	40	15	16	16	17	17	17	18	18	18	19	9. 4
50	60. 19. 25	19. 48	20. 11	20. 35	20. 58	21. 21	21. 45	22. 8	22. 31	50	19	20	20	20	21	21	22	22	22	23	
42 0	60. 19. 29	19. 52	20. 15	20. 39	21. 2	21. 26	21. 49	22. 13	22. 36	0	0	0	1	1	2	2	2	3	3	4	
10	60. 19. 32	19. 56	20. 20	20. 43	21. 7	21. 30	21. 53	22. 17	22. 40	10	4	4	5	5	6	6	6	7	7	7	Add.
20	60. 19. 36	20. 0	20. 24	20. 47	21. 11	21. 34	21. 58	22. 21	22. 45	20	8	8	9	9	9	10	10	11	11	11	1′ = 0″
30	60. 19. 40	20. 4	20. 28	20. 51	21. 15	21. 38	22. 2	22. 26	22. 49	30	12	12	13	13	13	14	14	15	15	15	2. 1
40	60. 19. 44	20. 8	20. 32	20. 55	21. 19	21. 43	22. 6	22. 30	22. 54	40	16	16	17	17	17	18	18	18	19	19	3. 1
50	60. 19. 48	20. 12	20. 36	20. 59	21. 23	21. 47	22. 11	22. 34	22. 58	50	20	20	20	21	21	22	22	22	23	23	4. 2
43 0	60. 19. 52	20. 16	20. 40	21. 3	21. 27	21. 51	22. 15	22. 39	23. 3	0	0	0	1	1	2	2	2	3	3	4	5. 2
10	60. 19. 56	20. 20	20. 44	21. 7	21. 31	21. 55	22. 19	22. 43	23. 7	10	4	4	5	5	6	6	6	7	7	8	6. 3
20	60. 20. 0	20. 24	20. 48	21. 11	21. 35	21. 59	22. 23	22. 47	23. 11	20	8	8	9	9	10	10	10	11	11	12	7. 3
30	60. 20. 3	20. 27	20. 51	21. 15	21. 39	22. 4	22. 28	22. 52	23. 16	30	12	12	13	13	14	14	14	15	15	16	8. 3
40	60. 20. 7	20. 31	20. 55	21. 20	21. 44	22. 8	22. 32	22. 56	23. 20	40	16	16	17	17	18	18	18	19	19	20	9. 4
50	60. 20. 11	20. 35	21. 0	21. 24	21. 48	22. 12	22. 36	23. 0	23. 25	50	20	20	21	21	22	22	22	23	23	24	
44 0	60. 20. 15	20. 39	21. 3	21. 28	21. 52	22. 16	22. 41	23. 5	23. 29	0	0	0	1	1	2	2	2	3	3	4	
10	60. 20. 19	20. 43	21. 7	21. 32	21. 56	22. 20	22. 45	23. 9	23. 33	10	4	4	5	5	6	6	6	7	7	8	Add.
20	60. 20. 22	20. 47	21. 11	21. 36	22. 0	22. 24	22. 49	23. 13	23. 38	20	8	9	9	9	10	10	11	11	11	12	1′ = 0″
30	60. 20. 26	20. 51	21. 15	21. 40	22. 4	22. 28	22. 53	23. 18	23. 42	30	12	13	13	13	14	14	15	15	16	16	2. 1
40	60. 20. 30	20. 54	21. 19	21. 44	22. 8	22. 33	22. 57	23. 22	23. 46	40	16	17	17	18	18	18	19	19	20	20	3. 1
50	60. 20. 34	20. 58	21. 23	21. 47	22. 12	22. 37	23. 1	23. 26	23. 50	50	20	21	21	22	22	22	23	23	24	24	4. 2
45 0	60. 20. 37	21. 2	21. 27	21. 51	22. 16	22. 41	23. 5	23. 30	23. 55	0	0	0	1	1	2	2	2	3	3	4	5. 2
10	60. 20. 41	21. 6	21. 31	21. 55	22. 20	22. 45	23. 10	23. 34	23. 59	10	4	5	5	5	6	6	7	7	7	8	6. 2
20	60. 20. 45	21. 10	21. 34	21. 59	22. 24	22. 49	23. 14	23. 39	24. 3	20	8	9	9	10	10	10	11	11	12	12	7. 3
30	60. 20. 48	21. 13	21. 38	22. 3	22. 28	22. 53	23. 18	23. 43	24. 8	30	12	13	13	14	14	15	15	15	16	16	8. 3
40	60. 20. 52	21. 17	21. 42	22. 7	22. 32	22. 57	23. 22	23. 47	24. 12	40	17	17	17	18	18	19	19	20	20	20	9. 4
50	60. 20. 56	21. 21	21. 46	22. 11	22. 36	23. 1	23. 26	23. 51	24. 16	50	21	21	22	22	22	23	23	24	24	25	
46 0	60. 21. 0	21. 25	21. 50	22. 15	22. 40	23. 5	23. 30	23. 55	24. 20	0	0	0	1	1	2	2	3	3	3	4	
10	60. 21. 3	21. 28	21. 54	22. 19	22. 44	23. 9	23. 34	23. 59	24. 25	10	4	5	5	5	6	6	7	7	8	8	Add.
20	60. 21. 7	21. 32	21. 57	22. 23	22. 48	23. 13	23. 38	24. 3	24. 29	20	8	9	9	10	10	11	11	11	12	12	1′ = 0′
30	60. 21. 10	21. 36	22. 1	22. 26	22. 52	23. 17	23. 42	24. 8	24. 33	30	13	13	14	14	14	15	15	16	16	16	2. 1
40	60. 21. 14	21. 40	22. 5	22. 30	22. 56	23. 21	23. 46	24. 12	24. 37	40	17	17	18	18	19	19	19	20	20	21	3. 1
50	60. 21. 18	21. 43	22. 8	22. 34	22. 59	23. 25	23. 50	24. 16	24. 41	50	21	22	22	22	23	23	24	24	25	25	4. 2
47 0	60. 21. 21	21. 47	22. 12	22. 38	23. 3	23. 29	23. 54	24. 20	24. 45	0	0	0	1	1	2	2	3	3	3	4	5. 2
10	60. 21. 25	21. 50	22. 16	22. 42	23. 7	23. 33	23. 58	24. 24	24. 49	10	4	5	5	6	6	6	7	7	8	8	6. 2
20	60. 21. 28	21. 54	22. 20	22. 45	23. 11	23. 37	24. 2	24. 28	24. 54	20	9	9	9	10	10	11	11	12	12	12	7. 3
30	60. 21. 32	21. 58	22. 23	22. 49	23. 15	23. 41	24. 6	24. 32	24. 58	30	13	13	14	14	15	15	15	16	16	17	8. 3
40	60. 21. 35	22. 1	22. 27	22. 53	23. 19	23. 44	24. 10	24. 36	25. 2	40	17	18	18	18	19	19	20	20	21	21	9. 3
50	60. 21. 39	22. 5	22. 31	22. 57	23. 22	23. 48	24. 14	24. 40	25. 6	50	22	22	22	23	23	24	24	25	25	25	
48 0	60. 21. 43	22. 8	22. 34	23. 0	23. 26	23. 52	24. 18	24. 44	25. 10	0	0	0	1	1	2	2	3	3	3	4	
10	60. 21. 46	22. 12	22. 38	23. 4	23. 30	23. 56	24. 22	24. 48	25. 14	10	4	5	5	6	6	7	7	7	8	8	Add.
20	60. 21. 50	22. 16	22. 42	23. 8	23. 34	24. 0	24. 26	24. 52	25. 18	20	9	9	10	10	10	11	11	12	12	13	1′ = 0′
30	60. 21. 53	22. 19	22. 45	23. 11	23. 38	24. 4	24. 30	24. 56	25. 22	30	13	13	14	14	15	15	16	16	17	17	2. 1
40	60. 21. 57	22. 23	22. 49	23. 15	23. 41	24. 7	24. 34	25. 0	25. 26	40	17	18	18	19	19	20	20	21	21	22	3. 1
50	60. 22. 0	22. 26	22. 52	23. 19	23. 45	24. 11	24. 37	25. 4	25. 30	50	22	22	23	23	23	24	24	25	25	26	4. 1
49 0	60. 22. 4	22. 30	22. 56	23. 22	23. 49	24. 15	24. 41	25. 8	25. 34	0	0	0	1	1	2	2	3	3	4	4	5. 2
10	60. 22. 7	22. 33	23. 0	23. 26	23. 52	24. 19	24. 45	25. 11	25. 38	10	4	5	5	6	6	7	7	8	8	8	6. 2
20	60. 22. 10	22. 37	23. 3	23. 30	23. 56	24. 23	24. 49	25. 15	25. 42	20	9	9	10	10	11	11	11	12	12	13	7. 3
30	60. 22. 14	22. 40	23. 7	23. 34	24. 0	24. 26	24. 53	25. 19	25. 46	30	13	14	14	15	15	15	16	16	17	17	8. 3
40	60. 22. 17	22. 44	23. 11	23. 37	24. 3	24. 30	24. 57	25. 23	25. 50	40	18	18	19	19	19	20	20	21	21	22	9. 3
50	60. 22. 21	22. 47	23. 14	23. 41	24. 7	24. 34	25. 0	25. 27	25. 54	50	22	23	23	23	24	24	25	25	26	26	
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Moon's Horizontal Parallax.									Seconds of Parallax.											
										Proportional Parts to											

Correction of the Auxiliary Angle for the Sun's Apparent Altitude.

Sun's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	15°	20°	25°	26°	30°	40°	44°	45°	50°	64°	65°	70°	80°	90°
Cor.—Additive	21″	12″	8″	5″	4″	3″	2″	2″	2″	2″	2″	2″	2″	2″	3″	3″	3″	3″	4″	4″	4″	5″	5″	5″	5″

AUXILIARY ANGLES.

Moon's App. Alt. ° ′	Moon's Horizontal Parallax. 53′ ° ′ ″	54′ ′ ″	55′ ′ ″	56′ ′ ″	57′ ′ ″	58′ ′ ″	59′ ′ ″	60′ ′ ″	61′ ′ ″	Proportional parts to Seconds of Parallax. ″ 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude. ″
50 0	60. 22. 24	22. 51	23. 18	23. 44	24. 11	24. 37	25. 4	25. 31	25. 58	0	0	1	1	2	2	3	3	4	4	
10	60. 22. 28	22. 54	23. 21	23. 48	24. 15	24. 41	25. 8	25. 35	26. 1	10	4	5	5	6	6	7	7	8	8	9	Add.
20	60. 22. 31	22. 58	23. 25	23. 51	24. 18	24. 45	25. 11	25. 38	26. 5	20	9	9	10	10	11	11	12	12	13	13	1′ = 0″
30	60. 22. 34	23. 1	23. 28	23. 55	24. 22	24. 49	25. 15	25. 42	26. 9	30	13	14	14	15	15	16	16	17	17	17	2. 1
40	60. 22. 38	23. 5	23. 31	23. 58	24. 25	24. 52	25. 19	25. 46	26. 13	40	18	18	19	19	20	20	21	21	22	22	3. 1
50	60. 22. 41	23. 8	23. 35	24. 2	24. 29	24. 56	25. 23	25. 50	26. 17	50	22	23	23	24	24	25	25	26	26	26	4. 1
51 0	60. 22. 44	23. 11	23. 38	24. 5	24. 32	25. 0	25. 27	25. 54	26. 21	0	0	0	1	1	2	2	3	3	4	4	5. 2
10	60. 22. 47	23. 15	23. 42	24. 9	24. 36	25. 3	25. 30	25. 57	26. 24	10	5	5	5	6	6	7	7	8	8	9	6. 2
20	60. 22. 51	23. 18	23. 45	24. 12	24. 40	25. 7	25. 34	26. 1	26. 28	20	9	10	10	10	11	11	12	12	13	13	7. 2
30	60. 22. 54	23. 21	23. 49	24. 16	24. 43	25. 10	25. 38	26. 5	26. 32	30	14	14	15	15	15	16	16	17	17	18	8. 3
40	60. 22. 57	23. 25	23. 52	24. 19	24. 47	25. 14	25. 41	26. 8	26. 35	40	18	19	19	20	20	20	21	21	22	22	9. 3
50	60. 23. 1	23. 28	23. 55	24. 23	24. 50	25. 17	25. 45	26. 12	26. 39	50	23	23	24	24	25	25	25	26	26	27	
52 0	60. 23. 4	23. 31	23. 59	24. 26	24. 54	25. 21	25. 48	26. 16	26. 43	0	0	0	1	1	2	2	3	3	4	4	
10	60. 23. 7	23. 35	24. 2	24. 30	24. 57	25. 24	25. 52	26. 19	26. 47	10	5	5	5	6	6	7	7	8	8	9	Add.
20	60. 23. 10	23. 38	24. 5	24. 33	25. 0	25. 28	25. 55	26. 23	26. 50	20	9	10	10	11	11	11	12	12	13	13	1′ = 0″
30	60. 23. 14	23. 41	24. 9	24. 36	25. 4	25. 31	25. 59	26. 27	26. 54	30	14	14	15	15	16	16	17	17	17	18	2. 1
40	60. 23. 17	23. 44	24. 12	24. 40	25. 7	25. 35	26. 3	26. 30	26. 58	40	18	19	19	20	20	21	21	22	22	22	3. 1
50	60. 23. 20	23. 48	24. 15	24. 43	25. 11	25. 38	26. 6	26. 34	27. 1	50	23	23	24	24	25	25	26	26	27	27	4. 1
53 0	60. 23. 23	23. 51	24. 19	24. 46	25. 14	25. 42	26. 10	26. 37	27. 5	0	0	0	1	1	2	2	3	3	4	4	5. 2
10	60. 23. 26	23. 54	24. 22	24. 50	25. 18	25. 45	26. 13	26. 41	27. 8	10	5	5	6	6	7	7	7	8	8	9	6. 2
20	60. 23. 29	23. 57	24. 25	24. 53	25. 21	25. 49	26. 17	26. 44	27. 12	20	9	10	10	11	11	12	12	13	13	14	7. 2
30	60. 23. 32	24. 0	24. 28	24. 56	25. 24	25. 52	26. 20	26. 48	27. 16	30	14	14	15	15	16	16	17	17	18	18	8. 3
40	60. 23. 36	24. 4	24. 32	25. 0	25. 28	25. 56	26. 24	26. 52	27. 19	40	19	19	20	20	21	21	21	22	22	23	9. 3
50	60. 23. 39	24. 7	24. 35	25. 3	25. 31	25. 59	26. 27	26. 55	27. 23	50	23	24	24	25	25	26	26	27	27	27	
54 0	60. 23. 42	24. 10	24. 38	25. 6	25. 34	26. 2	26. 30	26. 59	27. 27	0	0	0	1	1	2	2	3	3	4	4	
10	60. 23. 45	24. 13	24. 41	25. 10	25. 38	26. 6	26. 34	27. 2	27. 30	10	5	5	6	6	7	7	8	8	8	9	Add.
20	60. 23. 48	24. 16	24. 44	25. 13	25. 41	26. 9	26. 37	27. 5	27. 34	20	9	10	10	11	11	12	12	13	13	14	1′ = 0″
30	60. 23. 51	24. 19	24. 48	25. 16	25. 44	26. 13	26. 41	27. 9	27. 37	30	14	15	15	16	16	16	17	17	18	18	2. 1
40	60. 23. 54	24. 23	24. 51	25. 19	25. 48	26. 16	26. 44	27. 12	27. 41	40	19	19	20	20	21	21	22	22	23	23	3. 1
50	60. 23. 57	24. 26	24. 54	25. 22	25. 51	26. 19	26. 48	27. 16	27. 44	50	24	24	24	25	25	26	26	27	27	28	4. 1
55 0	60. 24. 0	24. 29	24. 57	25. 25	25. 54	26. 22	26. 51	27. 19	27. 48	0	0	0	1	1	2	2	3	3	4	4	5. 2
10	60. 24. 3	24. 32	25. 0	25. 29	25. 57	26. 26	26. 54	27. 23	27. 51	10	5	5	6	6	7	7	8	8	9	9	6. 2
20	60. 24. 6	24. 35	25. 3	25. 32	26. 0	26. 29	26. 58	27. 26	27. 55	20	10	10	10	11	11	12	12	13	13	14	7. 2
30	60. 24. 9	24. 38	25. 6	25. 35	26. 4	26. 32	27. 1	27. 29	27. 58	30	14	15	15	16	16	17	17	18	18	19	8. 3
40	60. 24. 12	24. 41	25. 10	25. 38	26. 7	26. 35	27. 4	27. 33	28. 1	40	19	20	20	20	21	21	22	22	23	23	9. 3
50	60. 24. 15	24. 44	25. 13	25. 41	26. 10	26. 39	27. 7	27. 36	28. 5	50	24	24	25	25	26	26	27	27	28	28	
56 0	60. 24. 18	24. 47	25. 16	25. 44	26. 13	26. 42	27. 11	27. 39	28. 8	0	0	0	1	1	2	2	3	3	4	4	
10	60. 24. 21	24. 50	25. 19	25. 48	26. 16	26. 45	27. 14	27. 43	28. 12	10	5	5	6	6	7	7	8	8	9	9	Add.
20	60. 24. 24	24. 53	25. 22	25. 51	26. 19	26. 48	27. 17	27. 46	28. 15	20	10	10	11	11	12	12	13	13	13	14	1′ = 0″
30	60. 24. 27	24. 56	25. 25	25. 54	26. 23	26. 51	27. 20	27. 49	28. 18	30	14	15	15	16	16	17	17	18	18	19	2. 1
40	60. 24. 30	24. 59	25. 28	25. 57	26. 26	26. 55	27. 24	27. 53	28. 22	40	19	20	20	21	21	22	22	23	23	24	3. 1
50	60. 24. 33	25. 2	25. 31	26. 0	26. 29	26. 58	27. 27	27. 56	28. 25	50	24	25	25	25	26	26	27	27	28	28	4. 1
57 0	60. 24. 35	25. 4	25. 34	26. 3	26. 32	27. 1	27. 30	27. 59	28. 28	0	0	0	1	1	2	2	3	3	4	4	5. 2
10	60. 24. 38	25. 7	25. 36	26. 6	26. 35	27. 4	27. 33	28. 2	28. 31	10	5	5	6	6	7	7	8	8	9	9	6. 2
20	60. 24. 41	25. 10	25. 39	26. 9	26. 38	27. 7	27. 36	28. 6	28. 35	20	10	10	11	11	12	12	13	13	14	14	7. 2
30	60. 24. 44	25. 13	25. 42	26. 12	26. 41	27. 10	27. 40	28. 9	28. 38	30	15	15	16	16	17	17	18	18	19	19	8. 2
40	60. 24. 47	25. 16	25. 45	26. 15	26. 44	27. 13	27. 43	28. 12	28. 41	40	19	20	20	21	21	22	22	23	23	24	9. 3
50	60. 24. 50	25. 19	25. 48	26. 18	26. 47	27. 16	27. 46	28. 15	28. 44	50	24	25	25	26	26	27	27	28	28	29	
58 0	60. 24. 52	25. 22	25. 51	26. 21	26. 50	27. 19	27. 49	28. 18	28. 48	0	0	0	1	1	2	2	3	3	4	4	
10	60. 24. 55	25. 25	25. 54	26. 24	26. 53	27. 23	27. 52	28. 21	28. 51	10	5	5	6	6	7	7	8	8	9	9	Add.
20	60. 24. 58	25. 28	25. 57	26. 27	26. 56	27. 26	27. 55	28. 25	28. 54	20	10	10	11	11	12	12	13	13	14	14	1′ = 0″
30	60. 25. 1	25. 30	26. 0	26. 29	26. 59	27. 29	27. 58	28. 28	28. 57	30	15	15	16	16	17	17	18	18	19	19	2. 1
40	60. 25. 3	25. 33	26. 3	26. 32	27. 2	27. 32	28. 1	28. 31	29. 0	40	20	20	21	21	22	22	23	23	24	24	3. 1
50	60. 25. 6	25. 36	26. 6	26. 35	27. 5	27. 34	28. 4	28. 34	29. 3	50	25	25	26	26	27	27	28	28	29	29	4. 1
59 0	60. 25. 9	25. 39	26. 8	26. 38	27. 8	27. 37	28. 7	28. 37	29. 6	0	0	0	1	1	2	2	3	3	4	4	5. 1
10	60. 25. 11	25. 41	26. 11	26. 41	27. 11	27. 40	28. 10	28. 40	29. 10	10	5	5	6	6	7	7	8	8	9	9	6. 2
20	60. 25. 14	25. 44	26. 14	26. 44	27. 13	27. 43	28. 13	28. 43	29. 13	20	10	10	11	11	12	12	13	13	14	14	7. 2
30	60. 25. 17	25. 47	26. 17	26. 47	27. 16	27. 46	28. 16	28. 46	29. 16	30	15	15	16	16	17	17	18	18	19	19	8. 2
40	60. 25. 20	25. 49	26. 19	26. 49	27. 19	27. 49	28. 19	28. 49	29. 19	40	20	20	21	21	22	22	23	23	24	24	9. 3
50	60. 25. 22	25. 52	26. 22	26. 52	27. 22	27. 52	28. 22	28. 52	29. 22	50	25	25	26	26	27	27	28	28	29	29	
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Moon's Horizontal Parallax.										Seconds of Parallax. Proportional Parts to										

Correction of the Auxiliary Angle for the Star's Apparent Altitude.

Star's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	20°	30°	40°	50°	70°	90°
Cor.—Additive	21″	12″	8″	5″	3″	3″	2″	2″	1″	1″	1″	1″	1″	1″	1″	1″	1″	0″	0″	0″	0″	0″	0″	0″

AUXILIARY ANGLES.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional parts to Seconds of Parallax. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
°	′	° ′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
60	0	60. 25. 25	25. 55	26. 25	26. 55	27. 25	27. 55	28. 25	28. 55	29. 25	0	0	1	1	2	2	3	3	4	4	5
	10	60. 25. 27	25. 57	26. 28	26. 58	27. 28	27. 58	28. 28	28. 58	29. 28	10	5	6	6	7	7	8	8	9	9	10
	20	60. 25. 30	26. 0	26. 30	27. 1	27. 31	28. 1	28. 31	29. 1	29. 31	20	10	11	11	12	12	13	13	14	14	15
	30	60. 25. 33	26. 3	26. 33	27. 3	27. 33	28. 4	28. 34	29. 4	29. 34	30	15	16	16	17	17	18	18	19	19	20
	40	60. 25. 35	26. 5	26. 36	27. 6	27. 36	28. 6	28. 37	29. 7	29. 37	40	20	21	21	22	22	23	23	24	24	25
	50	60. 25. 38	26. 8	26. 38	27. 9	27. 39	28. 9	28. 39	29. 10	29. 40	50	25	26	26	27	27	28	28	29	29	30
61	0	60. 25. 40	26. 11	26. 41	27. 11	27. 42	28. 12	28. 42	29. 12	29. 43	0	0	1	1	2	2	3	3	4	4	5
	10	60. 25. 43	26. 13	26. 44	27. 14	27. 44	28. 15	28. 45	29. 15	29. 46	10	5	6	6	7	7	8	8	9	9	10
	20	60. 25. 45	26. 16	26. 46	27. 17	27. 47	28. 18	28. 48	29. 18	29. 49	20	10	11	11	12	12	13	13	14	14	15
	30	60. 25. 48	26. 18	26. 49	27. 19	27. 50	28. 20	28. 51	29. 21	29. 51	30	15	16	16	17	17	18	18	19	19	20
	40	60. 25. 51	26. 21	26. 51	27. 22	27. 52	28. 23	28. 53	29. 24	29. 54	40	20	21	21	22	22	23	23	24	24	25
	50	60. 25. 53	26. 23	26. 54	27. 25	27. 55	28. 26	28. 56	29. 27	29. 57	50	25	26	26	27	27	28	28	29	29	30
62	0	60. 25. 55	26. 26	26. 57	27. 27	27. 58	28. 28	28. 59	29. 29	30. 0	0	0	1	1	2	2	3	3	4	4	5
	10	60. 25. 58	26. 28	26. 59	27. 30	28. 0	28. 31	29. 2	29. 32	30. 3	10	5	6	6	7	7	8	8	9	9	10
	20	60. 26. 0	26. 31	27. 2	27. 32	28. 3	28. 34	29. 4	29. 35	30. 6	30	10	11	11	12	12	13	13	14	14	15
	30	60. 26. 3	26. 33	27. 4	27. 35	28. 6	28. 36	29. 7	29. 38	30. 8	30	15	16	16	17	17	18	18	19	19	20
	40	60. 26. 5	26. 36	27. 7	27. 37	28. 8	28. 39	29. 10	29. 40	30. 11	40	20	21	21	22	22	23	23	24	24	25
	50	60. 26. 7	26. 38	27. 9	27. 40	28. 11	28. 42	29. 12	29. 43	30. 14	50	26	26	27	27	28	28	29	29	30	30
63	0	60. 26. 10	26. 41	27. 12	27. 43	28. 13	28. 44	29. 15	29. 46	30. 17	0	0	1	1	2	2	3	3	4	4	5
	10	60. 26. 12	26. 43	27. 14	27. 45	28. 16	28. 47	29. 18	29. 49	30. 19	10	5	6	6	7	7	8	8	9	9	10
	20	60. 26. 15	26. 46	27. 17	27. 48	28. 19	28. 50	29. 20	29. 51	30. 22	20	10	11	11	12	12	13	14	14	15	15
	30	60. 26. 17	26. 48	27. 19	27. 50	28. 21	28. 52	29. 23	29. 54	30. 25	30	16	16	17	17	18	18	19	19	20	20
	40	60. 26. 19	26. 50	27. 21	27. 52	28. 23	28. 54	29. 25	29. 56	30. 27	40	21	21	22	22	23	23	24	24	25	25
	50	60. 26. 22	26. 53	27. 24	27. 55	28. 26	28. 57	29. 28	29. 59	30. 30	50	26	27	27	28	28	29	29	30	30	31
64	0	60. 26. 24	26. 55	27. 26	27. 57	28. 28	28. 59	29. 31	30. 2	30. 33	0	0	1	1	2	2	3	3	4	4	5
	10	60. 26. 26	26. 57	27. 29	28. 0	28. 31	29. 2	29. 33	30. 4	30. 35	10	5	6	6	7	7	8	8	9	9	10
	20	60. 26. 28	27. 0	27. 31	28. 2	28. 33	29. 5	29. 36	30. 7	30. 38	20	10	11	11	12	12	13	14	14	15	15
	30	60. 26. 31	27. 2	27. 33	28. 5	28. 36	29. 7	29. 38	30. 9	30. 41	30	16	16	17	17	18	18	19	19	20	20
	40	60. 26. 33	27. 4	27. 36	28. 7	28. 38	29. 9	29. 41	30. 12	30. 43	40	21	21	22	22	23	23	24	24	25	25
	50	60. 26. 35	27. 7	27. 38	28. 9	28. 41	29. 12	29. 43	30. 14	30. 46	50	26	27	27	28	28	29	29	30	30	31
65	0	60. 26. 37	27. 9	27. 40	28. 12	28. 43	29. 14	29. 46	30. 17	30. 48	0	0	1	1	2	2	3	3	4	4	5
	10	60. 26. 40	27. 11	27. 43	28. 14	28. 45	29. 17	29. 48	30. 20	30. 51	10	5	6	6	7	7	8	8	9	9	10
	20	60. 26. 42	27. 13	27. 45	28. 16	28. 48	29. 19	29. 51	30. 22	30. 53	20	10	11	12	12	13	13	14	14	15	15
	30	60. 26. 44	27. 16	27. 47	28. 19	28. 50	29. 22	29. 53	30. 24	30. 56	30	16	16	17	17	18	18	19	19	20	20
	40	60. 26. 46	27. 18	27. 49	28. 21	28. 52	29. 24	29. 55	30. 27	30. 59	40	21	21	22	22	23	24	24	25	25	26
	50	60. 26. 48	27. 20	27. 52	28. 23	28. 55	29. 26	29. 58	30. 29	31. 1	50	26	27	27	28	28	29	29	30	30	31
66	0	60. 26. 51	27. 22	27. 54	28. 25	28. 57	29. 29	30. 0	30. 32	31. 3	0	0	1	1	2	2	3	3	4	4	5
	10	60. 26. 53	27. 24	27. 56	28. 28	28. 59	29. 31	30. 3	30. 34	31. 6	10	5	6	6	7	7	8	8	9	10	10
	20	60. 26. 55	27. 27	27. 58	28. 30	29. 2	29. 33	30. 5	30. 36	31. 8	20	11	11	12	12	13	13	14	14	15	15
	30	60. 26. 57	27. 29	28. 0	28. 32	29. 4	29. 35	30. 7	30. 39	31. 11	30	16	16	17	17	18	19	19	20	20	21
	40	60. 26. 59	27. 31	28. 2	28. 34	29. 6	29. 38	30. 10	30. 41	31. 13	40	21	22	22	23	23	24	24	25	25	26
	50	60. 27. 1	27. 33	28. 5	28. 37	29. 8	29. 40	30. 12	30. 44	31. 15	50	27	27	28	28	29	29	30	30	31	31
67	0	60. 27. 3	27. 35	28. 7	28. 39	29. 10	29. 42	30. 14	30. 46	31. 18	0	0	1	1	2	2	3	3	4	4	5
	10	60. 27. 5	27. 37	28. 9	28. 41	29. 13	29. 45	30. 16	30. 48	31. 20	10	5	6	6	7	7	8	9	9	10	10
	20	60. 27. 7	27. 39	28. 11	28. 43	29. 15	29. 47	30. 19	30. 50	31. 22	20	11	11	12	12	13	13	14	14	15	15
	30	60. 27. 9	27. 41	28. 13	28. 45	29. 17	29. 49	30. 21	30. 53	31. 25	30	16	17	17	18	18	19	19	20	20	21
	40	60. 27. 11	27. 43	28. 15	28. 47	29. 19	29. 51	30. 23	30. 55	31. 27	40	21	22	22	23	23	24	25	25	26	26
	50	60. 27. 13	27. 45	28. 17	28. 49	29. 21	29. 53	30. 25	30. 57	31. 29	50	27	27	28	28	29	29	30	30	31	31
68	0	60. 27. 15	27. 47	28. 19	28. 51	29. 23	29. 55	30. 28	31. 0	31. 32	0	0	1	1	2	2	3	3	4	4	5
	10	60. 27. 17	27. 49	28. 21	28. 53	29. 26	29. 58	30. 30	31. 2	31. 34	10	5	6	6	7	7	8	9	9	10	10
	20	60. 27. 19	27. 51	28. 23	28. 55	29. 28	30. 0	30. 32	31. 4	31. 36	20	11	11	12	12	13	13	14	14	15	16
	30	60. 27. 21	27. 53	28. 25	28. 57	29. 30	30. 2	30. 34	31. 6	31. 38	30	16	17	17	18	18	19	19	20	20	21
	40	60. 27. 23	27. 55	28. 27	28. 59	29. 32	30. 4	30. 36	31. 8	31. 40	40	21	22	22	23	24	24	25	25	26	26
	50	60. 27. 25	27. 57	28. 29	29. 2	29. 34	30. 6	30. 38	31. 11	31. 43	50	27	27	28	28	29	29	30	30	31	32
69	0	60. 27. 27	27. 59	28. 31	29. 4	29. 36	30. 8	30. 40	31. 13	31. 45	0	0	1	1	2	2	3	3	4	4	5
	10	60. 27. 29	28. 1	28. 33	29. 6	29. 38	30. 10	30. 42	31. 15	31. 47	10	5	6	6	7	8	8	9	9	10	10
	20	60. 27. 30	28. 3	28. 35	29. 8	29. 40	30. 12	30. 45	31. 17	31. 49	20	11	11	12	12	13	14	14	15	15	16
	30	60. 27. 32	28. 5	28. 37	29. 9	29. 42	30. 14	30. 47	31. 19	31. 51	30	16	17	17	18	18	19	19	20	21	21
	40	60. 27. 34	28. 6	28. 39	29. 11	29. 44	30. 16	30. 49	31. 21	31. 53	40	22	22	23	23	24	24	25	25	26	26
	50	60. 27. 36	28. 8	28. 41	29. 13	29. 46	30. 18	30. 51	31. 23	31. 55	50	27	28	28	29	29	30	30	31	31	32
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
		Moon's Horizontal Parallax.										Seconds of Parallax. Proportional Parts to									Minutes of Altitude

Correction of the Auxiliary Angle for the Sun's Apparent Altitude.

Sun's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	15°	20°	25°	26°	30°	40°	44°	45°	50°	64°	65°	70°	80°	90°
Cor.—Additive	21″	12″	8″	5″	4″	3″	2″	2″	2″	2″	2″	2″	2″	3″	3″	3″	3″	4″	4″	4″	5″	5″	5″	5″

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional Parts to Seconds of Parallax. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
° ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	″	″	″	″	″	″	″	″	″	″	
70 0	60. 27. 38	28. 10	28. 43	29. 15	29. 48	30. 20	30. 53	31. 25	31. 57	0	0	1	1	2	2	3	3	4	4	5	
10	60. 27. 40	28. 12	28. 45	29. 17	29. 50	30. 22	30. 55	31. 27	31. 59	10	5	6	6	7	8	8	9	9	10	10	Add.
20	60. 27. 41	28. 14	28. 46	29. 19	29. 52	30. 24	30. 57	31. 29	32. 1	20	11	11	12	12	13	14	14	15	15	16	1′ = 0″
30	60. 27. 43	28. 16	28. 48	29. 21	29. 54	30. 26	30. 59	31. 31	32. 3	30	16	17	17	18	18	19	19	20	21	21	2. 0
40	60. 27. 45	28. 18	28. 50	29. 23	29. 55	30. 28	31. 0	31. 33	32. 5	40	22	22	23	23	24	24	25	25	26	26	3. 1
50	60. 27. 47	28. 19	28. 52	29. 24	29. 57	30. 30	31. 2	31. 35	32. 7	50	27	28	28	29	29	30	30	31	31	32	4. 1
71 0	60. 27. 48	28. 21	28. 54	29. 26	29. 59	30. 32	31. 4	31. 37	32. 9	0	0	1	1	2	2	3	3	4	4	5	5. 1
10	60. 27. 50	28. 23	28. 55	29. 28	30. 1	30. 34	31. 6	31. 39	32. 11	10	5	6	7	7	8	8	9	9	10	10	6. 1
20	60. 27. 52	28. 24	28. 57	29. 30	30. 3	30. 35	31. 8	31. 41	32. 13	20	11	11	12	13	13	14	14	15	15	16	7. 1
30	60. 27. 53	28. 26	28. 59	29. 32	30. 4	30. 37	31. 10	31. 43	32. 15	30	16	17	17	18	19	19	20	20	21	21	8. 1
40	60. 27. 55	28. 28	29. 1	29. 33	30. 6	30. 39	31. 12	31. 44	32. 17	40	22	22	23	23	24	25	25	26	26	27	9. 2
50	60. 27. 57	28. 29	29. 2	29. 35	30. 8	30. 41	31. 14	31. 46	32. 19	50	27	28	28	29	29	30	31	31	32	32	
72 0	60. 27. 58	28. 31	29. 4	29. 37	30. 10	30. 42	31. 15	31. 48	32. 21	0	0	1	1	2	2	3	3	4	4	5	
10	60. 28. 0	28. 33	29. 6	29. 38	30. 11	30. 44	31. 17	31. 50	32. 23	10	6	6	7	7	8	8	9	9	10	10	Add.
20	60. 28. 1	28. 34	29. 7	29. 40	30. 13	30. 46	31. 19	31. 52	32. 25	20	11	12	12	13	13	14	14	15	15	16	1′ = 0″
30	60. 28. 3	28. 36	29. 9	29. 42	30. 15	30. 48	31. 21	31. 54	32. 27	30	17	17	18	18	19	19	20	20	21	21	2. 0
40	60. 28. 5	28. 37	29. 11	29. 44	30. 17	30. 49	31. 22	31. 55	32. 28	40	22	23	23	24	24	25	25	26	26	27	3. 0
50	60. 28. 6	28. 39	29. 12	29. 45	30. 18	30. 51	31. 24	31. 57	32. 30	50	27	28	29	29	30	30	31	31	32	32	4. 1
73 0	60. 28. 8	28. 41	29. 14	29. 47	30. 20	30. 53	31. 26	31. 59	32. 32	0	0	1	1	2	2	3	3	4	4	5	5. 1
10	60. 28. 9	28. 42	29. 15	29. 48	30. 21	30. 54	31. 27	32. 0	32. 34	10	6	6	7	7	8	8	9	9	10	10	6. 1
20	60. 28. 11	28. 44	29. 17	29. 50	30. 23	30. 56	31. 29	32. 2	32. 35	20	11	12	12	13	13	14	14	15	15	16	7. 1
30	60. 28. 12	28. 45	29. 19	29. 52	30. 25	30. 58	31. 31	32. 4	32. 37	30	16	17	18	18	19	19	20	20	21	21	8. 1
40	60. 28. 14	28. 47	29. 20	29. 53	30. 26	30. 59	31. 33	32. 6	32. 39	40	22	23	23	24	24	25	25	26	26	27	9. 1
50	60. 28. 15	28. 48	29. 22	29. 55	30. 28	31. 1	31. 34	32. 7	32. 40	50	27	28	29	29	30	30	31	31	32	32	
74 0	60. 28. 16	28. 50	29. 23	29. 56	30. 30	31. 3	31. 36	32. 9	32. 42	0	0	1	1	2	2	3	3	4	4	5	
10	60. 28. 18	28. 51	29. 24	29. 58	30. 31	31. 4	31. 37	32. 10	32. 44	10	6	6	7	7	8	8	9	9	10	11	Add.
20	60. 28. 19	28. 53	29. 26	29. 59	30. 32	31. 6	31. 39	32. 12	32. 45	20	11	12	12	13	13	14	14	15	16	16	1′ = 0″
30	60. 28. 21	28. 54	29. 27	30. 1	30. 34	31. 7	31. 40	32. 14	32. 47	30	17	17	18	18	19	19	20	20	21	22	2. 0
40	60. 28. 22	28. 55	29. 29	30. 2	30. 35	31. 9	31. 42	32. 15	32. 49	40	22	23	23	24	24	25	25	26	27	27	3. 0
50	60. 28. 24	28. 57	29. 30	30. 4	30. 37	31. 10	31. 44	32. 17	32. 50	50	28	28	29	29	30	30	31	32	32	33	4. 1
75 0	60. 28. 25	28. 58	29. 32	30. 5	30. 38	31. 12	31. 45	32. 18	32. 52	0	0	1	1	2	2	3	3	4	4	5	5. 1
10	60. 28. 26	29. 0	29. 33	30. 6	30. 40	31. 13	31. 47	32. 20	32. 53	10	6	6	7	7	8	8	9	9	10	11	6. 1
20	60. 28. 28	29. 1	29. 34	30. 8	30. 42	31. 15	31. 48	32. 21	32. 55	20	11	12	12	13	13	14	14	15	16	16	7. 1
30	60. 28. 29	29. 2	29. 36	30. 9	30. 43	31. 16	31. 50	32. 23	32. 56	30	17	17	18	18	19	19	20	21	21	22	8. 1
40	60. 28. 30	29. 4	29. 37	30. 11	30. 44	31. 18	31. 51	32. 24	32. 58	40	22	23	23	24	24	25	26	26	27	27	9. 1
50	60. 28. 32	29. 5	29. 38	30. 12	30. 46	31. 19	31. 52	32. 26	32. 59	50	28	28	29	29	30	31	31	32	32	33	
76 0	60. 28. 33	29. 6	29. 40	30. 13	30. 47	31. 20	31. 54	32. 27	33. 1	0	0	1	1	2	2	3	3	4	4	5	
10	60. 28. 34	29. 8	29. 41	30. 15	30. 48	31. 22	31. 55	32. 29	33. 2	10	6	6	7	7	8	8	9	9	10	11	Add.
20	60. 28. 35	29. 9	29. 42	30. 16	30. 50	31. 23	31. 56	32. 30	33. 3	20	11	12	12	13	13	14	15	15	16	16	1′ = 0″
30	60. 28. 37	29. 10	29. 44	30. 17	30. 51	31. 25	31. 58	32. 32	33. 5	30	17	17	18	18	19	20	20	21	21	22	2. 0
40	60. 28. 38	29. 11	29. 45	30. 18	30. 52	31. 26	31. 59	32. 33	33. 7	40	22	23	23	24	25	25	26	26	27	27	3. 0
50	60. 28. 39	29. 13	29. 46	30. 20	30. 53	31. 27	32. 1	32. 34	33. 8	50	28	28	29	30	30	31	31	32	32	33	4. 1
77 0	60. 28. 40	29. 14	29. 48	30. 21	30. 55	31. 28	32. 2	32. 36	33. 9	0	0	1	1	2	2	3	3	4	4	5	5. 1
10	60. 28. 41	29. 15	29. 49	30. 23	30. 56	31. 30	32. 3	32. 37	33. 11	10	6	6	7	7	8	8	9	9	10	11	6. 1
20	60. 28. 43	29. 16	29. 50	30. 24	30. 57	31. 31	32. 5	32. 38	33. 12	20	11	12	12	13	13	14	15	15	16	16	7. 1
30	60. 28. 44	29. 17	29. 51	30. 25	30. 59	31. 32	32. 6	32. 39	33. 13	30	17	17	18	18	19	20	20	21	21	22	8. 1
40	60. 28. 45	29. 19	29. 52	30. 26	31. 0	31. 33	32. 7	32. 41	33. 15	40	22	23	23	24	25	25	26	26	27	27	9. 1
50	60. 28. 46	29. 20	29. 54	30. 27	31. 1	31. 35	32. 8	32. 42	33. 16	50	28	28	29	30	30	31	31	32	32	33	
78 0	60. 28. 47	29. 21	29. 55	30. 28	31. 2	31. 36	32. 10	32. 43	33. 17	0	0	1	1	2	2	3	3	4	4	5	
10	60. 28. 48	29. 22	29. 56	30. 30	31. 3	31. 37	32. 11	32. 45	33. 18	10	6	6	7	7	8	8	9	10	10	11	Add.
20	60. 28. 49	29. 23	29. 57	30. 31	31. 4	31. 38	32. 12	32. 46	33. 19	20	11	12	12	13	13	14	15	15	16	16	1′ = 0″
30	60. 28. 50	29. 24	29. 58	30. 32	31. 5	31. 39	32. 13	32. 47	33. 21	30	17	17	18	19	19	20	20	21	21	22	2. 0
40	60. 28. 51	29. 25	29. 59	30. 33	31. 7	31. 40	32. 14	32. 48	33. 22	40	23	23	24	24	25	25	26	27	27	28	3. 0
50	60. 28. 52	29. 26	30. 0	30. 34	31. 8	31. 41	32. 15	32. 49	33. 23	50	28	29	29	30	30	31	32	32	33	33	4. 0
79 0	60. 28. 53	29. 27	30. 1	30. 35	31. 9	31. 43	32. 16	32. 50	33. 24	0	0	1	1	2	2	3	3	4	4	5	5. 1
10	60. 28. 54	29. 28	30. 2	30. 36	31. 10	31. 44	32. 18	32. 51	33. 25	10	6	6	7	7	8	8	9	10	10	11	6. 1
20	60. 28. 55	29. 29	30. 3	30. 37	31. 11	31. 45	32. 19	32. 53	33. 26	20	11	12	12	13	13	14	15	15	16	16	7. 1
30	60. 28. 56	29. 30	30. 4	30. 38	31. 12	31. 46	32. 20	32. 54	33. 27	30	17	17	18	19	19	20	20	21	21	22	8. 1
40	60. 28. 57	29. 31	30. 5	30. 39	31. 13	31. 47	32. 21	32. 55	33. 29	40	23	23	24	24	25	25	26	27	27	28	9. 1
50	60. 28. 58	29. 32	30. 6	30. 40	31. 14	31. 48	32. 22	32. 56	33. 30	50	28	29	29	30	30	31	32	32	33	33	
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
	Moon's Horizontal Parallax.									Seconds of Parallax. Proportional parts to										

Correction of the Auxiliary Angle for the Star's Apparent Altitude.

Star's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14	15°	16°	17°	18°	20°	30°	40°	50°	70°	90°
Cor.—Additive	21″	12″	8″	5″	3″	3″	2″	2″	1″	1″	1″	1″	1″	1″	1″	1″	1″	0″	0″	0″	0″	0″	0″	0″

AUXILIARY ANGLES.

Moon's App. Alt.	′	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′	Proportional parts to Seconds of Parallax. ″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
°		° ′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″		″	″	″	″	″	″	″	″	″	″	
80	0	60. 28. 59	29. 33	30. 7	30. 41	31. 15	31. 49	32. 23	32. 57	33. 31	0	0	1	1	2	2	3	3	4	4	5	
	10	60. 29. 0	29. 34	30. 8	30. 42	31. 16	31. 50	32. 24	32. 58	33. 32	10	6	6	7	7	8	8	9	10	10	11	Subt.
	20	60. 29. 1	29. 35	30. 9	30. 43	31. 17	31. 51	32. 25	32. 59	33. 33	20	11	12	12	13	14	14	15	15	16	16	1′ = 0″
	30	60. 29. 2	29. 36	30. 10	30. 44	31. 18	31. 52	32. 26	33. 0	33. 34	30	17	18	18	19	19	20	20	21	21	22	2. 0
	40	60. 29. 2	29. 37	30. 11	30. 45	31. 19	31. 53	32. 27	33. 1	33. 35	40	23	23	24	24	25	25	26	27	27	28	3. 0
	50	60. 29. 3	29. 37	30. 12	30. 46	31. 20	31. 54	32. 28	33. 2	33. 36	50	28	29	29	30	31	31	32	32	33	33	4. 0
81	0	60. 29. 4	29. 38	30. 12	30. 46	31. 21	31. 55	32. 29	33. 3	33. 37	0	0	1	1	2	2	3	3	4	4	5	5. 0
	10	60. 29. 5	29. 39	30. 13	30. 47	31. 21	31. 55	32. 30	33. 4	33. 38	10	6	6	7	7	8	8	9	10	10	11	6. 1
	20	60. 29. 6	29. 40	30. 14	30. 48	31. 22	31. 56	32. 31	33. 5	33. 39	20	11	12	12	13	14	14	15	15	16	16	7. 1
	30	60. 29. 6	29. 41	30. 15	30. 49	31. 23	31. 57	32. 31	33. 5	33. 39	30	17	18	18	19	19	20	20	21	21	22	8. 1
	40	60. 29. 7	29. 41	30. 16	30. 50	31. 24	31. 58	32. 32	33. 6	33. 40	40	23	23	24	24	25	25	26	27	27	28	9. 1
	50	60. 29. 8	29. 42	30. 16	30. 51	31. 25	31. 59	32. 33	33. 7	33. 41	50	28	29	29	30	31	31	32	32	33	33	
82	0	60. 29. 9	29. 43	30. 17	30. 51	31. 26	32. 0	32. 34	33. 8	33. 42	0	0	1	1	2	2	3	3	4	4	5	
	10	60. 29. 10	29. 44	30. 18	30. 52	31. 26	32. 0	32. 35	33. 9	33. 43	10	6	6	7	7	8	9	9	10	10	11	Subt.
	20	60. 29. 10	29. 44	30. 19	30. 53	31. 27	32. 1	32. 35	33. 9	33. 44	20	11	12	13	13	14	14	15	15	16	17	1′ = 0″
	30	60. 29. 11	29. 45	30. 19	30. 54	31. 28	32. 2	32. 36	33. 10	33. 45	30	17	18	18	19	19	20	21	21	22	22	2. 0
	40	60. 29. 12	29. 46	30. 20	30. 54	31. 29	32. 3	32. 37	33. 11	33. 45	40	23	23	24	25	25	26	26	27	27	28	3. 0
	50	60. 29. 12	29. 47	30. 21	30. 55	31. 29	32. 3	32. 38	33. 12	33. 46	50	28	29	30	30	31	31	32	32	33	34	4. 0
83	0	60. 29. 13	29. 47	30. 21	30. 56	31. 30	32. 4	32. 38	33. 12	33. 47	0	0	1	1	2	2	3	3	4	5	5	5. 0
	10	60. 29. 13	29. 48	30. 22	30. 56	31. 30	32. 5	32. 39	33. 13	33. 48	10	6	6	7	7	8	9	9	10	10	11	6. 0
	20	60. 29. 14	29. 48	30. 23	30. 57	31. 31	32. 6	32. 40	33. 14	33. 48	20	11	12	13	13	14	14	15	15	16	17	7. 0
	30	60. 29. 15	29. 49	30. 23	30. 58	31. 32	32. 6	32. 40	33. 15	33. 49	30	17	18	18	19	19	20	21	21	22	22	8. 1
	40	60. 29. 15	29. 50	30. 24	30. 58	31. 33	32. 7	32. 41	33. 15	33. 49	40	23	23	24	25	25	26	26	27	27	28	9. 1
	50	60. 29. 16	29. 50	30. 24	30. 59	31. 33	32. 7	32. 42	33. 16	33. 50	50	28	29	30	30	31	31	32	32	33	34	
84	0	60. 29. 16	29. 51	30. 25	30. 59	31. 34	32. 8	32. 42	33. 16	33. 51	0	0	1	1	2	2	3	3	4	5	5	
	10	60. 29. 17	29. 51	30. 26	31. 0	31. 34	32. 9	32. 43	33. 17	33. 51	10	6	6	7	7	8	9	9	10	10	11	Subt.
	20	60. 29. 17	29. 52	30. 26	31. 1	31. 35	32. 9	32. 43	33. 18	33. 52	20	11	12	13	13	14	14	15	15	16	17	1′ = 0″
	30	60. 29. 18	29. 52	30. 27	31. 1	31. 35	32. 10	32. 44	33. 18	33. 53	30	17	18	18	19	19	20	21	21	22	22	2. 0
	40	60. 29. 19	29. 53	30. 27	31. 2	31. 36	32. 10	32. 45	33. 19	33. 53	40	23	23	24	25	25	26	26	27	28	28	3. 0
	50	60. 29. 19	29. 54	30. 28	31. 2	31. 36	32. 11	32. 45	33. 19	33. 54	50	29	29	30	30	31	32	32	33	33	34	4. 0
85	0	60. 29. 20	29. 54	30. 28	31. 3	31. 37	32. 11	32. 46	33. 20	33. 54	0	0	1	1	2	2	3	3	4	5	5	5. 0
	10	60. 29. 20	29. 54	30. 28	31. 3	31. 37	32. 12	32. 46	33. 20	33. 55	10	6	6	7	7	8	9	9	10	10	11	6. 0
	20	60. 29. 20	29. 55	30. 29	31. 4	31. 38	32. 12	32. 47	33. 21	33. 55	20	11	12	13	13	14	14	15	15	16	17	7. 0
	30	60. 29. 21	29. 55	30. 29	31. 4	31. 39	32. 13	32. 47	33. 22	33. 56	30	17	18	18	19	19	20	21	21	22	22	8. 0
	40	60. 29. 21	29. 56	30. 30	31. 4	31. 39	32. 13	32. 47	33. 22	33. 56	40	23	23	24	25	25	26	26	27	28	28	9. 1
	50	60. 29. 22	29. 56	30. 31	31. 5	31. 39	32. 14	32. 48	33. 22	33. 57	50	29	29	30	30	31	32	32	33	33	34	
86	0	60. 29. 22	29. 56	30. 31	31. 5	31. 40	32. 14	32. 48	33. 23	33. 57	0	0	1	1	2	2	3	3	4	5	5	
	10	60. 29. 22	29. 57	30. 31	31. 6	31. 40	32. 14	32. 49	33. 23	33. 57	10	6	6	7	7	8	9	9	10	10	11	Subt.
	20	60. 29. 23	29. 57	30. 32	31. 6	31. 40	32. 15	32. 49	33. 24	33. 58	20	11	12	13	13	14	14	15	15	16	17	1′ = 0″
	30	60. 29. 23	29. 58	30. 32	31. 6	31. 41	32. 15	32. 50	33. 24	33. 58	30	17	18	18	19	19	20	21	21	22	22	2. 0
	40	60. 29. 23	29. 58	30. 32	31. 7	31. 41	32. 16	32. 50	33. 24	33. 59	40	23	23	24	25	25	26	26	27	28	28	3. 0
	50	60. 29. 24	29. 58	30. 32	31. 7	31. 41	32. 16	32. 50	33. 25	33. 59	50	29	29	30	30	31	32	32	33	33	34	4. 0
87	0	60. 29. 24	29. 58	30. 33	31. 7	31. 42	32. 16	32. 50	33. 25	33. 59	0	0	1	1	2	2	3	3	4	5	5	5. 0
	10	60. 29. 24	29. 59	30. 33	31. 8	31. 42	32. 16	32. 51	33. 25	34. 0	10	6	6	7	7	8	9	9	10	10	11	6. 0
	20	60. 29. 24	29. 59	30. 33	31. 8	31. 42	32. 17	32. 51	33. 26	34. 0	20	11	12	13	13	14	14	15	15	16	17	7. 0
	30	60. 29. 25	29. 59	30. 34	31. 8	31. 43	32. 17	32. 51	33. 26	34. 0	30	17	18	18	19	19	20	21	21	22	22	8. 0
	40	60. 29. 25	29. 59	30. 34	31. 8	31. 43	32. 17	32. 51	33. 26	34. 0	40	23	23	24	25	25	26	26	27	28	28	9. 0
	50	60. 29. 25	30. 0	30. 34	31. 8	31. 43	32. 17	32. 52	33. 26	34. 1	50	29	29	30	30	31	32	32	33	33	34	
88	0	60. 29. 25	30. 0	30. 34	31. 9	31. 43	32. 18	32. 52	33. 26	34. 1	0	0	1	1	2	2	3	3	4	5	5	
	10	60. 29. 26	30. 0	30. 34	31. 9	31. 43	32. 18	32. 52	33. 27	34. 1	10	6	6	7	7	8	9	9	10	10	11	Subt.
	20	60. 29. 26	30. 0	30. 35	31. 9	31. 44	32. 18	32. 52	33. 27	34. 1	20	11	12	13	13	14	14	15	15	16	17	1′ = 0″
	30	60. 29. 26	30. 0	30. 35	31. 9	31. 44	32. 18	32. 53	33. 27	34. 1	30	17	18	18	19	19	20	21	21	22	22	2. 0
	40	60. 29. 26	30. 0	30. 35	31. 9	31. 44	32. 18	32. 53	33. 27	34. 1	40	23	23	24	25	25	26	26	27	28	28	3. 0
	50	60. 29. 26	30. 0	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	50	29	29	30	30	31	32	32	33	33	34	4. 0
89	0	60. 29. 26	30. 0	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	0	0	1	1	2	2	3	3	4	5	5	5. 0
	10	60. 29. 26	30. 1	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	10	6	6	7	7	8	9	9	10	10	11	6. 0
	20	60. 29. 26	30. 1	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	20	11	12	13	13	14	14	15	16	16	17	7. 0
	30	60. 29. 26	30. 1	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	30	17	18	18	19	20	20	21	21	22	22	8. 0
	40	60. 29. 26	30. 1	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	40	23	24	24	25	25	26	26	27	28	28	9. 0
	50	60. 29. 26	30. 1	30. 35	31. 10	31. 44	32. 19	32. 53	33. 27	34. 2	50	29	29	30	30	31	32	32	33	33	34	
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′	″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Minutes of Altitude
		Moon's Horizontal Parallax.										Seconds of Parallax. Proportional parts to										

Correction of the Auxiliary Angle for the Sun's and Star's Apparent Altitude.

Sun's Ap. Al.	° 1	2	3	4	5	6	7	25	26	44	45	64	65	75	90	Star's Ap. Al.	° 1	2	3	4	5	6	7	8	9	17	18	20	30	60	90
Cor.— Add.	″ 22	12	8	5	4	3	2	2	3	3	4	4	5	5	5	Cor. — Add.	″ 21	12	8	5	3	3	2	2	1	1	0	0	0	0	0

Correction of the Auxiliary Angle when the Moon's distance from a Planet is observed.—Additive.

Planet's App. Alt.	Planet's Horizontal Parallax.																	Planet's App. Alt.
	1″	3″	5″	7″	9″	11″	13″	15″	17″	19″	21″	23″	25″	27″	29″	31″	33″	
10	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	21″	10
2	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	2
3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	3
4	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	4
5	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
6	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	6
7	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4	4	7
8	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	8
10	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	4	10
14	1	1	1	1	2	2	2	2	3	3	3	4	4	4	4	5	5	14
18	1	1	1	1	2	2	2	3	3	4	4	4	5	5	5	5	6	18
20	1	1	1	1	2	2	3	3	4	4	5	5	6	6	6	6	7	20
26	1	1	1	2	3	3	3	4	4	5	6	6	7	7	8	8	8	26
32	1	1	1	2	3	3	4	5	5	6	7	7	8	8	9	10	10	32
40	1	1	2	2	3	3	5	6	6	7	8	8	9	10	11	11	12	40
45	1	1	2	3	3	4	5	6	7	8	9	9	10	11	12	13	14	45
50	1	1	3	3	4	4	6	7	8	9	9	10	11	12	13	14	15	50
55	1	1	3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	55
60	1	1	3	4	4	5	6	7	8	9	10	12	13	14	14	16	17	60
65	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	65
70	1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	70
75	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	75
80	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16	18	19	80
85	1	2	3	4	5	6	7	8	10	11	12	13	14	16	17	18	19	85
90	1	2	3	4	5	6	7	8	10	11	12	13	14	16	17	18	19	90

TABLE XXII.

Error arising from a deviation of one Minute in the parallelism of the surfaces of the central mirror of the circular instrument of reflection.

Observed Angle.	Observ. to the Right.	Observ. to the Left.	Cross Observ.
°	′ ″	′ ″	′ ″
0	0. 0	0. 0	0. 0
5	0. 1	0. 0	0. 1
10	0. 2	0. 1	0. 2
15	0. 4	0. 2	0. 3
20	0. 6	0. 2	0. 4
25	0. 8	0. 1	0. 5
30	0. 10	0. 1	0. 6
35	0. 13	0. 0	0. 7
40	0. 16	0. 0	0. 8
45	0. 19	0. 1	0. 9
50	0. 23	0. 2	0. 11
55	0. 28	0. 4	0. 12
60	0. 33	0. 6	0. 14
65	0. 38	0. 8	0. 16
70	0. 47	0. 10	0. 18
75	0. 55	0. 13	0. 21
80	1. 4	0. 16	0. 24
85	1. 15	0. 19	0. 28
90	1. 28	0. 23	0. 32
95	1. 43	0. 28	0. 37
100	2. 1	0. 33	0. 44
105	2. 23	0. 39	0. 52
110	2. 50	0. 46	1. 2
115	3. 23	0. 54	1. 15
120	4. 4	1. 4	1. 30
125	4. 55	1. 15	1. 50
130	6. 15	1. 28	2. 23

TABLE XXIII.

Error of observation arising from an inclination of the line of collimation to the plane of the sextant, or to that of the circular instrument of reflection.

Observed Angle.	Inclination of the line of Collimation.														
	′ 10	′ 20	′ 30	′ 36	′ 42	′ 48	′ 54	° ′ 1. 0	° ′ 1. 6	° ′ 1. 12	° ′ 1. 18	° ′ 1. 24	° ′ 1. 30
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0
10	0. 0	0. 1	0. 1	0. 2	0. 3	0. 4	0. 4	0. 6	0. 7	0. 8	0. 9	0. 11	0. 12
20	0. 0	0. 1	0. 3	0. 4	0. 5	0. 7	0. 9	0. 11	0. 13	0. 16	0. 19	0. 22	0. 25
30	0. 1	0. 2	0. 4	0. 6	0. 8	0. 11	0. 14	0. 17	0. 20	0. 24	0. 28	0. 33	0. 38
36	0. 1	0. 2	0. 5	0. 7	0. 10	0. 13	0. 17	0. 20	0. 25	0. 29	0. 35	0. 40	0. 46
40	0. 1	0. 3	0. 6	0. 8	0. 11	0. 15	0. 19	0. 23	0. 28	0. 33	0. 39	0. 45	0. 51
44	0. 1	0. 3	0. 7	0. 9	0. 12	0. 16	0. 21	0. 25	0. 31	0. 37	0. 43	0. 50	0. 57
48	0. 1	0. 3	0. 7	0. 10	0. 14	0. 18	0. 23	0. 28	0. 34	0. 40	0. 47	0. 55	1. 3
52	0. 1	0. 3	0. 8	0. 11	0. 15	0. 20	0. 25	0. 31	0. 37	0. 44	0. 52	1. 0	1. 9
56	0. 1	0. 4	0. 9	0. 12	0. 16	0. 21	0. 27	0. 33	0. 41	0. 48	0. 57	1. 5	1. 15
60	0. 1	0. 4	0. 9	0. 13	0. 18	0. 23	0. 29	0. 36	0. 44	0. 52	1. 1	1. 11	1. 21
64	0. 1	0. 4	0. 10	0. 14	0. 19	0. 25	0. 32	0. 39	0. 48	0. 56	1. 7	1. 17	1. 28
68	0. 1	0. 4	0. 11	0. 15	0. 21	0. 27	0. 34	0. 43	0. 52	1. 1	1. 12	1. 23	1. 35
72	0. 1	0. 5	0. 12	0. 16	0. 22	0. 29	0. 37	0. 46	0 55	1. 6	1. 17	1. 29	1. 42
76	0. 2	0. 5	0. 13	0. 18	0. 24	0. 31	0. 40	0. 49	1. 0	1. 11	1. 23	1. 36	1. 50
80	0. 2	0. 6	0. 13	0. 19	0. 26	0. 34	0. 43	0. 53	1. 4	1. 16	1. 29	1. 43	1. 58
84	0. 2	0. 6	0. 14	0. 20	0. 28	0. 36	0. 46	0. 57	1. 8	1. 22	1. 36	1. 51	2. 7
88	0. 2	0. 7	0. 15	0. 22	0. 30	0. 39	0. 49	1. 1	1. 14	1. 27	1. 43	1. 59	2. 17
92	0. 2	0. 7	0. 17	0. 23	0. 32	0. 42	0. 53	1. 5	1. 19	1. 34	1. 50	2. 7	2. 26
96	0. 2	0. 8	0. 18	0. 25	0. 34	0. 45	0. 57	1. 10	1. 25	1. 40	1. 58	2. 17	2. 37
100	0. 2	0. 8	0. 19	0. 27	0. 37	0. 48	1. 1	1. 15	1. 31	1. 48	2. 7	2. 27	2. 49
104	0. 3	0. 9	0. 20	0. 29	0. 39	0. 51	1. 5	1. 21	1. 37	1. 56	2. 16	2. 38	3. 1
108	0. 3	0. 10	0. 22	0. 31	0. 42	0. 55	1. 10	1. 27	1. 45	2. 5	2. 26	2. 49	3. 14
112	0. 3	0. 10	0. 23	0. 34	0. 46	1. 0	1. 15	1. 33	1. 53	2 14	2. 37	3. 3	3. 29
116	0. 3	0. 11	0. 25	0. 36	0. 49	1. 4	1. 22	1. 41	2. 2	2. 25	2. 50	3. 17	3. 46
118	0. 3	0. 12	0. 26	0. 38	0. 51	1. 7	1. 25	1. 45	2. 7	2. 31	2. 57	3. 25	3. 55
120	0. 3	0. 12	0. 27	0. 39	0. 53	1. 10	1. 28	1. 49	2. 12	2. 37	3. 4	3. 33	4. 5

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LOGARITHMIC DIFFERENCE.

Moon's Horizontal Parallax.

Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′
0 0	10.000113	0112	0111	0110	0109	0108	0108	0107	0106
10	0103	0102	0101	0100	0098	0097	0096	0094	0093
20	0093	0091	0090	0088	0086	0085	0083	0081	0079
30	0082	0080	0077	0075	0073	0071	0069	0067	0064
40	0069	0067	0064	0062	0059	0056	0054	0051	0049
50	0056	0053	0050	0047	0044	0041	0038	0035	0032
1 0	10.000042	0039	0036	0032	0029	0025	0022	0018	0015
10	0027	0024	0020	0016	0013	0008	0005	0001	9997
20	0012	0008	0004	0000	9996	9991	9987	9983	9978
30	9.999996	9992	9987	9983	9978	9974	9969	9964	9959
40	9980	9975	9970	9965	9960	9955	9950	9945	9940
50	9964	9958	9953	9948	9942	9937	9931	9925	9920
2 0	9.999947	9941	9935	9929	9924	9918	9912	9906	9900
10	9929	9923	9917	9911	9904	9898	9892	9886	9879
20	9911	9905	9898	9892	9885	9878	9872	9865	9858
30	9894	9887	9880	9873	9866	9859	9852	9845	9838
40	9876	9868	9861	9853	9846	9838	9831	9824	9816
50	9857	9850	9842	9834	9826	9818	9811	9803	9795
3 0	9.999839	9831	9823	9815	9807	9799	9790	9782	9774
10	9821	9812	9803	9795	9786	9778	9769	9761	9752
20	9802	9793	9784	9775	9766	9757	9748	9739	9730
30	9783	9774	9765	9755	9746	9736	9727	9718	9708
40	9764	9755	9745	9735	9726	9716	9706	9696	9687
50	9745	9735	9725	9715	9705	9695	9685	9675	9665
4 0	9.999727	9716	9706	9695	9685	9675	9664	9653	9643
10	9707	9697	9686	9675	9664	9653	9642	9631	9621
20	9688	9677	9666	9654	9643	9633	9621	9610	9599
30	9669	9658	9646	9634	9623	9611	9600	9588	9576
40	9650	9638	9626	9614	9602	9590	9578	9566	9554
50	9631	9618	9606	9594	9581	9569	9556	9544	9532
5 0	9.999612	9599	9587	9574	9561	9549	9536	9523	9510
10	9593	9579	9566	9553	9540	9527	9514	9501	9488
20	9573	9560	9546	9533	9519	9506	9492	9479	9465
30	9554	9540	9526	9512	9498	9485	9471	9457	9443
40	9535	9520	9506	9492	9478	9463	9449	9435	9421
50	9515	9501	9486	9471	9457	9442	9427	9413	9398
6 0	9.999496	9481	9466	9451	9437	9422	9407	9392	9376
10	9476	9461	9446	9430	9415	9400	9384	9369	9354
20	9457	9441	9426	9410	9394	9379	9363	9347	9331
30	9437	9421	9405	9389	9373	9357	9341	9325	9309
40	9418	9402	9385	9369	9352	9336	9319	9303	9286
50	9399	9382	9365	9348	9331	9315	9298	9281	9264
7 0	9.999380	9363	9345	9328	9311	9294	9277	9259	9242
10	9360	9343	9325	9308	9290	9272	9255	9237	9219
20	9341	9323	9305	9287	9269	9251	9233	9215	9197
30	9321	9303	9285	9266	9248	9230	9211	9193	9175
40	9302	9283	9265	9246	9227	9209	9190	9171	9152
50	9283	9264	9245	9226	9207	9188	9169	9149	9130
8 0	9.999264	9244	9225	9206	9186	9167	9147	9128	9108
10	9245	9224	9205	9186	9165	9146	9126	9106	9086
20	9225	9205	9185	9165	9145	9125	9104	9084	9064
30	9206	9185	9165	9145	9124	9104	9083	9063	9042
40	9187	9165	9145	9124	9103	9082	9061	9041	9019
50	9167	9146	9125	9104	9083	9061	9040	9019	8997
9 0	9.999148	9126	9105	9083	9062	9040	9018	8997	8975
10	9129	9107	9085	9063	9041	9019	8997	8975	8953
20	9109	9087	9065	9042	9020	8998	8975	8953	8931
30	9090	9068	9045	9022	9000	8977	8954	8932	8909
40	9071	9048	9025	9002	8979	8956	8933	8910	8886
50	9051	9028	9005	8981	8958	8935	8911	8888	8864
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′

Moon's Horizontal Parallax.

Proportional parts to Seconds of Parallax. Subtractive.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	1	1	1	1	1	1
20	1	1	1	1	1	1	1	1	1	1
30	1	1	1	1	1	1	1	1	1	1
40	2	2	2	2	2	2	2	2	2	2
50	2	2	2	2	2	2	2	2	2	2
0	0	0	0	0	0	0	0	1	1	1
10	1	1	1	1	1	1	1	1	1	1
20	2	2	2	2	2	2	2	2	2	2
30	2	2	2	3	3	3	3	3	3	3
40	3	3	3	3	3	3	4	4	4	4
50	4	4	4	4	4	4	4	4	4	5
0	0	0	0	0	0	1	1	1	1	1
10	1	1	1	2	2	2	2	2	2	2
20	2	2	3	3	3	3	3	3	3	3
30	3	4	4	4	4	4	4	4	4	5
40	5	5	5	5	5	5	5	5	5	6
50	6	6	6	6	6	6	6	7	7	7
0	0	0	0	0	1	1	1	1	1	1
10	2	2	2	2	2	2	2	3	3	3
20	3	3	3	4	4	4	4	4	4	4
30	5	5	5	5	5	5	6	6	6	6
40	6	6	7	7	7	7	7	7	7	8
50	8	8	8	8	8	9	9	9	9	9
0	0	0	0	1	1	1	1	1	2	2
10	2	2	2	3	3	3	3	3	3	4
20	4	4	4	4	5	5	5	5	5	6
30	6	6	6	6	7	7	7	7	7	8
40	8	8	8	8	9	9	9	9	9	10
50	10	10	10	10	10	11	11	11	11	11
0	0	0	0	1	1	1	1	2	2	2
10	2	3	3	3	3	3	4	4	4	4
20	5	5	5	5	6	6	6	6	6	7
30	7	7	7	8	8	8	8	8	9	9
40	9	9	10	10	10	10	11	11	11	11
50	12	12	12	12	12	13	13	13	13	14
0	0	0	1	1	1	1	2	2	2	2
10	3	3	3	3	4	4	4	4	5	5
20	5	6	6	6	6	7	7	7	7	8
30	8	8	9	9	9	9	10	10	10	10
40	11	11	11	11	12	12	12	13	13	13
50	13	14	14	14	14	15	15	15	15	16
0	0	0	1	1	1	2	2	2	2	3
10	3	3	4	4	4	5	5	5	5	6
20	6	6	7	7	7	8	8	8	9	9
30	9	9	10	10	10	11	11	11	12	12
40	12	12	13	13	13	13	14	14	14	15
50	15	15	16	16	16	17	17	17	18	18
0	0	0	1	1	1	2	2	2	3	3
10	3	4	4	4	5	5	5	6	6	6
20	7	7	7	8	8	8	9	9	10	10
30	10	11	11	11	12	12	12	13	13	13
40	14	14	14	15	15	15	16	16	16	17
50	17	17	18	18	18	19	19	19	20	20
0	0	0	1	1	2	2	2	3	3	3
10	4	4	4	5	5	6	6	6	7	7
20	8	8	8	9	9	9	10	10	11	11
30	11	12	12	12	13	13	14	14	14	15
40	15	15	16	16	17	17	17	18	18	18
50	19	19	20	20	20	21	21	21	22	22
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax. Subtractive.
Proportional parts to

Min.	53′ & 56′	56′ & 59′	59′ & 62′
Subt.			
1″	1	2	2
2	3	3	3
3	4	5	5
4	6	6	7
5	7	8	8
6	8	9	10
7	10	11	12
8	11	12	13
9	13	14	15
Subt.			
1″	2	2	2
2	4	4	4
3	6	6	6
4	7	8	8
5	9	10	10
6	11	12	13
7	13	14	15
8	15	16	17
9	17	18	19
Subt.			
1″	2	2	2
2	4	4	4
3	6	6	6
4	8	8	8
5	10	10	11
6	12	12	13
7	14	14	15
8	16	17	17
9	18	19	19
Subt.			
1″	2	2	2
2	4	4	4
3	6	6	6
4	8	8	8
5	10	10	11
6	12	13	13
7	14	15	15
8	16	17	17
9	18	19	20
Subt.			
1″	2	2	2
2	4	4	4
3	6	6	6
4	8	8	8
5	10	10	11
6	12	12	13
7	14	14	15
8	16	17	17
9	18	19	20
Min.	53′ & 56′	56′ & 59′	59′ & 62′

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LOGARITHMIC DIFFERENCE.

App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
10 0	9.999032	9009	8985	8961	8937	8914	8890	8866	8842
10	9013	8989	8965	8941	8916	8893	8869	8844	8820
20	8994	8970	8945	8920	8896	8872	8847	8822	8798
30	8975	8950	8925	8900	8875	8851	8826	8801	8776
40	8955	8930	8905	8880	8854	8829	8804	8779	8753
50	8936	8911	8885	8859	8834	8808	8783	8757	8731
11 0	9.998917	8891	8865	8839	8813	8787	8761	8735	8709
10	8898	8872	8845	8819	8793	8766	8740	8713	8687
20	8879	8852	8825	8799	8772	8745	8719	8692	8665
30	8860	8833	8806	8779	8752	8725	8698	8670	8643
40	8841	8813	8786	8758	8731	8704	8676	8648	8621
50	8821	8794	8766	8738	8711	8683	8655	8627	8599
12 0	9.998803	8774	8746	8718	8690	8662	8634	8605	8577
10	8784	8755	8726	8698	8670	8641	8612	8583	8555
20	8765	8735	8706	8678	8649	8620	8591	8562	8533
30	8746	8716	8687	8658	8629	8599	8570	8540	8511
40	8726	8696	8667	8638	8608	8578	8548	8519	8489
50	8707	8677	8647	8617	8587	8557	8527	8497	8467
13 0	9.998688	8658	8628	8597	8567	8536	8506	8476	8445
10	8669	8639	8608	8577	8547	8516	8485	8454	8424
20	8650	8619	8589	8557	8526	8495	8464	8433	8402
30	8631	8600	8569	8537	8506	8474	8443	8412	8380
40	8612	8581	8549	8517	8485	8453	8422	8390	8358
50	8593	8561	8529	8497	8465	8433	8401	8368	8336
14 0	9.998574	8542	8510	8477	8444	8412	8380	8347	8314
10	8555	8522	8490	8457	8424	8391	8358	8325	8292
20	8536	8503	8470	8437	8403	8371	8337	8304	8270
30	8517	8484	8450	8417	8383	8350	8316	8282	8249
40	8498	8465	8430	8397	8362	8329	8295	8261	8227
50	8479	8445	8411	8377	8342	8308	8274	8239	8205
15 0	9.998461	8426	8391	8357	8322	8288	8253	8218	8183
10	8442	8407	8372	8337	8302	8267	8232	8197	8162
20	8423	8388	8353	8317	8282	8246	8211	8176	8140
30	8404	8369	8333	8297	8262	8226	8190	8154	8119
40	8386	8349	8313	8277	8241	8205	8169	8133	8097
50	8367	8330	8294	8257	8221	8185	8148	8112	8075
16 0	9.998348	8311	8275	8238	8201	8165	8128	8091	8054
10	8329	8292	8255	8218	8181	8143	8106	8069	8032
20	8310	8273	8235	8198	8160	8123	8085	8048	8010
30	8292	8254	8216	8178	8140	8102	8064	8026	7989
40	8273	8235	8196	8158	8120	8082	8043	8005	7967
50	8254	8216	8177	8138	8100	8061	8023	7984	7946
17 0	9.998236	8197	8158	8119	8080	8041	8002	7963	7924
10	8217	8177	8138	8099	8060	8020	7981	7942	7902
20	8198	8158	8119	8079	8040	8000	7960	7921	7881
30	8180	8140	8100	8060	8020	7980	7940	7900	7860
40	8161	8121	8080	8040	8000	7959	7919	7878	7838
50	8142	8102	8061	8020	7979	7939	7898	7857	7817
18 0	9.998124	8083	8042	8001	7960	7919	7878	7837	7796
10	8105	8064	8022	7981	7940	7898	7857	7816	7775
20	8087	8045	8003	7962	7920	7878	7836	7794	7753
30	8068	8026	7984	7942	7900	7857	7815	7773	7731
40	8050	8007	7965	7922	7880	7837	7795	7752	7710
50	8031	7988	7946	7903	7860	7817	7774	7732	7689
19 0	9.998013	7970	7927	7884	7841	7798	7754	7711	7667
10	7994	7951	7907	7864	7820	7777	7733	7690	7646
20	7976	7932	7888	7844	7800	7757	7713	7669	7625
30	7957	7913	7869	7825	7781	7736	7692	7648	7604
40	7939	7894	7850	7805	7761	7716	7672	7627	7583
50	7921	7876	7831	7786	7741	7696	7651	7606	7562
App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′
	Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. Subtractive.	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	0	1	1	2	2	2	3	3	4
10	4	5	5	5	6	6	7	7	7	8
20	8	9	9	10	10	10	11	11	12	12
30	12	13	13	14	14	14	15	15	16	16
40	17	17	17	18	18	19	19	19	20	20
50	21	21	22	22	22	23	23	24	24	24
0	0	0	1	1	2	2	3	3	4	4
10	4	5	5	6	6	7	7	8	8	9
20	9	9	10	10	11	11	12	12	13	13
30	13	14	14	15	15	16	16	17	17	18
40	18	18	19	19	20	20	21	21	22	22
50	22	23	23	24	24	25	25	26	26	27
0	0	0	1	1	2	2	3	3	4	4
10	5	5	6	6	7	7	8	8	9	9
20	10	10	11	11	12	12	13	13	14	14
30	15	15	16	16	17	17	18	18	19	19
40	20	20	21	21	22	22	23	23	24	24
50	25	25	25	26	26	27	27	28	28	29
0	0	1	1	2	2	3	3	4	4	5
10	5	6	6	7	7	8	8	9	9	10
20	10	11	12	12	13	13	14	14	15	15
30	16	16	17	17	18	18	19	19	20	20
40	21	21	22	22	23	24	24	25	25	26
50	26	27	27	28	28	29	29	30	30	31
0	0	1	1	2	2	3	3	4	4	5
10	6	6	7	7	8	8	9	10	10	11
20	11	12	12	13	13	14	15	15	16	16
30	17	17	18	18	19	20	20	21	21	22
40	22	23	24	24	25	25	26	26	27	27
50	28	29	29	30	30	31	31	32	32	33
0	0	1	1	2	2	3	3	4	5	5
10	6	6	7	8	8	9	9	10	11	11
20	12	12	13	14	14	15	15	16	17	17
30	18	18	19	19	20	21	21	22	22	23
40	24	24	25	25	26	27	27	28	28	29
50	30	30	31	31	32	32	33	34	34	35
0	0	1	1	2	3	3	4	4	5	6
10	6	7	8	8	9	9	10	11	11	12
20	13	13	14	14	15	16	16	17	18	18
30	19	20	20	21	21	22	23	23	24	25
40	25	26	26	27	28	28	29	30	30	31
50	31	32	33	33	34	35	35	36	37	37
0	0	1	1	2	3	3	4	5	5	6
10	7	7	8	9	9	10	11	11	12	13
20	13	14	15	15	16	17	17	18	19	19
30	20	21	21	22	23	23	24	25	25	26
40	27	27	28	29	29	30	31	31	32	33
50	33	34	35	35	36	37	37	38	39	39
0	0	1	1	2	3	4	4	5	6	6
10	7	8	8	9	10	11	11	12	13	13
20	14	15	15	16	17	18	18	19	20	20
30	21	22	22	23	24	25	25	26	27	27
40	28	29	29	30	31	32	32	33	34	34
50	35	36	36	37	38	39	39	40	41	41
0	0	1	1	2	3	4	4	5	6	7
10	7	8	9	10	10	11	12	12	13	14
20	15	15	16	17	18	18	19	20	21	21
30	22	23	24	24	25	26	26	27	28	29
40	29	30	31	32	32	33	34	35	35	36
50	37	37	38	39	40	40	41	42	43	43
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
Seconds of Parallax. Subtractive. Proportional parts to										

′ of Alt. Par. being between. Min.	53′ & 56′	56′ & 59′	59′ & 62′
Subt.			
1′	2	2	2
2	4	4	4
3	6	6	7
4	8	8	9
5	10	10	11
6	12	12	13
7	14	14	15
8	16	16	17
9	18	19	20
Subt.			
1′	2	2	2
2	4	4	4
3	6	6	6
4	8	8	9
5	10	10	11
6	12	12	13
7	14	14	15
8	16	16	17
9	18	18	19
Subt.			
1′	2	2	2
2	4	4	4
3	6	6	6
4	8	8	9
5	10	10	11
6	12	12	13
7	14	14	15
8	16	16	17
9	18	18	19
Subt.			
1′	2	2	2
2	4	4	4
3	6	6	6
4	8	8	8
5	9	10	11
6	11	12	13
7	13	14	15
8	15	16	17
9	17	18	19
Min.	53′ & 56′	56′ & 59′	59′ & 62′
′ of Alt. Par. being between.			

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LOGARITHMIC DIFFERENCE.

Moon's App. Alt.		Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
20	0	9.997902	7857	7812	7767	7722	7677	7632	7586	7541
	10	7884	7838	7793	7747	7702	7656	7611	7565	7519
	20	7866	7820	7774	7728	7682	7636	7590	7544	7498
	30	7847	7801	7755	7709	7662	7616	7570	7524	7477
	40	7829	7783	7736	7689	7643	7596	7549	7503	7456
	50	7811	7764	7717	7670	7623	7576	7529	7482	7435
21	0	9.997793	7745	7698	7651	7604	7556	7509	7462	7414
	10	7774	7727	7679	7632	7584	7536	7489	7441	7393
	20	7756	7708	7660	7612	7564	7516	7468	7420	7372
	30	7738	7690	7641	7593	7545	7496	7448	7400	7352
	40	7720	7671	7623	7574	7525	7477	7428	7379	7331
	50	7702	7653	7604	7555	7506	7457	7408	7359	7310
22	0	9.997684	7635	7586	7537	7487	7438	7388	7339	7290
	10	7666	7616	7566	7517	7467	7417	7368	7318	7268
	20	7648	7598	7548	7498	7447	7397	7347	7297	7247
	30	7630	7579	7529	7479	7428	7378	7327	7277	7227
	40	7612	7561	7510	7459	7409	7358	7307	7257	7206
	50	7594	7543	7492	7440	7389	7338	7287	7236	7185
23	0	9.997576	7524	7473	7421	7370	7319	7267	7216	7164
	10	7558	7506	7454	7402	7351	7299	7247	7196	7144
	20	7540	7488	7436	7384	7331	7279	7227	7175	7123
	30	7522	7469	7417	7365	7312	7260	7207	7155	7103
	40	7504	7451	7399	7346	7293	7240	7188	7135	7082
	50	7486	7433	7380	7327	7274	7221	7168	7115	7062
24	0	9.997468	7415	7362	7309	7255	7202	7148	7095	7042
	10	7451	7397	7343	7289	7236	7182	7128	7074	7021
	20	7433	7379	7325	7271	7216	7162	7108	7054	7000
	30	7415	7361	7306	7252	7197	7143	7088	7034	6980
	40	7397	7342	7288	7233	7178	7123	7069	7014	6959
	50	7380	7324	7269	7214	7159	7104	7049	6994	6939
25	0	9.997362	7307	7251	7196	7140	7085	7029	6974	6918
	10	7344	7289	7233	7177	7121	7066	7010	6954	6898
	20	7327	7271	7215	7158	7102	7046	6990	6934	6878
	30	7309	7253	7196	7140	7083	7027	6971	6914	6858
	40	7291	7235	7178	7121	7064	7008	6951	6894	6837
	50	7274	7217	7160	7103	7045	6988	6931	6874	6817
26	0	9.997256	7199	7142	7084	7027	6970	6913	6855	6798
	10	7239	7181	7123	7065	7008	6950	6892	6834	6777
	20	7221	7163	7105	7047	6989	6931	6873	6815	6757
	30	7204	7145	7087	7029	6970	6912	6853	6795	6737
	40	7186	7128	7069	7010	6951	6893	6834	6775	6716
	50	7169	7110	7051	6992	6933	6874	6815	6755	6696
27	0	9.997152	7092	7033	6973	6914	6855	6795	6736	6676
	10	7134	7074	7015	6955	6895	6836	6776	6716	6656
	20	7117	7057	6997	6937	6877	6817	6757	6697	6637
	30	7100	7039	6979	6918	6858	6798	6737	6677	6617
	40	7082	7022	6961	6900	6839	6779	6718	6657	6597
	50	7065	7004	6943	6882	6821	6760	6699	6638	6577
28	0	9.997048	6987	6926	6864	6803	6742	6680	6619	6557
	10	7031	6969	6907	6846	6784	6722	6661	6599	6537
	20	7014	6952	6890	6828	6766	6704	6642	6580	6518
	30	6997	6934	6872	6810	6747	6685	6623	6560	6498
	40	6979	6917	6854	6792	6729	6666	6604	6541	6478
	50	6962	6899	6836	6773	6710	6648	6585	6522	6459
29	0	9.996945	6882	6819	6755	6692	6629	6566	6502	6439
	10	6928	6865	6801	6737	6674	6610	6547	6483	6419
	20	6911	6847	6783	6719	6656	6592	6528	6464	6400
	30	6894	6830	6766	6701	6637	6573	6509	6444	6380
	40	6877	6813	6748	6684	6619	6554	6490	6425	6361
	50	6860	6795	6731	6666	6601	6536	6471	6406	6341
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′

Moon's Horizontal Parallax.

Proportional parts to Seconds of Parallax. Subtractive.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	1	2	2	3	4	5	5	6	7
10	8	8	9	10	11	12	12	13	14	15
20	15	16	17	18	18	19	20	21	22	22
30	23	24	25	25	26	27	28	28	29	30
40	31	32	33	33	34	35	35	36	37	38
50	39	39	40	41	42	42	43	44	45	45
0	0	1	2	2	3	4	5	6	6	7
10	8	9	10	10	11	12	13	14	14	15
20	16	17	18	18	19	20	21	22	22	23
30	24	25	26	26	27	28	29	30	30	31
40	32	33	34	34	35	36	37	38	38	39
50	40	41	42	42	43	44	45	46	46	47
0	0	1	2	3	3	4	5	6	7	8
10	8	9	10	11	12	13	13	14	15	16
20	17	18	18	19	20	21	22	23	23	24
30	25	26	27	28	28	29	30	31	32	33
40	33	34	35	36	37	38	39	39	40	41
50	42	43	44	44	45	46	47	48	49	49
0	0	1	2	3	3	4	5	6	7	8
10	9	10	10	11	12	13	14	15	16	17
20	17	18	19	20	21	22	23	23	24	25
30	26	27	28	29	30	30	31	32	33	34
40	35	36	37	37	38	39	40	41	42	43
50	44	44	45	46	47	48	49	50	50	51
0	0	1	2	3	4	5	5	6	7	8
10	9	10	11	12	13	14	14	15	16	17
20	18	19	20	21	22	23	23	24	25	26
30	27	28	29	30	31	32	32	33	34	35
40	36	37	38	39	40	41	41	42	43	44
50	45	46	47	48	49	50	50	51	52	53
0	0	1	2	3	4	5	6	7	8	9
10	9	10	11	12	13	14	15	16	17	18
20	19	20	21	22	23	24	24	25	26	27
30	28	29	30	31	32	33	34	35	36	37
40	38	39	39	40	41	42	43	44	45	46
50	47	48	49	50	51	52	53	54	55	55
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	18
20	19	20	21	22	23	24	25	26	27	28
30	29	30	31	32	33	34	35	36	37	38
40	39	40	41	42	43	44	45	46	47	48
50	49	50	51	52	53	54	54	55	56	57
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	13	14	15	16	17	18	19
20	20	21	22	23	24	25	26	27	28	29
30	30	31	32	33	34	35	36	37	38	39
40	40	41	42	43	44	45	46	47	48	49
50	50	51	52	53	54	55	56	57	58	59
0	0	1	2	3	4	5	6	7	8	9
10	10	11	12	14	15	16	17	18	19	20
20	21	22	23	24	25	26	27	28	29	30
30	31	32	33	34	35	36	37	38	40	41
40	42	43	44	45	46	47	48	49	50	51
50	52	53	54	55	56	57	58	59	60	61
0	0	1	2	3	4	5	6	7	9	10
10	11	12	13	14	15	16	17	18	19	20
20	21	22	24	25	26	27	28	29	30	31
30	32	33	34	35	36	37	39	40	41	42
40	43	44	45	46	47	48	49	50	51	52
50	54	55	56	57	58	59	60	61	62	63
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax. Subtractive.
Proportional parts to

Min.	55′ & 56′	56′ & 57′	57′ & 58′
Subt.			
1′	2	2	
2	4	4	
3	6	6	
4	7	8	
5	9	10	
6	11	12	
7	13	14	
8	15	16	
9	17	18	
Subt.			
1′	2	2	
2	4	4	
3	6	6	
4	7	8	
5	9	10	
6	11	12	
7	13	14	
8	15	16	
9	17	18	
Subt.			
1′	2	2	
2	4	4	
3	6	6	
4	7	8	
5	9	10	
6	11	11	
7	13	13	
8	14	15	
9	17	17	
Subt.			
1′	2	2	
2	4	4	
3	5	6	
4	7	8	
5	9	10	
6	11	11	
7	13	13	
8	14	15	
9	16	17	
Subt.			
1′	2	2	
2	4	4	
3	5	6	
4	7	7	
5	9	9	
6	11	11	
7	12	13	
8	14	15	
9	16	16	
Min.	55′ & 56′	56′ & 57′	57′ & 58′

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LOGARITHMIC DIFFERENCE.

Moon's Horizontal Parallax.

Minutes Appar.	53′	54′	55′	56′	57′	58′	59′	60′	61′
0	9.996844	6779	6713	6648	6583	6518	6453	6387	6322
10	6827	6761	6696	6630	6564	6499	6433	6368	6302
20	6810	6744	6678	6613	6546	6480	6415	6349	6283
30	6793	6727	6661	6594	6528	6462	6396	6330	6264
40	6776	6710	6643	6577	6510	6444	6377	6311	6244
50	6759	6693	6626	6559	6492	6426	6359	6292	6225
1 0	9.996743	6676	6609	6541	6474	6407	6340	6273	6206
10	6726	6659	6591	6524	6456	6389	6322	6254	6187
20	6710	6642	6574	6506	6439	6371	6303	6235	6167
30	6693	6625	6557	6489	6421	6352	6284	6216	6148
40	6676	6608	6539	6471	6403	6334	6266	6198	6129
50	6660	6591	6522	6454	6385	6316	6248	6179	6110
2 0	9.996643	6574	6505	6436	6367	6298	6229	6160	6091
10	6627	6557	6488	6419	6349	6280	6211	6141	6072
20	6610	6540	6471	6401	6332	6262	6192	6123	6053
30	6594	6524	6454	6384	6314	6244	6174	6104	6034
40	6577	6507	6437	6366	6296	6226	6156	6085	6015
50	6561	6490	6420	6349	6279	6208	6138	6067	5996
3 0	9.996544	6474	6403	6332	6261	6190	6119	6048	5978
10	6528	6457	6386	6315	6243	6172	6101	6030	5959
20	6512	6440	6369	6297	6226	6154	6083	6011	5940
30	6496	6424	6352	6280	6208	6137	6065	5993	5921
40	6479	6407	6335	6263	6191	6119	6047	5975	5903
50	6463	6391	6318	6246	6174	6101	6029	5956	5884
4 0	9.996447	6374	6302	6229	6156	6084	6011	5938	5866
10	6431	6358	6285	6212	6139	6066	5993	5920	5847
20	6415	6342	6268	6195	6122	6048	5975	5902	5828
30	6399	6325	6252	6178	6104	6031	5957	5884	5810
40	6383	6309	6235	6161	6087	6013	5939	5865	5791
50	6367	6293	6218	6144	6070	5996	5921	5847	5773
5 0	9.996351	6276	6202	6127	6053	5978	5904	5829	5755
10	6335	6260	6185	6110	6036	5961	5886	5811	5736
20	6319	6244	6169	6094	6018	5943	5868	5793	5718
30	6303	6228	6152	6077	6001	5926	5850	5775	5700
40	6287	6212	6136	6060	5984	5909	5833	5757	5681
50	6271	6195	6119	6043	5967	5891	5815	5739	5663
6 0	9.996256	6179	6103	6027	5950	5874	5798	5721	5645
10	6240	6163	6087	6010	5933	5857	5780	5704	5627
20	6224	6147	6070	5993	5917	5840	5763	5686	5609
30	6209	6131	6054	5977	5900	5822	5745	5668	5591
40	6193	6115	6038	5960	5883	5805	5728	5650	5573
50	6177	6099	6022	5944	5866	5788	5710	5633	5555
7 0	9.996162	6084	6005	5927	5849	5771	5693	5615	5537
10	6146	6068	5989	5911	5833	5754	5676	5597	5519
20	6131	6052	5973	5895	5816	5737	5659	5580	5501
30	6115	6036	5957	5878	5799	5720	5641	5562	5483
40	6100	6021	5941	5862	5783	5703	5624	5545	5466
50	6084	6005	5925	5846	5766	5687	5607	5528	5448
8 0	9.996069	5989	5909	5829	5750	5670	5590	5510	5430
10	6054	5973	5893	5813	5733	5653	5573	5493	5413
20	6038	5958	5877	5797	5717	5636	5556	5475	5395
30	6023	5942	5862	5781	5700	5619	5539	5458	5377
40	6008	5927	5846	5765	5684	5603	5522	5441	5359
50	5992	5911	5830	5749	5667	5586	5505	5423	5342
9 0	9.995977	5896	5814	5733	5651	5569	5488	5406	5325
10	5962	5880	5798	5716	5635	5553	5471	5389	5307
20	5947	5865	5783	5701	5618	5536	5454	5372	5290
30	5932	5849	5767	5685	5602	5520	5437	5355	5273
40	5917	5834	5751	5669	5586	5503	5421	5338	5255
50	5902	5819	5736	5654	5570	5487	5404	5321	5238
	53′	54′	55′	56′	57′	58′	59′	60′	61′

Moon's Horizontal Parallax.

Proportional parts to Seconds of Parallax. Subtractive.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	1	2	3	4	6	7	8	9	10
10	11	12	13	14	15	17	18	19	20	21
20	22	23	24	25	26	28	29	30	31	32
30	33	34	35	36	37	39	40	41	42	43
40	44	45	46	47	48	50	51	52	53	54
50	55	56	57	58	59	61	62	63	64	65
0	0	1	2	3	5	6	7	8	9	10
10	11	12	14	15	16	17	18	19	20	21
20	23	24	25	26	27	28	29	31	32	33
30	34	35	36	37	38	40	41	42	43	44
40	45	46	47	49	50	51	52	53	54	55
50	57	58	59	60	61	62	63	64	66	67
0	0	1	2	4	5	6	7	8	9	11
10	12	13	14	15	16	18	19	20	21	22
20	23	25	26	27	28	29	30	32	33	34
30	35	36	37	39	40	41	42	43	44	46
40	47	48	49	50	51	53	54	55	56	57
50	59	60	61	62	63	64	66	67	68	69
0	0	1	2	4	5	6	7	8	10	11
10	12	13	14	16	17	18	19	20	22	23
20	24	25	26	28	29	30	31	32	34	35
30	36	37	38	40	41	42	43	44	46	47
40	48	49	50	52	53	54	55	56	58	59
50	60	61	62	64	65	66	67	68	70	71
0	0	1	2	4	5	6	7	9	10	11
10	12	13	15	16	17	18	20	21	22	23
20	25	26	27	28	29	31	32	33	34	36
30	37	38	39	40	42	43	44	45	47	48
40	49	50	52	53	54	55	56	58	59	60
50	61	63	64	65	66	67	69	70	71	72
0	0	1	3	4	5	6	8	9	10	11
10	13	14	15	16	18	19	20	21	23	24
20	25	26	28	29	30	31	33	34	35	36
30	38	39	40	41	43	44	45	46	48	49
40	50	51	53	54	55	57	58	59	60	62
50	63	64	65	67	68	69	70	72	73	74
0	0	1	3	4	5	6	8	9	10	12
10	13	14	15	17	18	19	21	22	23	25
20	26	27	28	30	31	32	34	35	36	37
30	39	40	41	43	44	45	46	48	49	50
40	52	53	54	55	57	58	59	61	62	63
50	65	66	67	68	70	71	72	73	75	76
0	0	1	3	4	5	7	8	9	10	12
10	13	14	16	17	18	20	21	22	24	25
20	26	28	29	30	31	33	34	35	37	38
30	39	41	42	43	45	46	47	48	50	51
40	52	54	55	56	58	59	60	62	63	64
50	66	67	68	69	71	72	73	75	76	77
0	0	1	3	4	5	7	8	9	11	12
10	13	15	16	17	19	20	21	23	24	25
20	27	28	29	31	32	33	35	36	37	39
30	40	42	43	44	46	47	48	50	51	52
40	54	55	56	58	59	60	62	63	64	66
50	67	68	70	71	72	74	75	76	78	79
0	0	1	3	4	5	7	8	10	11	12
10	14	15	16	18	19	21	22	23	25	26
20	27	29	30	32	33	34	36	37	38	40
30	41	42	44	45	47	48	49	51	52	53
40	55	56	58	59	60	62	63	64	66	67
50	69	70	71	73	74	76	77	78	79	81
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax. Subtractive.
Proportional parts to

′ of Alt. Par. being between Min.	53′ & 56′	56′ & 59′	59′ & 62′
Subt. 1′	2	2	2
2	3	4	4
3	5	5	6
4	7	7	8
5	9	9	10
6	10	11	11
7	12	13	13
8	14	14	15
9	15	16	17
Subt. 1′	2	2	2
2	3	4	4
3	5	5	6
4	7	7	7
5	8	9	9
6	10	11	11
7	12	12	13
8	13	14	15
9	15	16	17
Subt. 1′	2	2	2
2	3	3	4
3	5	5	5
4	7	7	7
5	8	8	9
6	10	10	11
7	11	12	12
8	13	13	14
9	14	15	16
Subt. 1′	2	2	2
2	3	3	3
3	5	5	5
4	6	7	7
5	8	8	9
6	9	10	10
7	11	12	12
8	12	13	14
9	14	15	15
Min.	53′ & 56′	56′ & 59′	59′ & 62′

′ of Alt. Par. being between

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LOGARITHMIC DIFFERENCE.

Moon's App. Alt. °	′	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
40	0	9.995887	5804	5720	5637	5554	5471	5387	5304	5221
	10	5872	5788	5705	5621	5538	5454	5371	5287	5204
	20	5857	5773	5690	5606	5522	5438	5354	5270	5186
	30	584	5758	5674	5590	5506	5422	5338	5253	5169
	40	5827	5743	5659	5574	5490	5405	5321	5237	5152
	50	5813	5728	5643	5559	5474	5389	5305	5220	5135
41	0	9.995798	5713	5628	5543	5458	5373	5288	5203	5118
	10	5783	5698	5613	5528	5442	5357	5272	5187	5101
	20	5769	5683	5598	5512	5427	5341	5256	5170	5085
	30	5754	5668	5582	5497	5411	5325	5239	5154	5068
	40	5739	5653	5567	5481	5395	5309	5223	5137	5051
	50	5725	5639	5552	5466	5380	5293	5207	5121	5034
42	0	9.995710	5624	5537	5451	5364	5277	5191	5104	5018
	10	5696	5609	5522	5435	5348	5262	5175	5088	5001
	20	5682	5594	5507	5420	5333	5246	5159	5072	4984
	30	5667	5580	5492	5405	5318	5230	5143	5055	4968
	40	5653	5565	5477	5390	5302	5214	5127	5039	4951
	50	5639	5551	5463	5375	5287	5199	5111	5023	4935
43	0	9.995624	5536	5448	5360	5271	5182	5095	5007	4918
	10	5610	5522	5433	5345	5256	5168	5079	4991	4902
	20	5596	5507	5418	5330	5241	5152	5063	4975	4886
	30	5582	5493	5404	5315	5226	5137	5048	4959	4870
	40	5568	5478	5389	5300	5210	5121	5032	4943	4853
	50	5553	5464	5374	5285	5195	5106	5016	4927	4837
44	0	9.995539	5450	5360	5270	5180	5090	5000	4911	4821
	10	5525	5435	5345	5255	5165	5075	4985	4895	4805
	20	5512	5421	5331	5240	5150	5060	4969	4879	4789
	30	5498	5407	5316	5226	5135	5045	4954	4863	4773
	40	5484	5393	5302	5211	5120	5029	4938	4848	4757
	50	5470	5379	5288	5197	5105	5014	4923	4832	4741
45	0	9.995456	5365	5273	5182	5091	4999	4908	4816	4725
	10	5442	5351	5259	5167	5076	4984	4892	4801	4709
	20	5429	5337	5245	5153	5061	4969	4877	4785	4693
	30	5415	5323	5231	5138	5046	4954	4862	4770	4677
	40	5401	5309	5216	5124	5031	4939	4847	4754	4662
	50	5388	5295	5202	5110	5017	4924	4831	4739	4646
46	0	9.995374	5281	5188	5095	5002	4909	4816	4723	4630
	10	5361	5267	5174	5081	4988	4895	4801	4708	4615
	20	5347	5254	5160	5067	4973	4880	4786	4693	4599
	30	5334	5240	5146	5053	4959	4865	4771	4678	4584
	40	5320	5226	5132	5038	4944	4850	4756	4663	4569
	50	5307	5213	5119	5024	4930	4836	4742	4647	4553
47	0	9.995294	5199	5105	5010	4916	4821	4727	4632	4538
	10	5280	5186	5091	4996	4901	4807	4712	4617	4523
	20	5267	5172	5077	4982	4887	4792	4697	4602	4507
	30	5254	5159	5064	4968	4873	4778	4683	4587	4492
	40	5241	5145	5050	4954	4859	4764	4668	4573	4477
	50	5228	5132	5036	4941	4845	4749	4653	4558	4462
48	0	9.995215	5119	5023	4927	4831	4735	4639	4543	4447
	10	5202	5105	5009	4913	4817	4721	4624	4528	4432
	20	5189	5092	4996	4899	4803	4706	4610	4514	4417
	30	5176	5079	4982	4886	4789	4692	4595	4499	4402
	40	5163	5066	4969	4872	4775	4678	4581	4484	4387
	50	5150	5053	4956	4858	4761	4664	4567	4470	4372
49	0	9.995137	5040	4942	4845	4747	4650	4552	4455	4358
	10	5124	5027	4929	4831	4734	4636	4538	4441	4343
	20	5112	5014	4916	4818	4720	4622	4524	4426	4328
	30	5099	5001	4903	4804	4706	4608	4510	4412	4314
	40	5086	4988	4889	4791	4693	4594	4496	4397	4299
	50	5074	4975	4876	4778	4679	4580	4482	4383	4284
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. Subtractive.	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0″	0	1	3	4	6	7	8	10	11	13
10	14	15	17	18	20	21	22	24	25	27
20	28	29	31	32	34	35	36	38	39	41
30	42	43	45	46	48	49	50	52	53	55
40	56	57	59	60	62	63	64	66	67	69
50	70	71	73	74	76	77	78	80	81	83
0	0	1	3	4	6	7	9	10	11	13
10	14	16	17	19	20	21	23	24	26	27
20	29	30	31	33	34	36	37	39	40	41
30	43	44	46	47	49	50	51	53	54	56
40	57	59	60	61	63	64	66	67	69	70
50	72	73	74	76	77	79	80	82	83	84
0	0	1	3	4	6	7	9	10	12	13
10	15	16	17	19	20	22	23	25	26	28
20	29	31	32	33	35	36	38	39	41	42
30	44	45	47	48	50	51	53	54	55	57
40	58	60	61	63	64	66	67	68	70	71
50	73	74	76	77	79	80	82	83	84	86
0	0	1	3	4	6	7	9	10	12	13
10	15	16	18	19	21	22	24	25	27	28
20	30	31	33	34	36	37	38	40	41	43
30	44	46	47	49	50	52	53	55	56	58
40	59	61	62	64	65	67	68	70	71	73
50	74	75	77	78	80	81	83	84	86	87
0	0	2	3	5	6	8	9	11	12	14
10	15	17	18	20	21	23	24	26	27	29
20	30	32	33	35	36	38	39	41	42	44
30	45	47	48	50	51	53	54	56	57	59
40	60	62	63	65	66	68	69	71	72	74
50	75	77	78	80	82	83	85	86	88	89
0	0	2	3	5	6	8	9	11	12	14
10	15	17	18	20	22	23	25	26	28	29
20	31	32	34	35	37	39	40	42	43	45
30	46	48	49	51	52	54	55	57	59	60
40	62	63	65	66	68	69	71	72	74	75
50	77	79	80	82	83	85	86	88	89	91
0	0	2	3	5	6	8	9	11	12	14
10	16	17	19	20	22	23	25	27	28	30
20	31	33	34	36	37	39	41	42	44	45
30	47	48	50	51	53	55	56	58	59	61
40	62	64	66	67	69	70	72	73	75	76
50	78	80	81	83	84	86	87	89	90	92
0	0	2	3	5	6	8	10	11	13	14
10	16	17	19	21	22	24	25	27	29	30
20	32	33	35	37	38	40	41	43	44	46
30	48	49	51	52	54	56	57	59	60	62
40	63	65	67	68	70	71	73	75	76	78
50	79	81	83	84	86	87	89	90	92	94
0	0	2	3	5	6	8	10	11	13	14
10	16	18	19	21	23	24	26	27	29	31
20	32	34	35	37	39	40	42	43	45	47
30	48	50	52	53	55	56	58	60	61	63
40	64	66	68	69	71	72	74	76	77	79
50	81	82	84	85	87	89	90	92	93	95
0	0	2	3	5	7	8	10	11	13	15
10	16	18	20	21	23	25	26	28	29	31
20	33	34	36	38	39	41	43	44	46	47
30	49	51	52	54	56	57	59	60	62	64
40	65	67	69	70	72	74	75	77	78	80
50	82	83	85	87	88	90	92	93	95	96
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
Seconds of Parallax. Subtractive. Proportional parts to										

′ s of Alt. Pa being between	Min.	53′ & 56′	56′ & 59′	59′ & 62′
	Subt.			
1′	2	2		
2	3	3		
3	5	5		
4	6	6		
5	8	8		
6	9	9		
7	11	11		
8	12	13		
9	14	14		
	Subt.			
1′	1	2		
2	3	3		
3	4	5		
4	6	6		
5	7	8		
6	9	9		
7	10	11		
8	12	12		
9	13	14		
	Subt.			
1′	1	1		
2	3	3		
3	4	4		
4	6	6		
5	7	7		
6	8	9		
7	10	10		
8	11	12		
9	13	13		
	Subt.			
1′	1	1		
2	3	3		
3	4	4		
4	5	6		
5	7	7		
6	8	9		
7	9	10		
8	11	11		
9	12	13		
	Subt.			
1′	1	1		
2	3	3		
3	4	4		
4	5	6		
5	7	7		
6	8	8		
7	9	10		
8	10	11		
9	12	12		
Min.	53′ & 56′	56′ & 59′	59′ & 62′	
′ s of Alt. Pa being between				

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LOGARITHMIC DIFFERENCE.

Moon's App. Alt.	Moon's Horizontal Parallax: 53′	54′	55′	56′	57′	58′	59′	60′	61′
′									
0	9.995061	4962	4863	4764	4665	4567	4468	4369	4270
10	5048	4949	4850	4751	4652	4553	4454	4355	4256
20	5036	4937	4837	4738	4639	4539	4440	4341	4241
30	5024	4924	4824	4725	4625	4526	4426	4326	4227
40	5011	4911	4812	4712	4612	4512	4412	4312	4213
50	4999	4899	4799	4699	4599	4499	4399	4299	4198
0	9.994987	4886	4786	4686	4586	4485	4385	4285	4184
10	4975	4874	4773	4673	4572	4472	4371	4271	4170
20	4962	4862	4761	4660	4559	4459	4358	4257	4156
30	4950	4849	4748	4647	4546	4445	4344	4243	4142
40	4938	4837	4736	4634	4533	4432	4331	4230	4129
50	4926	4825	4723	4622	4520	4419	4318	4216	4115
0	9.994914	4812	4711	4609	4507	4406	4304	4203	4101
10	4902	4800	4698	4596	4495	4393	4291	4189	4087
20	4891	4789	4687	4584	4482	4380	4278	4176	4074
30	4878	4776	4673	4571	4469	4367	4264	4162	4060
40	4866	4764	4661	4559	4456	4354	4251	4149	4046
50	4854	4752	4649	4546	4443	4341	4238	4135	4033
0	9.994843	4740	4637	4534	4431	4328	4225	4122	4019
10	4831	4728	4625	4521	4418	4315	4212	4109	4006
20	4819	4716	4612	4509	4406	4302	4199	4096	3992
30	4808	4704	4600	4497	4393	4290	4186	4083	3979
40	4796	4692	4588	4485	4381	4277	4173	4069	3966
50	4784	4680	4576	4472	4368	4264	4160	4056	3952
0	9.994773	4669	4564	4460	4356	4252	4148	4043	3939
10	4762	4657	4552	4448	4344	4239	4135	4030	3926
20	4750	4645	4541	4436	4332	4227	4122	4018	3913
30	4739	4634	4529	4424	4319	4214	4110	4005	3900
40	4728	4622	4517	4412	4307	4202	4097	3992	3887
50	4716	4611	4506	4400	4295	4190	4084	3979	3874
0	9.994705	4600	4494	4389	4283	4178	4072	3967	3861
10	4694	4588	4483	4377	4271	4165	4060	3954	3848
20	4683	4577	4471	4365	4259	4153	4047	3941	3835
30	4672	4566	4460	4353	4247	4141	4035	3929	3823
40	4661	4555	4448	4342	4235	4129	4023	3916	3810
50	4650	4543	4437	4330	4224	4117	4011	3904	3797
0	9.994639	4532	4426	4319	4212	4105	3998	3892	3785
10	4628	4521	4414	4307	4200	4093	3986	3879	3772
20	4617	4510	4403	4296	4189	4081	3974	3867	3760
30	4607	4499	4392	4284	4177	4070	3962	3855	3747
40	4596	4488	4381	4273	4166	4058	3950	3843	3735
50	4585	4477	4370	4262	4154	4046	3938	3831	3723
0	9.994575	4467	4359	4251	4143	4035	3926	3818	3710
10	4564	4456	4348	4239	4131	4023	3915	3806	3698
20	4553	4445	4337	4228	4120	4011	3903	3794	3686
30	4543	4434	4326	4217	4108	4000	3891	3783	3674
40	4532	4424	4315	4206	4097	3988	3879	3771	3662
50	4522	4413	4304	4195	4086	3977	3868	3759	3650
0	9.994512	4403	4293	4184	4075	3966	3856	3747	3638
10	4501	4392	4283	4173	4064	3954	3845	3736	3626
20	4491	4381	4272	4162	4053	3943	3834	3724	3614
30	4481	4371	4261	4152	4042	3932	3822	3712	3603
40	4471	4361	4251	4141	4031	3921	3811	3701	3591
50	4461	4351	4240	4130	4020	3910	3800	3689	3579
0	9.994451	4340	4230	4120	4009	3899	3788	3678	3568
10	4441	4330	4220	4109	3998	3888	3777	3667	3556
20	4431	4320	4209	4098	3988	3877	3766	3655	3545
30	4421	4310	4199	4088	3977	3866	3755	3644	3533
40	4411	4300	4189	4078	3966	3855	3744	3633	3522
50	4401	4290	4179	4067	3956	3845	3733	3622	3511
	53′	54′	55′	56′	57′	58′	59′	60′	61′
	Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. Subtractive.										
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	2	3	5	7	8	10	12	13	15
10	17	18	20	22	23	25	27	28	30	32
20	33	35	37	38	40	42	43	45	46	48
30	50	51	53	55	56	58	60	61	63	65
40	66	68	70	71	73	75	76	78	80	81
50	83	85	86	88	90	91	93	95	96	98
0	0	2	3	5	7	8	10	12	13	15
10	17	18	20	22	24	25	27	29	30	32
20	34	35	37	39	40	42	44	45	47	49
30	50	52	54	55	57	59	60	62	64	66
40	67	69	71	72	74	76	77	79	81	82
50	84	86	87	89	91	92	94	96	97	99
0	0	2	3	5	7	9	10	12	14	15
10	17	19	20	22	24	26	27	29	31	32
20	34	36	37	39	41	43	44	46	48	49
30	51	53	54	56	58	60	61	63	65	66
40	68	70	71	73	75	77	78	80	82	83
50	85	87	88	90	92	94	95	97	99	100
0	0	2	3	5	7	9	10	12	14	15
10	17	19	21	22	24	26	28	29	31	33
20	35	36	38	40	41	43	45	47	48	50
30	52	54	55	57	59	60	62	64	66	67
40	69	71	73	74	76	78	79	81	83	85
50	86	88	90	92	93	95	97	98	100	102
0	0	2	3	5	7	9	10	12	14	16
10	17	19	21	23	24	26	28	30	31	33
20	35	37	38	40	42	44	45	47	49	51
30	52	54	56	58	59	61	63	65	66	68
40	70	72	73	75	77	79	80	82	84	86
50	87	89	91	93	94	96	98	100	101	103
0	0	2	4	5	7	9	11	12	14	16
10	18	19	21	23	25	27	28	30	32	34
20	35	37	39	41	42	44	46	48	50	51
30	53	55	57	58	60	62	64	65	67	69
40	71	73	74	76	78	80	81	83	85	87
50	89	90	92	94	96	97	99	101	103	104
0	0	2	4	5	7	9	11	13	14	16
10	18	20	21	23	25	27	29	30	32	34
20	36	38	39	41	43	45	47	48	50	52
30	54	55	57	59	61	63	64	66	68	70
40	72	73	75	77	79	81	82	84	86	88
50	90	91	93	95	97	99	100	102	104	106
0	0	2	4	5	7	9	11	13	14	16
10	18	20	22	24	25	27	29	31	33	34
20	36	38	40	42	43	45	47	49	51	52
30	54	56	58	60	62	63	65	67	69	71
40	72	74	76	78	80	81	83	85	87	89
50	91	92	94	96	98	100	101	103	105	107
0	0	2	4	5	7	9	11	13	15	16
10	18	20	22	24	26	27	29	31	33	35
20	37	38	40	42	44	46	48	49	51	53
30	55	57	59	60	62	64	66	68	70	71
40	73	75	77	79	81	82	84	86	88	90
50	92	93	95	97	99	101	102	104	106	108
0	0	2	4	6	7	9	11	13	15	17
10	19	20	22	24	26	28	30	31	33	35
20	37	39	41	43	44	46	48	50	52	54
30	56	57	59	61	63	65	67	68	70	72
40	74	76	78	80	81	83	85	87	89	91
50	93	94	96	98	100	102	104	105	107	109
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
Seconds of Parallax. Subtractive.										
Proportional parts to										

′ s of Alt. Par. being between			
Min.	53′ & 56′	56′ & 59′	59′ & 62′
Subt.			
1′	1	1	1
2	2	3	3
3	4	4	4
4	5	5	6
5	6	7	7
6	7	8	8
7	9	9	10
8	10	11	11
9	11	12	13
Subt.			
1′	1	1	1
2	2	3	3
3	4	4	4
4	5	5	5
5	6	6	7
6	7	8	8
7	8	9	9
8	10	10	11
9	11	11	12
Subt.			
1′	1	1	1
2	2	2	3
3	3	4	4
4	5	5	5
5	6	6	7
6	7	7	8
7	8	8	9
8	9	10	10
9	10	11	11
Subt.			
1′	1	1	1
2	2	2	2
3	3	3	4
4	4	5	5
5	5	6	6
6	6	7	7
7	8	8	9
8	9	9	10
9	10	10	11
Subt.			
1′	1	1	1
2	2	2	2
3	3	3	3
4	4	4	5
5	5	5	6
6	6	6	7
7	7	8	8
8	8	9	9
9	9	10	10
Min.	53′ & 56′	56′ & 59′	59′ & 62′
′ s of Alt. Par. being between			

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LOGARITHMIC DIFFERENCE.

Moon's App. Alt. °	′	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
60	0	9.994391	4280	4168	4057	3945	3834	3722	3611	3500
	10	4382	4270	4158	4047	3935	3823	3711	3600	3488
	20	4372	4260	4148	4036	3924	3813	3701	3589	3477
	30	4362	4250	4138	4026	3914	3802	3690	3578	3466
	40	4353	4241	4128	4016	3904	3792	3679	3567	3455
	50	4343	4231	4118	4006	3894	3781	3669	3556	3444
61	0	9.994334	4221	4109	3996	3883	3771	3658	3546	3433
	10	4324	4212	4099	3986	3873	3761	3648	3535	3422
	20	4315	4202	4089	3976	3863	3750	3637	3524	3411
	30	4306	4193	4079	3966	3853	3740	3627	3514	3401
	40	4296	4183	4070	3957	3843	3730	3617	3503	3390
	50	4287	4174	4060	3947	3833	3720	3606	3493	3379
62	0	9.994278	4164	4051	3937	3824	3710	3596	3483	3369
	10	4269	4155	4041	3928	3814	3700	3586	3472	3358
	20	4260	4146	4032	3918	3804	3690	3576	3462	3348
	30	4251	4137	4022	3908	3794	3680	3566	3452	3338
	40	4242	4127	4013	3899	3785	3670	3556	3442	3327
	50	4233	4118	4004	3889	3775	3660	3546	3431	3317
63	0	9.994224	4109	3995	3880	3765	3651	3536	3421	3307
	10	4215	4100	3986	3871	3756	3641	3526	3411	3297
	20	4206	4091	3976	3861	3746	3631	3516	3401	3286
	30	4198	4083	3967	3852	3737	3622	3507	3392	3276
	40	4189	4074	3958	3843	3728	3612	3497	3382	3267
	50	4180	4065	3950	3834	3719	3603	3488	3372	3257
64	0	9.994172	4056	3941	3825	3709	3594	3478	3362	3247
	10	4163	4048	3932	3816	3700	3584	3468	3353	3237
	20	4155	4039	3923	3807	3691	3575	3459	3343	3227
	30	4146	4030	3914	3798	3682	3566	3450	3334	3217
	40	4138	4022	3906	3789	3673	3557	3440	3324	3208
	50	4130	4013	3897	3781	3664	3548	3431	3315	3198
65	0	9.994122	4005	3888	3772	3655	3539	3422	3305	3189
	10	4113	3997	3880	3763	3646	3530	3413	3296	3179
	20	4105	3988	3871	3755	3638	3521	3404	3287	3170
	30	4097	3980	3863	3746	3629	3512	3395	3278	3161
	40	4089	3972	3855	3737	3620	3503	3386	3269	3151
	50	4081	3964	3846	3729	3612	3494	3377	3260	3142
66	0	9.994073	3956	3838	3721	3603	3486	3368	3251	3133
	10	4065	3948	3830	3712	3595	3477	3359	3242	3124
	20	4057	3939	3822	3704	3586	3468	3350	3233	3115
	30	4049	3931	3814	3696	3578	3460	3342	3224	3106
	40	4042	3924	3806	3687	3569	3451	3333	3215	3097
	50	4034	3916	3798	3679	3561	3443	3325	3206	3088
67	0	9.994027	3908	3790	3671	3553	3435	3316	3198	3079
	10	4019	3900	3782	3663	3545	3426	3308	3189	3071
	20	4011	3893	3774	3655	3537	3418	3299	3181	3062
	30	4004	3885	3766	3647	3529	3410	3291	3172	3053
	40	3997	3878	3759	3640	3521	3402	3283	3164	3045
	50	3989	3870	3751	3632	3513	3394	3275	3155	3036
68	0	9.993982	3863	3743	3624	3505	3386	3266	3147	3028
	10	3975	3855	3736	3616	3497	3378	3258	3139	3019
	20	3967	3848	3728	3609	3489	3370	3250	3131	3011
	30	3960	3841	3721	3601	3482	3362	3242	3123	3003
	40	3953	3833	3713	3594	3474	3354	3234	3114	2995
	50	3946	3826	3706	3586	3466	3346	3226	3106	2987
69	0	9.993939	3819	3699	3579	3459	3339	3219	3099	2978
	10	3932	3812	3692	3571	3451	3331	3211	3091	2970
	20	3925	3805	3684	3564	3444	3323	3203	3083	2963
	30	3918	3798	3677	3557	3436	3316	3196	3075	2955
	40	3911	3791	3670	3550	3429	3309	3188	3067	2947
	50	3905	3784	3663	3543	3422	3301	3180	3060	2939
Moon's App. Alt.		53′	54′	55′	56′	57′	58′	59′	60′	61′
		Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. Subtractive.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	2	4	6	7	9	11	13	15	17
10	19	21	22	24	26	28	30	32	34	35
20	37	39	41	43	45	47	49	50	52	54
30	56	58	60	62	63	65	67	69	71	73
40	75	77	78	80	82	84	86	88	90	91
50	93	95	97	99	101	103	104	106	108	110
0	0	2	4	6	8	9	11	13	15	17
10	19	21	23	25	26	28	30	32	34	36
20	38	40	41	43	45	47	49	51	53	55
30	57	58	60	62	64	66	68	70	72	74
40	75	77	79	81	83	85	87	89	90	92
50	94	96	98	100	102	104	106	107	109	111
0	0	2	4	6	8	10	11	13	15	17
10	19	21	23	25	27	29	30	32	34	36
20	38	40	42	44	46	48	49	51	53	55
30	57	59	61	63	65	67	68	70	72	74
40	76	78	80	82	84	86	87	89	91	93
50	95	97	99	101	103	105	106	108	110	112
0	0	2	4	6	8	10	12	13	15	17
10	19	21	23	25	27	29	31	33	35	36
20	38	40	42	44	46	48	50	52	54	56
30	58	60	61	63	65	67	69	71	73	75
40	77	79	81	83	84	86	88	90	92	94
50	96	98	100	102	104	106	108	109	111	113
0	0	2	4	6	8	10	12	14	15	17
10	19	21	23	25	27	29	31	33	35	37
20	39	41	43	45	46	48	50	52	54	56
30	58	60	62	64	66	68	70	72	74	75
40	77	79	81	83	85	87	89	91	93	95
50	97	99	101	103	104	106	108	110	112	114
0	0	2	4	6	8	10	12	14	16	18
10	20	21	23	25	27	29	31	33	35	37
20	39	41	43	45	47	49	51	53	55	57
30	59	60	62	64	66	68	70	72	74	76
40	78	80	82	84	86	88	90	92	94	96
50	97	99	101	103	105	107	109	111	113	115
0	0	2	4	6	8	10	12	14	16	18
10	20	22	24	26	27	29	31	33	35	37
20	39	41	43	45	47	49	51	53	55	57
30	59	61	63	65	67	69	71	73	75	77
40	79	81	82	84	86	88	90	92	94	96
50	98	100	102	104	106	108	110	112	114	116
0	0	2	4	6	8	10	12	14	16	18
10	20	22	24	26	28	30	32	34	36	38
20	40	42	44	46	48	50	51	53	55	57
30	59	61	63	65	67	69	71	73	75	77
40	79	81	83	85	87	89	91	93	95	97
50	99	101	103	105	107	109	111	113	115	117
0	0	2	4	6	8	10	12	14	16	18
10	20	22	24	26	28	30	32	34	36	38
20	40	42	44	46	48	50	52	54	56	58
30	60	62	64	66	68	70	72	74	76	78
40	80	82	84	86	88	90	92	94	96	98
50	100	102	104	106	108	110	112	114	116	118
0	0	2	4	6	8	10	12	14	16	18
10	20	22	24	26	28	30	32	34	36	38
20	40	42	44	46	48	50	52	54	56	58
30	60	62	64	66	68	70	72	74	76	78
40	80	82	84	86	88	90	92	94	96	98
50	100	102	104	106	108	110	112	114	116	118
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax. Subtractive. Proportional parts to

Min.	53′ & 56′	57′ & 59′	60′ & 61′
	Subt.		
1′	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	7
7	7	7	8
8	8	8	9
9	9	9	10
	Subt.		
1′	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	5	6	6
7	6	7	7
8	7	8	8
9	8	9	9
	Subt.		
1′	1	1	1
2	2	2	2
3	3	3	3
4	3	4	4
5	4	4	5
6	5	5	6
7	6	6	7
8	7	7	7
9	8	8	8
	Subt.		
1′	1	1	1
2	2	2	2
3	2	2	3
4	3	3	3
5	4	4	4
6	5	5	5
7	5	6	6
8	6	7	7
9	7	7	8
	Subt.		
1′	1	1	1
2	1	2	2
3	2	2	2
4	3	3	3
5	4	4	4
6	4	5	5
7	5	5	6
8	6	6	6
9	6	7	7
Min.	53′ & 56′	57′ & 59′	60′ & 61′

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LOGARITHMIC DIFFERENCE.

Moon's App. Alt.	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
° ′									
50 0	9.993898	3777	3656	3536	3415	3294	3173	3052	2931
10	3891	3770	3649	3529	3408	3287	3166	3045	2924
20	3885	3764	3643	3522	3400	3279	3158	3037	2916
30	3878	3757	3636	3515	3393	3272	3151	3030	2909
40	3872	3750	3629	3508	3386	3265	3144	3023	2901
50	3865	3744	3622	3501	3380	3258	3137	3015	2894
51 0	9.993859	3737	3616	3494	3373	3251	3130	3008	2887
10	3853	3731	3609	3488	3366	3244	3123	3001	2879
20	3846	3725	3603	3481	3359	3237	3116	2994	2872
30	3840	3718	3596	3474	3353	3231	3109	2987	2865
40	3834	3712	3590	3468	3346	3224	3102	2980	2858
50	3828	3706	3584	3461	3339	3217	3095	2973	2851
52 0	9.993822	3700	3577	3455	3333	3211	3088	2966	2844
10	3816	3694	3571	3449	3326	3204	3082	2959	2837
20	3810	3688	3565	3443	3320	3198	3075	2953	2830
30	3804	3681	3559	3436	3314	3191	3068	2946	2823
40	3798	3676	3553	3430	3307	3185	3062	2939	2817
50	3792	3670	3547	3424	3301	3178	3056	2933	2810
53 0	9.993787	3664	3541	3418	3295	3172	3049	2926	2803
10	3781	3658	3535	3412	3289	3166	3043	2920	2797
20	3775	3652	3529	3406	3283	3160	3037	2913	2790
30	3770	3647	3523	3400	3277	3154	3030	2907	2784
40	3764	3641	3518	3394	3271	3148	3024	2901	2778
50	3759	3636	3512	3389	3265	3142	3018	2895	2771
54 0	9.993754	3630	3506	3383	3259	3136	3012	2889	2765
10	3748	3625	3501	3377	3254	3130	3006	2883	2759
20	3743	3619	3495	3372	3248	3124	3000	2877	2753
30	3738	3614	3490	3366	3242	3118	2995	2871	2747
40	3732	3609	3485	3361	3237	3113	2989	2865	2741
50	3727	3603	3479	3355	3231	3107	2983	2859	2735
55 0	9.993722	3598	3474	3350	3226	3102	2977	2853	2729
10	3717	3593	3469	3345	3220	3096	2972	2848	2723
20	3712	3588	3464	3339	3214	3091	2966	2842	2718
30	3707	3583	3459	3334	3210	3085	2961	2837	2712
40	3703	3578	3454	3329	3205	3080	2956	2831	2707
50	3698	3573	3449	3324	3199	3075	2950	2826	2701
56 0	9.993693	3568	3444	3319	3194	3070	2945	2820	2695
10	3688	3564	3439	3314	3189	3064	2940	2815	2690
20	3684	3559	3434	3309	3184	3059	2935	2810	2685
30	3679	3554	3429	3304	3179	3054	2929	2804	2679
40	3675	3550	3425	3300	3174	3049	2924	2799	2674
50	3670	3545	3420	3295	3170	3045	2919	2794	2669
57 0	9.993666	3541	3415	3290	3165	3040	2914	2789	2664
10	3661	3536	3411	3285	3160	3035	2910	2784	2659
20	3657	3532	3406	3281	3156	3030	2905	2779	2654
30	3653	3527	3402	3276	3151	3026	2900	2775	2649
40	3649	3523	3398	3272	3146	3021	2895	2770	2644
50	3644	3519	3393	3268	3142	3016	2891	2765	2640
58 0	9.993640	3515	3389	3263	3138	3012	2886	2761	2635
10	3636	3511	3385	3259	3133	3008	2882	2756	2630
20	3632	3507	3381	3255	3129	3003	2877	2752	2626
30	3629	3503	3377	3251	3125	2999	2873	2747	2621
40	3625	3499	3373	3247	3121	2995	2869	2743	2617
50	3621	3495	3369	3243	3117	2991	2865	2739	2613
59 0	9.993617	3491	3365	3239	3113	2987	2861	2734	2608
10	3613	3487	3361	3235	3109	2983	2856	2730	2604
20	3610	3484	3357	3231	3105	2979	2852	2726	2600
30	3606	3480	3354	3227	3101	2975	2848	2722	2596
40	3603	3476	3350	3224	3097	2971	2844	2718	2592
50	3599	3473	3346	3220	3093	2967	2840	2714	2588
	53′	54′	55′	56′	57′	58′	59′	60′	61′
	Moon's Horizontal Parallax.								

Proportional parts to Seconds of Parallax. Subtractive.	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
″										
0	0	2	4	6	8	10	12	14	16	18
10	20	22	24	26	28	30	32	34	36	38
20	40	42	44	46	48	51	53	55	57	59
30	61	63	65	67	69	71	73	75	77	79
40	81	83	85	87	89	91	93	95	97	99
50	101	103	105	107	109	111	113	115	117	119
0	0	2	4	6	8	10	12	14	16	18
10	20	22	24	26	28	30	32	35	37	39
20	41	43	45	47	49	51	53	55	57	59
30	61	63	65	67	69	71	73	75	77	79
40	81	83	85	87	89	91	93	95	97	99
50	102	104	106	108	110	112	114	116	118	120
0	0	2	4	6	8	10	12	14	16	18
10	20	22	25	27	29	31	33	35	37	39
20	41	43	45	47	49	51	53	55	57	59
30	61	63	65	67	69	72	74	76	78	80
40	82	84	86	88	90	92	94	96	98	100
50	102	104	106	108	110	112	114	116	118	121
0	0	2	4	6	8	10	12	14	16	18
10	21	23	25	27	29	31	33	35	37	39
20	41	43	45	47	49	51	53	55	58	60
30	62	64	66	68	70	72	74	76	78	80
40	82	84	86	88	90	92	94	97	99	101
50	103	105	107	109	111	113	115	117	119	121
0	0	2	4	6	8	10	12	14	17	19
10	21	23	25	27	29	31	33	35	37	39
20	41	43	45	47	50	52	54	56	58	60
30	62	64	66	68	70	72	74	76	78	80
40	83	85	87	89	91	93	95	97	99	101
50	103	105	107	109	111	114	116	118	120	122
0	0	2	4	6	8	10	12	15	17	19
10	21	23	25	27	29	31	33	35	37	40
20	42	44	46	48	50	52	54	56	58	60
30	62	64	66	68	70	73	75	77	79	81
40	83	85	87	90	92	94	96	98	100	102
50	104	106	108	110	112	114	116	118	120	122
0	0	2	4	6	8	10	12	15	17	19
10	21	23	25	27	29	31	33	35	37	40
20	42	44	46	48	50	52	54	56	58	60
30	62	65	67	69	71	73	75	77	79	81
40	83	85	87	90	92	94	96	98	100	102
50	104	106	108	110	112	115	117	119	121	123
0	0	2	4	6	8	10	13	15	17	19
10	21	23	25	27	29	31	33	36	38	40
20	42	44	46	48	50	52	54	56	59	61
30	63	65	67	69	71	73	75	77	79	82
40	84	86	88	90	92	94	96	98	100	103
50	105	107	109	111	113	115	117	119	121	123
0	0	2	4	6	8	11	13	15	17	19
10	21	23	25	27	29	32	34	36	38	40
20	42	44	46	48	50	53	55	57	59	61
30	63	65	67	69	71	74	76	78	80	82
40	84	86	88	90	92	95	97	99	101	103
50	105	107	109	111	113	116	118	120	122	124
0	0	2	4	6	8	11	13	15	17	19
10	21	23	25	27	29	32	34	36	38	40
20	42	44	46	48	50	53	55	57	59	61
30	63	65	67	69	72	74	76	78	80	82
40	84	86	88	90	93	95	97	99	101	103
50	105	107	109	112	114	116	118	120	122	124
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
	Seconds of Parallax. Subtractive. Proportional parts to									

Min.	′ sof Alt. Par. being between 53′ & 56′	56′ & 59′	59′ & 62′
	Subt.		
1′	1	1	1
2	1	1	1
3	2	2	2
4	3	3	3
5	3	3	4
6	4	4	4
7	5	5	5
8	5	6	6
9	6	6	6
	Subt.		
1′	1	1	1
2	1	1	1
3	2	2	2
4	2	2	3
5	3	3	3
6	3	4	4
7	4	4	4
8	5	5	5
9	5	6	6
	Subt.		
1′	1	1	1
2	1	1	1
3	2	2	2
4	2	2	2
5	3	3	3
6	3	3	3
7	4	4	4
8	4	4	5
9	5	5	5
	Subt.		
1′	0	0	1
2	1	1	1
3	1	1	2
4	2	2	2
5	2	2	3
6	3	3	3
7	3	3	4
8	4	4	4
9	4	4	5
	Subt.		
1′	0	0	0
2	1	1	1
3	1	1	1
4	2	2	2
5	2	2	2
6	2	2	3
7	3	3	3
8	3	3	3
9	3	4	4
	53′ & 56′	56′ & 59′	59′ & 62′
	′ sof Alt. Par. being between		

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LOGARITHMIC DIFFERENCE.

Moon's App. Alt. ° ′	Moon's Horizontal Parallax. 53′	54′	55′	56′	57′	58′	59′	60′	61′
80 0	9.993396	3469	3342	3216	3090	2963	2837	2710	2584
10	3592	3466	3339	3213	3086	2960	2833	2706	2580
20	3589	3463	3336	3209	3083	2956	2829	2703	2576
30	3586	3459	3333	3206	3079	2952	2826	2699	2572
40	3583	3456	3329	3202	3076	2949	2822	2695	2568
50	3580	3453	3326	3199	3072	2945	2819	2692	2565
81 0	9.993577	3450	3323	3196	3069	2942	2815	2688	2561
10	3574	3447	3320	3193	3066	2939	2812	2685	2558
20	3571	3444	3316	3189	3062	2935	2808	2681	2554
30	3568	3441	3313	3186	3059	2932	2805	2678	2551
40	3565	3438	3310	3183	3056	2929	2802	2675	2548
50	3562	3435	3308	3180	3053	2926	2799	2672	2545
82 0	9.993559	3432	3305	3178	3050	2923	2796	2669	2542
10	3556	3429	3302	3175	3047	2920	2793	2666	2538
20	3554	3427	3299	3172	3045	2917	2790	2663	2535
30	3551	3424	3297	3169	3042	2915	2787	2660	2532
40	3549	3421	3294	3167	3039	2912	2784	2657	2529
50	3546	3419	3292	3164	3037	2909	2782	2654	2527
83 0	9.993544	3417	3289	3162	3034	2907	2779	2652	2524
10	3542	3414	3287	3159	3032	2904	2776	2649	2521
20	3539	3412	3284	3157	3029	2901	2774	2646	2519
30	3537	3410	3282	3154	3027	2899	2771	2644	2516
40	3535	3407	3280	3152	3024	2897	2769	2641	2514
50	3533	3405	3278	3150	3022	2894	2767	2639	2511
84 0	9.993531	3403	3275	3148	3020	2892	2764	2637	2509
10	3529	3401	3273	3145	3018	2890	2762	2634	2507
20	3527	3399	3271	3143	3016	2888	2760	2632	2504
30	3525	3397	3269	3141	3014	2886	2758	2630	2502
40	3523	3395	3267	3139	3012	2884	2756	2628	2500
50	3521	3393	3265	3137	3010	2882	2754	2626	2498
85 0	9.993519	3392	3264	3136	3008	2880	2752	2624	2496
10	3518	3390	3262	3134	3006	2878	2750	2622	2494
20	3516	3388	3260	3132	3004	2876	2748	2620	2492
30	3515	3387	3259	3130	3002	2874	2746	2618	2490
40	3513	3385	3257	3129	3001	2873	2745	2617	2489
50	3512	3384	3255	3127	2999	2871	2743	2615	2487
86 0	9.993510	3382	3254	3126	2998	2870	2742	2613	2485
10	3509	3381	3253	3124	2996	2868	2740	2612	2484
20	3507	3379	3251	3123	2995	2867	2739	2610	2482
30	3506	3378	3250	3122	2994	2865	2737	2609	2481
40	3505	3377	3249	3120	2992	2864	2736	2608	2479
50	3504	3376	3248	3119	2991	2863	2735	2606	2478
87 0	9.993503	3375	3247	3118	2990	2862	2734	2605	2477
10	3502	3374	3246	3117	2989	2861	2732	2604	2476
20	3501	3373	3245	3116	2988	2860	2731	2603	2475
30	3500	3372	3244	3115	2987	2859	2730	2602	2474
40	3499	3371	3243	3115	2986	2858	2730	2601	2473
50	3499	3370	3242	3114	2985	2857	2729	2600	2472
88 0	9.993498	3370	3241	3113	2985	2856	2728	2600	2471
10	3497	3369	3241	3112	2984	2856	2727	2599	2470
20	3497	3369	3240	3112	2983	2855	2727	2598	2470
30	3496	3368	3240	3111	2983	2854	2726	2598	2469
40	3496	3367	3239	3111	2982	2854	2725	2597	2469
50	3495	3367	3239	3110	2982	2853	2725	2597	2468
89 0	9.993495	3367	3238	3110	2981	2853	2725	2596	2468
10	3495	3366	3238	3109	2981	2853	2724	2596	2467
20	3494	3366	3238	3109	2981	2852	2724	2595	2467
30	3494	3366	3237	3109	2981	2852	2724	2595	2467
40	3494	3366	3237	3109	2980	2852	2723	2595	2467
50	3494	3366	3237	3109	2980	2852	2723	2595	2466
Moon's App. Alt.	53′	54′	55′	56′	57′	58′	59′	60′	61′

Moon's Horizontal Parallax.

Proportional parts to Seconds of Parallax, Subtractive.

″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″
0	0	2	4	6	8	11	13	15	17	19
10	21	23	25	27	30	32	34	36	38	40
20	42	44	46	49	51	53	55	57	59	61
30	63	65	68	70	72	74	76	78	80	82
40	84	87	89	91	93	95	97	99	101	103
50	106	108	110	112	114	116	118	120	122	124
0	0	2	4	6	8	11	13	15	17	19
10	21	23	25	27	30	32	34	36	38	40
20	42	44	47	49	51	53	55	57	59	61
30	63	66	68	70	72	74	76	78	80	82
40	85	87	89	91	93	95	97	99	102	104
50	106	108	110	112	114	116	118	121	123	125
0	0	2	4	6	8	11	13	15	17	19
10	21	23	25	28	30	32	34	36	38	40
20	42	45	47	49	51	53	55	57	59	61
30	64	66	68	70	72	74	76	78	81	83
40	85	87	89	91	93	95	98	100	102	104
50	106	108	110	112	114	117	119	121	123	125
0	0	2	4	6	9	11	13	15	17	19
10	21	23	26	28	30	32	34	36	38	40
20	43	45	47	49	51	53	55	57	60	62
30	64	66	68	70	72	74	77	79	81	83
40	85	87	90	92	94	96	98	100	102	104
50	107	109	111	113	115	117	119	121	123	125
0	0	2	4	6	9	11	13	15	17	19
10	21	23	26	28	30	32	34	36	38	40
20	43	45	47	49	51	53	55	58	60	62
30	64	66	68	70	72	75	77	79	81	83
40	85	87	90	92	94	96	98	100	102	104
50	107	109	111	113	115	117	119	121	124	126
0	0	2	4	6	9	11	13	15	17	19
10	21	23	26	28	30	32	34	36	38	41
20	43	45	47	49	51	53	56	58	60	62
30	64	66	68	70	73	75	77	79	81	83
40	85	88	90	92	94	96	98	100	102	105
50	107	109	111	113	115	117	120	122	124	126
0	0	2	4	6	9	11	13	15	17	19
10	21	23	26	28	30	32	34	36	38	41
20	43	45	47	49	51	53	56	58	60	62
30	64	66	68	70	73	75	77	79	81	83
40	85	88	90	92	94	96	98	100	103	105
50	107	109	111	113	115	118	120	122	124	126
0	0	2	4	6	9	11	13	15	17	19
10	21	24	26	28	30	32	34	36	39	41
20	43	45	47	49	51	53	56	58	60	62
30	64	66	68	71	73	75	77	79	81	83
40	86	88	90	92	94	96	98	101	103	105
50	107	109	111	113	116	118	120	122	124	126
0	0	2	4	6	9	11	13	15	17	19
10	21	24	26	28	30	32	34	36	39	41
20	43	45	47	49	51	53	56	58	60	62
30	64	66	68	71	73	75	77	79	81	83
40	86	88	90	92	94	96	98	101	103	105
50	107	109	111	113	116	118	120	122	124	126
″	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″

Seconds of Parallax, Subtractive.

Proportional parts to

Min.	53′ & 56′	56′ & 59′
Subt.		
1′	0	0
2	1	1
3	1	1
4	1	1
5	2	2
6	2	2
7	2	2
8	2	3
9	3	3
Subt.		
1′	0	0
2	0	1
3	1	1
4	1	1
5	1	1
6	1	1
7	2	2
8	2	2
9	2	2
Subt.		
1′	0	0
2	0	1
3	1	1
4	1	1
5	1	1
6	1	1
7	2	2
8	2	2
9	2	2
Subt.		
1′	0	0
2	0	0
3	0	0
4	0	0
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
Subt.		
1′	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
Min.	53′ & 56′	56′ & 59′

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CORRECTION OF THE LOGARITHMIC DIFFERENCE.

When the Moon's distance from the Sun is observed.										*When the Moon's distance from a Star is observed.*									
Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.
° ′		° ′		°		°		°		° ′		° ′		°		°		°	
0. 0	140	4. 0	19	19	7	43	13	67	17	0. 0	140	4. 0	18	19	1	43	0	67	0
10	126	10	18	20	8	44	13	68	17	10	126	10	17	20	1	44	0	68	0
20	114	20	17	21	8	45	13	69	17	20	114	20	16	21	1	45	0	69	0
30	104	30	16	22	8	46	13	70	17	30	103	30	15	22	1	46	0	70	0
40	94	40	15	23	8	47	14	71	18	40	94	40	14	23	1	47	0	71	0
50	85	50	15	24	9	48	14	72	18	50	85	50	13	24	1	48	0	72	0
1. 0	77	5. 0	14	25	9	49	14	73	18	1. 0	77	5. 0	12	25	1	49	0	73	0
10	70	20	13	26	9	50	14	74	18	10	70	20	11	26	1	50	0	74	0
20	64	40	12	27	9	51	14	75	18	20	64	40	10	27	1	51	0	75	0
30	58	6. 0	11	28	9	52	15	76	18	30	58	6. 0	9	28	1	52	0	76	0
40	53	20	10	29	10	53	15	77	18	40	53	20	8	29	1	53	0	77	0
50	49	40	10	30	10	54	15	78	18	50	48	40	8	30	0	54	0	78	0
2. 0	45	7. 0	9	31	10	55	15	79	18	2. 0	44	7. 0	7	31	0	55	0	79	0
10	41	8°	8	32	10	56	16	80	18	10	41	8°	6	32	0	56	0	80	0
20	38	9	7	33	10	57	16	81	18	20	37	9	5	33	0	57	0	81	0
30	35	10	7	34	11	58	16	82	18	30	35	10	4	34	0	58	0	82	0
40	33	11	7	35	11	59	16	83	19	40	32	11	3	35	0	59	0	83	0
50	30	12	6	36	11	60	16	84	19	50	29	12	3	36	0	60	0	84	0
3. 0	28	13	6	37	11	61	16	85	19	3. 0	27	13	2	37	0	61	0	85	0
10	26	14	6	3	11	62	16	86	19	10	25	14	2	38	0	62	0	86	0
20	25	15	6	39	12	63	17	87	19	20	23	15	1	39	0	63	0	87	0
30	23	16	6	40	12	64	17	88	19	30	22	16	1	40	0	64	0	88	0
40	22	17	7	41	12	65	17	89	19	40	20	17	1	41	0	65	0	89	0
50	20	18	7	42	13	66	17	90	19	50	19	18	1	42	0	66	0	90	0

TABLE XXVI.—CORRECTION OF THE LOGARITHMIC DIFFERENCE WHEN THE MOON'S DISTANCE FROM A PLANET IS OBSERVED.

Planet's Ap. Alt.	*Planet's Horizontal Parallax.*																	Planet's Ap. Alt.
	1″	3″	5″	7″	9″	11″	13″	15″	17″	19″	21″	23″	25″	27″	29″	31″	33″	
1°	77	77	77	77	77	77	77	77	77	77	77	78	78	78	78	78	78	1°
2	44	45	45	45	45	45	45	45	45	46	46	46	46	46	46	46	47	2
3	27	28	28	28	28	28	29	29	29	29	29	30	30	30	30	30	31	3
4	18	18	19	19	19	19	20	20	20	21	21	21	21	22	22	22	23	4
5	12	13	13	14	14	14	15	15	15	16	16	17	17	17	17	18	18	5
6	9	10	10	10	11	11	12	12	13	13	13	14	14	15	15	16	16	6
7	8	8	8	9	10	10	11	11	12	12	13	13	14	14	15	15	15	7
8	6	7	7	8	8	9	10	10	11	11	12	12	13	14	14	15	15	8
9	5	6	6	7	7	8	9	9	10	11	11	12	13	14	14	15	15	9
10	4	5	5	6	7	8	8	9	10	11	11	12	13	14	14	15	15	10
11	3	4	5	6	7	8	8	9	10	11	11	12	13	14	15	15	16	11
12	3	4	5	6	7	8	8	9	10	11	12	13	14	15	16	16	17	12
14	3	4	5	6	7	8	9	9	10	11	13	14	15	16	17	17	18	14
16	2	3	4	5	7	8	9	10	11	12	14	15	16	17	18	19	20	16
18	2	3	4	6	7	8	9	11	12	13	15	16	18	19	20	21	22	18
20	2	3	4	6	8	9	10	12	13	14	16	18	20	21	22	23	25	20
23	2	3	4	7	8	10	11	13	14	16	18	20	22	23	25	26	28	23
26	2	3	4	7	9	11	13	14	16	17	20	21	24	25	28	29	31	26
29	2	3	4	7	9	12	14	15	17	19	22	23	26	27	31	32	34	29
32	2	3	5	8	10	13	15	17	19	21	24	25	28	30	34	35	37	32
35	2	3	6	9	11	14	17	19	21	23	26	28	31	33	37	38	42	35
40	2	3	7	9	12	15	18	21	23	26	28	31	34	37	40	42	46	40
45	2	4	7	10	13	17	19	23	25	28	31	34	37	40	43	46	50	45
50	2	5	8	11	14	18	21	24	27	31	34	37	40	43	46	50	54	50
55	2	6	9	12	15	19	22	26	29	33	36	40	43	46	49	54	57	55
60	2	6	9	13	16	20	23	27	31	35	38	42	46	49	52	57	60	60
65	2	6	10	13	17	21	24	29	32	36	40	44	48	51	55	59	63	65
70	2	6	10	14	18	22	25	30	33	38	42	46	49	53	57	61	65	70
75	2	6	10	14	18	22	26	30	34	39	43	47	50	55	59	63	67	75
80	2	6	10	14	19	23	27	31	35	39	44	48	51	56	60	64	68	80
85	2	6	10	15	19	23	27	31	36	40	44	48	52	57	61	65	69	85
90	2	6	10	15	19	23	27	31	36	40	44	48	52	57	61	65	69	90

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 0 degree, or Co-versed Sine of 90 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	000000	000000	000000	000000	000000	000000	59
1	000000	000000	000000	000000	000000	000000	58
2	000000	000000	000000	000000	000000	000000	57
3	000000	000000	000000	000001	000001	000001	56
4	000001	000001	000001	000001	000001	000001	55
5	000001	000001	000001	000001	000001	000001	54
6	000002	000002	000002	000002	000002	000002	53
7	000002	000002	000002	000002	000002	000003	52
8	000003	000003	000003	000003	000003	000003	51
9	000003	000004	000004	000004	000004	000004	50
10	000004	000004	000005	000005	000005	000005	49
11	000005	000005	000005	000006	000006	000006	48
12	000006	000006	000006	000007	000007	000007	47
13	000007	000007	000008	000008	000008	000008	46
14	000008	000008	000009	000009	000009	000009	45
15	000010	000010	000010	000010	000010	000011	44
16	000011	000011	000011	000012	000012	000012	43
17	000012	000012	000013	000013	000013	000013	42
18	000014	000014	000014	000014	000015	000015	41
19	000015	000016	000016	000016	000016	000017	40
20	000017	000017	000017	000018	000018	000018	39
21	000019	000019	000019	000020	000020	000020	38
22	000020	000021	000021	000021	000022	000022	37
23	000022	000023	000023	000023	000024	000024	36
24	000024	000025	000025	000025	000026	000026	35
25	000026	000027	000027	000028	000028	000028	34
26	000029	000029	000029	000030	000030	000030	33
27	000031	000031	000032	000032	000033	000033	32
28	000033	000034	000034	000034	000035	000035	31
29	000036	000036	000036	000037	000037	000038	30
30	000038	000039	000039	000039	000040	000040	29
31	000041	000041	000042	000042	000042	000043	28
32	000043	000044	000044	000045	000045	000046	27
33	000046	000047	000047	000047	000048	000048	26
34	000049	000049	000050	000050	000051	000051	25
35	000052	000052	000053	000053	000054	000054	24
36	000055	000055	000056	000056	000057	000057	23
37	000058	000058	000059	000059	000060	000061	22
38	000061	000062	000062	000063	000063	000064	21
39	000064	000065	000065	000066	000067	000067	20
40	000068	000068	000069	000069	000070	000071	19
41	000071	000072	000072	000073	000073	000074	18
42	000075	000075	000076	000076	000077	000078	17
43	000078	000079	000079	000080	000081	000081	16
44	000082	000083	000083	000084	000084	000085	15
45	000086	000086	000087	000088	000088	000089	14
46	000090	000090	000091	000091	000092	000093	13
47	000093	000094	000095	000095	000096	000097	12
48	000097	000098	000099	000100	000100	000101	11
49	000102	000102	000103	000104	000104	000105	10
50	000106	000106	000107	000108	000109	000109	9
51	000110	000111	000111	000112	000113	000114	8
52	000114	000115	000116	000117	000117	000118	7
53	000119	000120	000120	000121	000122	000123	6
54	000123	000124	000125	000126	000126	000127	5
55	000128	000129	000130	000130	000131	000132	4
56	000133	000133	000134	000135	000136	000137	3
57	000137	000138	000139	000140	000141	000142	2
58	000142	000143	000144	000145	000146	000146	1
59	000147	000148	000149	000150	000151	000151	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 89 degrees, or Versed Sine Supplement of 179 degrees.						
Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	0	0	0	0	0	0	0	0	0

Minutes	Natural Versed Sine of 1 degree, or Co-versed Sine of 91 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	000152	000153	000154	000155	000156	000157	59
1	000157	000158	000159	000160	000161	000162	58
2	000163	000164	000164	000165	000165	000167	57
3	000168	000169	000170	000171	000171	000172	56
4	000173	000174	000175	000176	000177	000178	55
5	000179	000180	000181	000182	000182	000183	54
6	000184	000185	000186	000187	000188	000189	53
7	000190	000191	000192	000193	000194	000195	52
8	000196	000197	000198	000198	000199	000200	51
9	000201	000202	000203	000204	000205	000206	50
10	000207	000208	000209	000210	000211	000212	49
11	000213	000214	000215	000216	000217	000218	48
12	000219	000220	000221	000222	000223	000224	47
13	000225	000226	000228	000229	000230	000231	46
14	000232	000233	000234	000235	000236	000237	45
15	000238	000239	000240	000241	000242	000243	44
16	000244	000245	000247	000248	000249	000250	43
17	000251	000252	000253	000254	000255	000256	42
18	000257	000258	000260	000261	000262	000263	41
19	000264	000265	000266	000267	000269	000270	40
20	000271	000272	000273	000274	000275	000276	39
21	000278	000279	000280	000281	000282	000283	38
22	000284	000286	000287	000288	000289	000290	37
23	000291	000293	000294	000295	000296	000297	36
24	000299	000300	000301	000302	000303	000304	35
25	000306	000307	000308	000309	000310	000312	34
26	000313	000314	000315	000317	000318	000319	33
27	000320	000321	000323	000324	000325	000326	32
28	000328	000329	000330	000331	000333	000334	31
29	000335	000336	000338	000339	000340	000341	30
30	000343	000344	000345	000346	000348	000349	29
31	000350	000352	000353	000354	000355	000357	28
32	000358	000359	000361	000362	000363	000365	27
33	000366	000367	000369	000370	000371	000372	26
34	000374	000375	000376	000378	000379	000380	25
35	000382	000383	000384	000386	000387	000389	24
36	000390	000391	000393	000394	000395	000397	23
37	000398	000399	000401	000402	000404	000405	22
38	000406	000408	000409	000410	000412	000413	21
39	000415	000416	000417	000419	000420	000422	20
40	000423	000424	000426	000427	000429	000430	19
41	000432	000433	000434	000436	000437	000439	18
42	000440	000442	000443	000444	000446	000447	17
43	000449	000450	000452	000453	000455	000456	16
44	000458	000459	000461	000462	000463	000465	15
45	000466	000468	000469	000471	000472	000474	14
46	000475	000477	000478	000480	000481	000483	13
47	000484	000486	000487	000489	000490	000492	12
48	000493	000495	000496	000498	000500	000501	11
49	000503	000504	000506	000507	000509	000510	10
50	000512	000513	000515	000517	000518	000520	9
51	000521	000523	000524	000526	000528	000529	8
52	000531	000532	000534	000535	000537	000539	7
53	000540	000542	000543	000545	000547	000548	6
54	000550	000551	000553	000555	000556	000558	5
55	000559	000561	000563	000564	000566	000568	4
56	000569	000571	000573	000574	000576	000577	3
57	000579	000581	000582	000584	000586	000587	2
58	000589	000591	000592	000594	000596	000597	1
59	000599	000601	000602	000604	000606	000607	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 88 degrees, or Versed Sine Supplement of 178 degrees.						
Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	0	0	0	1	1	1	1	1	1

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 2 degrees, or Co-versed Sine of 92 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	000609	000611	000613	000614	000616	000618	59
1	000619	000621	000623	000624	000626	000628	58
2	000630	000631	000633	000635	000637	000638	57
3	000640	000642	000643	000645	000647	000649	56
4	000650	000652	000654	000656	000657	000659	55
5	000661	000663	000665	000666	000668	000670	54
6	000672	000673	000675	000677	000679	000681	53
7	000682	000684	000686	000688	000689	000691	52
8	000693	000695	000697	000699	000700	000702	51
9	000704	000706	000708	000709	000711	000713	50
10	000715	000717	000719	000720	000722	000724	49
11	000726	000728	000730	000732	000733	000735	48
12	000737	000739	000741	000743	000745	000746	47
13	000748	000750	000752	000754	000756	000758	46
14	000760	000761	000763	000765	000767	000769	45
15	000771	000773	000775	000777	000779	000781	44
16	000782	000784	000786	000788	000790	000792	43
17	000794	000796	000798	000800	000802	000804	42
18	000806	000808	000810	000811	000813	000815	41
19	000817	000819	000821	000823	000825	000827	40
20	000829	000831	000833	000835	000837	000839	39
21	000841	000843	000845	000847	000849	000851	38
22	000853	000855	000857	000859	000861	000863	37
23	000865	000867	000869	000871	000873	000875	36
24	000877	000879	000881	000883	000885	000887	35
25	000889	000891	000893	000896	000898	000900	34
26	000902	000904	000906	000908	000910	000912	33
27	000914	000916	000918	000920	000922	000924	32
28	000927	000929	000931	000933	000935	000937	31
29	000939	000941	000943	000945	000948	000950	30
30	000952	000954	000956	000958	000960	000962	29
31	000965	000967	000969	000971	000973	000975	28
32	000977	000979	000982	000984	000986	000988	27
33	000990	000992	000995	000997	000999	001001	26
34	001003	001005	001008	001010	001012	001014	25
35	001016	001018	001021	001023	001025	001027	24
36	001029	001032	001034	001036	001038	001040	23
37	001043	001045	001047	001049	001052	001054	22
38	001056	001058	001060	001063	001065	001067	21
39	001069	001072	001074	001076	001078	001081	20
40	001083	001085	001087	001090	001092	001094	19
41	001096	001099	001101	001103	001106	001108	18
42	001110	001112	001115	001117	001119	001122	17
43	001124	001126	001128	001131	001133	001135	16
44	001138	001140	001142	001145	001147	001149	15
45	001152	001154	001156	001159	001161	001163	14
46	001166	001168	001170	001173	001175	001177	13
47	001180	001182	001184	001187	001189	001191	12
48	001194	001196	001199	001201	001203	001206	11
49	001208	001210	001213	001215	001218	001220	10
50	001223	001225	001227	001230	001232	001234	9
51	001237	001239	001242	001244	001247	001249	8
52	001251	001254	001256	001259	001261	001264	7
53	001266	001268	001271	001273	001276	001278	6
54	001281	001283	001286	001288	001290	001293	5
55	001295	001298	001300	001303	001305	001308	4
56	001310	001313	001315	001318	001320	001323	3
57	001325	001328	001330	001333	001335	001338	2
58	001340	001343	001345	001348	001350	001353	1
59	001355	001358	001360	001363	001365	001368	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 87 degrees, or Versed Sine Supplement of 177 degrees.						
Proper. parts.	1″ 0	2″ 0	3″ 1	4″ 1	5″ 1	6″ 1	7″ 1	8″ 2	9″ 2

Minutes	Natural Versed Sine of 3 degrees, or Co-versed Sine of 93 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	001370	001373	001376	001378	001381	001383	59
1	001386	001388	001391	001393	001396	001399	58
2	001401	001404	001406	001409	001411	001414	57
3	001417	001419	001422	001424	001427	001429	56
4	001432	001435	001437	001440	001442	001445	55
5	001448	001450	001453	001455	001458	001461	54
6	001463	001466	001469	001471	001474	001476	53
7	001479	001482	001484	001487	001490	001492	52
8	001495	001498	001500	001503	001506	001508	51
9	001511	001514	001516	001519	001522	001524	50
10	001527	001530	001532	001535	001538	001540	49
11	001543	001546	001548	001551	001554	001557	48
12	001559	001562	001565	001567	001570	001573	47
13	001575	001578	001581	001584	001586	001589	46
14	001592	001595	001597	001600	001603	001606	45
15	001608	001611	001614	001617	001619	001622	44
16	001625	001628	001630	001633	001636	001639	43
17	001641	001644	001647	001650	001653	001656	42
18	001658	001661	001664	001667	001669	001672	41
19	001675	001678	001681	001683	001686	001689	40
20	001692	001695	001697	001700	001703	001706	39
21	001709	001712	001714	001717	001720	001723	38
22	001726	001729	001732	001734	001737	001740	37
23	001743	001746	001749	001752	001754	001757	36
24	001760	001763	001766	001769	001772	001775	35
25	001777	001780	001783	001786	001789	001792	34
26	001795	001798	001801	001804	001806	001809	33
27	001812	001815	001818	001821	001824	001827	32
28	001830	001833	001836	001839	001842	001845	31
29	001847	001850	001853	001856	001859	001862	30
30	001865	001868	001871	001874	001877	001880	29
31	001883	001886	001889	001892	001895	001898	28
32	001901	001904	001907	001910	001913	001916	27
33	001919	001922	001925	001928	001931	001934	26
34	001937	001940	001943	001946	001949	001952	25
35	001955	001958	001961	001964	001967	001970	24
36	001973	001976	001979	001982	001985	001989	23
37	001992	001995	001998	002001	002004	002007	22
38	002010	002013	002016	002019	002022	002025	21
39	002028	002032	002035	002038	002041	002044	20
40	002047	002050	002053	002056	002059	002063	19
41	002066	002069	002072	002075	002078	002081	18
42	002084	002088	002091	002094	002097	002100	17
43	002103	002106	002109	002113	002116	002119	16
44	002122	002125	002128	002132	002135	002138	15
45	002141	002144	002147	002151	002154	002157	14
46	002160	002163	002167	002170	002173	002176	13
47	002179	002182	002186	002189	002192	002195	12
48	002199	002202	002205	002208	002211	002215	11
49	002218	002221	002224	002228	002231	002234	10
50	002237	002240	002244	002247	002250	002253	9
51	002257	002260	002263	002267	002270	002273	8
52	002276	002280	002283	002286	002289	002293	7
53	002296	002299	002303	002306	002309	002312	6
54	002316	002319	002322	002326	002329	002332	5
55	002336	002339	002342	002345	002349	002352	4
56	002355	002359	002362	002365	002369	002372	3
57	002375	002379	002382	002385	002389	002392	2
58	002396	002399	002402	002406	002409	002412	1
59	002416	002419	002422	002426	002429	002433	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 86 degrees, or Versed Sine Supplement of 176 degrees.						
Proper. parts.	1″ 0	2″ 1	3″ 1	4″ 1	5″ 2	6″ 2	7″ 2	8″ 2	9″ 3

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NATURAL VERSED SINES.

Natural Versed Sine of 4 degrees, or Co-versed Sine of 94 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	002436	002439	002443	002446	002449	002453	59
1	002456	002460	002463	002466	002470	002473	58
2	002477	002480	002484	002487	002490	002494	57
3	002497	002501	002504	002507	002511	002514	56
4	002518	002521	002525	002528	002532	002535	55
5	002538	002542	002545	002549	002552	002556	54
6	002559	002563	002566	002570	002573	002577	53
7	002580	002584	002587	002591	002594	002597	52
8	002601	002604	002608	002612	002615	002618	51
9	002622	002625	002629	002633	002636	002640	50
10	002643	002647	002650	002654	002657	002661	49
11	002664	002668	002671	002675	002678	002682	48
12	002686	002689	002693	002696	002700	002703	47
13	002707	002710	002714	002718	002721	002725	46
14	002728	002732	002735	002739	002743	002746	45
15	002750	002753	002757	002761	002764	002768	44
16	002771	002775	002779	002782	002786	002789	43
17	002793	002797	002800	002804	002808	002811	42
18	002815	002819	002822	002826	002829	002833	41
19	002837	002840	002844	002848	002851	002855	40
20	002859	002862	002866	002870	002873	002877	39
21	002881	002884	002888	002892	002895	002899	38
22	002903	002906	002910	002914	002918	002921	37
23	002925	002929	002932	002936	002940	002944	36
24	002947	002951	002955	002958	002962	002966	35
25	002970	002973	002977	002981	002985	002988	34
26	002992	002996	003000	003003	003007	003011	33
27	003015	003018	003022	003026	003030	003033	32
28	003037	003041	003045	003049	003052	003056	31
29	003060	003064	003067	003071	003075	003079	30
30	003083	003086	003090	003094	003098	003102	29
31	003106	003109	003113	003117	003121	003125	28
32	003128	003132	003136	003140	003144	003148	27
33	003152	003155	003159	003163	003167	003171	26
34	003175	003178	003182	003186	003190	003194	25
35	003198	003202	003206	003209	003213	003217	24
36	003221	003225	003229	003233	003237	003241	23
37	003244	003248	003252	003256	003260	003264	22
38	003268	003272	003276	003280	003284	003288	21
39	003291	003295	003299	003303	003307	003311	20
40	003315	003319	003323	003327	003331	003335	19
41	003339	003343	003347	003351	003355	003359	18
42	003363	003367	003371	003375	003379	003383	17
43	003386	003390	003394	003398	003402	003406	16
44	003410	003414	003418	003422	003426	003430	15
45	003434	003439	003443	003447	003451	003455	14
46	003459	003463	003467	003471	003475	003479	13
47	003483	003487	003491	003495	003499	003503	12
48	003507	003511	003515	003519	003523	003527	11
49	003532	003536	003540	003544	003548	003552	10
50	003556	003560	003564	003568	003572	003576	9
51	003581	003585	003589	003593	003597	003601	8
52	003605	003609	003613	003618	003622	003626	7
53	003630	003634	003638	003642	003646	003651	6
54	003655	003659	003663	003667	003671	003675	5
55	003680	003684	003688	003692	003696	003700	4
56	003705	003709	003713	003717	003721	003725	3
57	003730	003734	003738	003742	003746	003751	2
58	003755	003759	003763	003767	003772	003776	1
59	003780	003784	003788	003793	003797	003801	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 85 degrees, or Versed Sine Supplement of 175 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	0	1	1	2	2	2	3	3	4

Natural Versed Sine of 5 degrees, or Co-versed Sine of 94 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	003805	003810	003814	003818	003822	003826	59
1	003831	003835	003839	003843	003848	003852	58
2	003856	003860	003865	003869	003873	003877	57
3	003882	003886	003890	003895	003899	003903	56
4	003907	003912	003916	003920	003925	003929	55
5	003933	003937	003942	003946	003950	003955	54
6	003959	003963	003968	003972	003976	003981	53
7	003985	003989	003993	003998	004002	004006	52
8	004011	004015	004019	004024	004028	004033	51
9	004037	004041	004046	004050	004054	004059	50
10	004063	004067	004072	004076	004081	004085	49
11	004089	004094	004098	004102	004107	004111	48
12	004116	004120	004124	004129	004133	004138	47
13	004142	004146	004151	004155	004160	004164	46
14	004168	004173	004177	004182	004186	004191	45
15	004195	004200	004204	004208	004213	004217	44
16	004222	004226	004231	004235	004240	004244	43
17	004248	004253	004257	004262	004266	004271	42
18	004275	004280	004284	004289	004293	004298	41
19	004302	004307	004311	004316	004320	004325	40
20	004329	004334	004338	004343	004347	004352	39
21	004356	004361	004365	004370	004374	004379	38
22	004383	004388	004393	004397	004402	004406	37
23	004411	004415	004420	004424	004429	004433	36
24	004438	004443	004447	004452	004456	004461	35
25	004465	004470	004475	004479	004484	004488	34
26	004493	004498	004502	004507	004511	004516	33
27	004521	004525	004530	004534	004539	004544	32
28	004548	004553	004557	004562	004567	004571	31
29	004576	004581	004585	004590	004595	004599	30
30	004604	004608	004613	004618	004622	004627	29
31	004632	004636	004641	004646	004650	004655	28
32	004660	004664	004669	004674	004678	004683	27
33	004688	004693	004697	004702	004707	004711	26
34	004716	004721	004725	004730	004735	004740	25
35	004744	004749	004754	004758	004763	004768	24
36	004773	004777	004782	004787	004792	004796	23
37	004801	004806	004811	004815	004820	004825	22
38	004830	004834	004839	004844	004849	004853	21
39	004858	004863	004868	004872	004877	004882	20
40	004887	004892	004896	004901	004906	004911	19
41	004916	004920	004925	004930	004935	004940	18
42	004944	004949	004954	004959	004964	004969	17
43	004973	004978	004983	004988	004993	004998	16
44	005002	005007	005012	005017	005022	005027	15
45	005031	005036	005041	005046	005051	005056	14
46	005061	005066	005070	005075	005080	005085	13
47	005090	005095	005100	005105	005109	005114	12
48	005119	005124	005129	005134	005139	005144	11
49	005149	005154	005159	005163	005168	005173	10
50	005178	005183	005188	005193	005198	005203	9
51	005208	005213	005218	005223	005228	005233	8
52	005238	005243	005247	005252	005257	005262	7
53	005267	005272	005277	005282	005287	005292	6
54	005297	005302	005307	005312	005317	005322	5
55	005327	005332	005337	005342	005347	005352	4
56	005357	005362	005367	005372	005377	005382	3
57	005387	005392	005397	005402	005407	005412	2
58	005417	005423	005428	005433	005438	005443	1
59	005448	005453	005458	005463	005468	005473	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 84 degrees, or Versed Sine Supplement of 174 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	0	1	1	2	2	3	3	4	4

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NATURAL VERSED SINES.

Natural Versed Sine of 6 degrees, or Co-versed Sine of 96 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	005478	005483	005488	005493	005498	005503	59
1	005509	005514	005519	005524	005529	005534	58
2	005539	005544	005549	005554	005559	005565	57
3	005570	005575	005580	005585	005590	005595	56
4	005600	005605	005610	005616	005621	005626	55
5	005631	005636	005641	005647	005652	005657	54
6	005662	005667	005672	005678	005683	005688	53
7	005693	005698	005703	005709	005714	005719	52
8	005724	005729	005734	005740	005745	005750	51
9	005755	005760	005766	005771	005776	005781	50
10	005786	005792	005797	005802	005807	005812	49
11	005818	005823	005828	005833	005839	005844	48
12	005849	005854	005860	005865	005870	005875	47
13	005880	005886	005891	005896	005902	005907	46
14	005912	005917	005923	005928	005933	005938	45
15	005944	005949	005954	005960	005965	005970	44
16	005975	005981	005986	005991	005997	006002	43
17	006007	006012	006018	006023	006028	006034	42
18	006039	006044	006050	006055	006060	006066	41
19	006071	006076	006082	006087	006092	006098	40
20	006103	006108	006114	006119	006124	006130	39
21	006135	006141	006146	006151	006157	006162	38
22	006167	006173	006178	006184	006189	006194	37
23	006200	006205	006210	006216	006221	006227	36
24	006232	006237	006243	006248	006254	006259	35
25	006265	006270	006275	006281	006286	006292	34
26	006297	006303	006308	006313	006319	006324	33
27	006330	006335	006341	006346	006352	006357	32
28	006362	006368	006373	006379	006384	006390	31
29	006395	006401	006406	006412	006417	006423	30
30	006428	006434	006439	006445	006450	006456	29
31	006461	006467	006472	006478	006483	006489	28
32	006494	006500	006505	006511	006516	006522	27
33	006527	006533	006538	006544	006549	006555	26
34	006561	006566	006572	006577	006583	006588	25
35	006594	006599	006605	006611	006616	006622	24
36	006627	006633	006638	006644	006650	006655	23
37	006661	006666	006672	006677	006683	006689	22
38	006694	006700	006705	006711	006717	006722	21
39	006728	006734	006739	006745	006750	006756	20
40	006762	006767	006773	006779	006784	006790	19
41	006795	006801	006807	006812	006818	006824	18
42	006829	006835	006841	006846	006852	006858	17
43	006863	006869	006875	006880	006886	006892	16
44	006897	006903	006909	006914	006920	006926	15
45	006932	006937	006943	006949	006954	006960	14
46	006966	006971	006977	006983	006989	006994	13
47	007000	007006	007012	007017	007023	007029	12
48	007034	007040	007046	007052	007057	007063	11
49	007069	007075	007080	007086	007092	007098	10
50	007104	007109	007115	007121	007127	007132	9
51	007138	007144	007150	007156	007161	007167	8
52	007173	007179	007185	007190	007196	007202	7
53	007208	007214	007219	007225	007231	007237	6
54	007243	007248	007254	007260	007266	007272	5
55	007278	007283	007289	007295	007301	007307	4
56	007313	007319	007324	007330	007336	007342	3
57	007348	007354	007360	007365	007371	007377	2
58	007383	007389	007395	007401	007407	007412	1
59	007418	007424	007430	007436	007442	007448	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 83 degrees, or Versed Sine Supplement of 173 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	1	2	2	3	3	4	4	5

Natural Versed Sine of 7 degrees, or Co-versed Sine of 97 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	007454	007460	007466	007472	007478	007483	59
1	007489	007495	007501	007507	007513	007519	58
2	007525	007531	007537	007543	007549	007555	57
3	007561	007567	007572	007578	007584	007590	56
4	007596	007602	007608	007614	007620	007626	55
5	007632	007638	007644	007650	007656	007662	54
6	007668	007674	007680	007686	007692	007698	53
7	007704	007710	007716	007722	007728	007734	52
8	007740	007746	007752	007758	007764	007770	51
9	007776	007782	007788	007794	007800	007807	50
10	007813	007819	007825	007831	007837	007843	49
11	007849	007855	007861	007867	007873	007879	48
12	007885	007891	007897	007904	007910	007916	47
13	007922	007928	007934	007940	007946	007952	46
14	007958	007964	007971	007977	007983	007989	45
15	007995	008001	008007	008013	008020	008026	44
16	008032	008038	008044	008050	008056	008062	43
17	008069	008075	008081	008087	008093	008099	42
18	008106	008112	008118	008124	008130	008136	41
19	008143	008149	008155	008161	008167	008173	40
20	008180	008186	008192	008198	008204	008211	39
21	008217	008223	008229	008235	008242	008248	38
22	008254	008260	008267	008273	008279	008285	37
23	008291	008298	008304	008310	008316	008323	36
24	008329	008335	008341	008348	008354	008360	35
25	008366	008373	008379	008385	008391	008398	34
26	008404	008410	008416	008423	008429	008435	33
27	008442	008448	008454	008460	008467	008473	32
28	008479	008486	008492	008498	008505	008511	31
29	008517	008524	008530	008536	008542	008549	30
30	008555	008561	008568	008574	008580	008587	29
31	008593	008599	008606	008612	008619	008625	28
32	008631	008638	008644	008650	008657	008663	27
33	008669	008676	008682	008689	008695	008701	26
34	008708	008714	008720	008727	008733	008740	25
35	008746	008752	008759	008765	008772	008778	24
36	008784	008791	008797	008804	008810	008817	23
37	008823	008829	008836	008842	008849	008855	22
38	008862	008868	008874	008881	008887	008894	21
39	008900	008907	008913	008920	008926	008933	20
40	008939	008945	008952	008958	008965	008971	19
41	008978	008984	008991	008997	009004	009010	18
42	009017	009023	009030	009036	009043	009049	17
43	009056	009062	009069	009075	009082	009088	16
44	009095	009101	009108	009114	009121	009128	15
45	009134	009141	009147	009154	009160	009167	14
46	009173	009180	009186	009193	009200	009206	13
47	009213	009219	009226	009232	009239	009246	12
48	009252	009259	009265	009272	009279	009285	11
49	009292	009298	009305	009311	009318	009325	10
50	009331	009338	009345	009351	009358	009364	9
51	009371	009378	009384	009391	009397	009404	8
52	009411	009417	009424	009431	009437	009444	7
53	009451	009457	009464	009471	009477	009484	6
54	009491	009497	009504	009511	009517	009524	5
55	009531	009537	009544	009551	009557	009564	4
56	009571	009577	009584	009591	009597	009604	3
57	009611	009618	009624	009631	009638	009644	2
58	009651	009658	009665	009671	009678	009685	1
59	009691	009698	009705	009712	009718	009725	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 82 degrees, or Versed Sine Supplement of 172 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	1	2	3	3	4	4	5	6

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NATURAL VERSED SINES.

Natural Versed Sine of 8 degrees, or Co-versed Sine of 98 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	009732	009739	009745	009752	009759	009766	59
1	009772	009779	009786	009793	009800	009806	58
2	009813	009820	009827	009833	009840	009847	57
3	009854	009861	009867	009874	009881	009888	56
4	009895	009901	009908	009915	009922	009929	55
5	009935	009942	009949	009956	009963	009970	54
6	009976	009983	009990	009997	010004	010011	53
7	010017	010024	010031	010038	010045	010052	52
8	010058	010065	010072	010079	010086	010093	51
9	010100	010107	010113	010120	010127	010134	50
10	010141	010148	010155	010162	010169	010175	49
11	010182	010189	010196	010203	010210	010217	48
12	010224	010231	010238	010245	010251	010258	47
13	010265	010272	010279	010286	010293	010300	46
14	010307	010314	010321	010328	010335	010342	45
15	010349	010356	010363	010369	010376	010383	44
16	010390	010397	010404	010411	010418	010425	43
17	010432	010439	010446	010453	010460	010467	42
18	010474	010481	010488	010495	010502	010509	41
19	010516	010523	010530	010537	010544	010551	40
20	010558	010565	010572	010579	010586	010594	39
21	010601	010608	010615	010622	010629	010636	38
22	010643	010650	010657	010664	010671	010678	37
23	010685	010692	010699	010706	010714	010721	36
24	010728	010735	010742	010749	010756	010763	35
25	010770	010777	010784	010792	010799	010806	34
26	010813	010820	010827	010834	010841	010848	33
27	010855	010863	010870	010877	010884	010891	32
28	010898	010905	010913	010920	010927	010934	31
29	010941	010948	010955	010963	010970	010977	30
30	010984	010991	010998	011006	011013	011020	29
31	011027	011034	011042	011049	011056	011063	28
32	011070	011077	011085	011092	011099	011106	27
33	011114	011121	011128	011135	011142	011150	26
34	011157	011164	011171	011178	011186	011193	25
35	011200	011207	011215	011222	011229	011236	24
36	011244	011251	011258	011265	011273	011280	23
37	011287	011294	011302	011309	011316	011324	22
38	011331	011338	011345	011353	011360	011367	21
39	011374	011382	011389	011396	011404	011411	20
40	011418	011426	011433	011440	011448	011455	19
41	011462	011469	011477	011484	011491	011499	18
42	011506	011513	011521	011528	011535	011543	17
43	011550	011558	011565	011572	011580	011587	16
44	011594	011602	011609	011616	011624	011631	15
45	011638	011646	011653	011661	011668	011675	14
46	011683	011690	011698	011705	011712	011720	13
47	011727	011735	011742	011749	011757	011764	12
48	011772	011779	011786	011794	011801	011809	11
49	011816	011824	011831	011838	011846	011853	10
50	011861	011868	011876	011883	011891	011898	9
51	011906	011913	011920	011928	011935	011943	8
52	011950	011958	011965	011973	011980	011988	7
53	011995	012003	012010	012018	012025	012033	6
54	012040	012048	012055	012063	012070	012078	5
55	012085	012093	012100	012108	012115	012123	4
56	012130	012138	012145	012153	012160	012168	3
57	012176	012183	012191	012198	012206	012213	2
58	012221	012228	012236	012243	012251	012259	1
59	012266	012274	012281	012289	012296	012304	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 81 degrees, or Versed Sine Supplement of 171 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	1	2	3	4	4	5	6	6

Natural Versed Sine of 9 degrees, or Co-versed Sine of 99 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	012312	012319	012327	012334	012342	012350	59
1	012357	012365	012372	012380	012388	012395	58
2	012403	012410	012418	012426	012433	012441	57
3	012449	012456	012464	012471	012479	012487	56
4	012494	012502	012510	012517	012525	012533	55
5	012540	012548	012556	012563	012571	012579	54
6	012586	012594	012602	012609	012617	012625	53
7	012632	012640	012648	012655	012663	012671	52
8	012678	012686	012694	012701	012709	012717	51
9	012725	012732	012740	012748	012755	012763	50
10	012771	012779	012786	012794	012802	012810	49
11	012817	012825	012833	012840	012848	012856	48
12	012864	012871	012879	012887	012895	012903	47
13	012910	012918	012926	012934	012941	012949	46
14	012957	012965	012972	012980	012988	012996	45
15	013004	013011	013019	013027	013035	013043	44
16	013050	013058	013066	013074	013082	013089	43
17	013097	013105	013113	013121	013129	013136	42
18	013144	013152	013160	013168	013176	013183	41
19	013191	013199	013207	013215	013223	013231	40
20	013238	013246	013254	013262	013270	013278	39
21	013286	013294	013301	013309	013317	013325	38
22	013333	013341	013349	013357	013365	013372	37
23	013380	013388	013396	013404	013412	013420	36
24	013428	013436	013444	013452	013460	013468	35
25	013475	013483	013491	013499	013507	013515	34
26	013523	013531	013539	013547	013555	013563	33
27	013571	013579	013587	013595	013603	013611	32
28	013619	013627	013634	013642	013650	013658	31
29	013666	013674	013682	013690	013698	013706	30
30	013714	013722	013730	013738	013746	013754	29
31	013762	013770	013778	013787	013795	013803	28
32	013811	013819	013827	013835	013843	013851	27
33	013859	013867	013875	013883	013891	013899	26
34	013907	013915	013923	013931	013939	013947	25
35	013955	013964	013972	013980	013988	013996	24
36	014004	014012	014020	014028	014036	014044	23
37	014053	014061	014069	014077	014085	014093	22
38	014101	014109	014117	014126	014134	014142	21
39	014150	014158	014166	014174	014182	014191	20
40	014199	014207	014215	014223	014231	014239	19
41	014248	014256	014264	014272	014280	014288	18
42	014297	014305	014313	014321	014329	014337	17
43	014346	014354	014362	014370	014378	014387	16
44	014395	014403	014411	014419	014428	014436	15
45	014444	014452	014460	014469	014477	014485	14
46	014493	014501	014510	014518	014526	014534	13
47	014543	014551	014559	014567	014576	014584	12
48	014592	014600	014609	014617	014625	014633	11
49	014642	014650	014658	014666	014675	014683	10
50	014691	014700	014708	014716	014724	014733	9
51	014741	014749	014758	014766	014774	014783	8
52	014791	014799	014807	014816	014824	014832	7
53	014841	014849	014857	014866	014874	014882	6
54	014891	014899	014907	014916	014924	014932	5
55	014941	014949	014957	014966	014974	014983	4
56	014991	014999	015008	015016	015024	015033	3
57	015041	015049	015058	015066	015075	015083	2
58	015091	015099	015108	015117	015125	015133	1
59	015142	015150	015159	015167	015175	015184	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 80 degrees, or Versed Sine Supplement of 170 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	2	2	3	4	5	6	6	7

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 10 degrees, or Co-versed Sine of 100 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	015192	015201	015209	015218	015226	015234	59
1	015243	015251	015260	015268	015277	015285	58
2	015293	015302	015310	015319	015327	015336	57
3	015344	015353	015361	015370	015378	015386	56
4	015395	015403	015412	015420	015429	015437	55
5	015446	015454	015463	015471	015480	015488	54
6	015497	015505	015514	015522	015531	015539	53
7	015548	015556	015565	015573	015582	015590	52
8	015599	015607	015616	015625	015633	015642	51
9	015650	015659	015667	015676	015684	015693	50
10	015702	015710	015719	015727	015736	015744	49
11	015753	015761	015770	015779	015787	015796	48
12	015804	015813	015822	015830	015839	015847	47
13	015856	015865	015873	015882	015890	015899	46
14	015908	015916	015925	015933	015942	015951	45
15	015959	015968	015977	015985	015994	016002	44
16	016011	016020	016028	016037	016046	016054	43
17	016063	016072	016080	016089	016098	016106	42
18	016115	016124	016132	016141	016150	016158	41
19	016167	016176	016184	016193	016202	016210	40
20	016219	016228	016237	016245	016254	016263	39
21	016271	016280	016289	016298	016306	016315	38
22	016324	016332	016341	016350	016359	016367	37
23	016376	016385	016394	016402	016411	016420	36
24	016429	016437	016446	016455	016464	016472	35
25	016481	016490	016499	016507	016516	016525	34
26	016534	016542	016551	016560	016569	016578	33
27	016586	016595	016604	016613	016622	016630	32
28	016639	016648	016657	016666	016674	016683	31
29	016692	016701	016710	016719	016727	016736	30
30	016745	016754	016763	016772	016780	016789	29
31	016798	016807	016816	016825	016834	016842	28
32	016851	016860	016869	016878	016887	016896	27
33	016904	016913	016922	016931	016940	016949	26
34	016958	016967	016976	016985	016993	017002	25
35	017011	017020	017029	017038	017047	017056	24
36	017065	017074	017082	017091	017100	017109	23
37	017118	017127	017136	017145	017154	017163	22
38	017172	017181	017190	017199	017208	017217	21
39	017226	017235	017243	017252	017261	017270	20
40	017279	017288	017297	017306	017315	017324	19
41	017333	017342	017351	017360	017369	017378	18
42	017387	017396	017405	017414	017423	017432	17
43	017441	017450	017459	017468	017477	017486	16
44	017495	017504	017513	017522	017532	017541	15
45	017550	017559	017568	017577	017586	017595	14
46	017604	017613	017622	017631	017640	017649	13
47	017658	017667	017676	017686	017695	017704	12
48	017713	017722	017731	017740	017749	017758	11
49	017767	017776	017785	017795	017804	017813	10
50	017822	017831	017840	017849	017858	017868	9
51	017877	017886	017895	017904	017913	017922	8
52	017931	017941	017950	017959	017968	017977	7
53	017986	017995	018005	018014	018023	018032	6
54	018041	018050	018060	018069	018078	018087	5
55	018096	018106	018115	018124	018133	018142	4
56	018151	018161	018170	018179	018188	018197	3
57	018207	018216	018225	018234	018244	018253	2
58	018262	018271	018280	018290	018299	018308	1
59	018317	018327	018336	018345	018354	018364	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 79 degrees, or Versed Sine Supplement of 169 degrees.						
Propor. parts.	1″ 1	2″ 2	3″ 3	4″ 4	5″ 4	6″ 5	7″ 6	8″ 7	9″ 8

Minutes	Natural Versed Sine of 11 degrees, or Co-versed Sine of 101 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	018373	018382	018391	018401	018410	018419	59
1	018428	018438	018447	018456	018465	018475	58
2	018484	018493	018503	018512	018521	018530	57
3	018540	018549	018558	018568	018577	018586	56
4	018595	018605	018614	018623	018633	018642	55
5	018651	018661	018670	018679	018689	018698	54
6	018707	018717	018726	018735	018745	018754	53
7	018763	018773	018782	018791	018801	018810	52
8	018819	018829	018838	018848	018857	018866	51
9	018876	018885	018894	018904	018913	018923	50
10	018932	018941	018951	018960	018970	018979	49
11	018988	018998	019007	019017	019026	019035	48
12	019045	019054	019064	019073	019082	019092	47
13	019101	019111	019120	019130	019139	019149	46
14	019158	019167	019177	019186	019196	019205	45
15	019215	019224	019234	019243	019253	019262	44
16	019272	019281	019290	019300	019309	019319	43
17	019328	019338	019347	019357	019366	019376	42
18	019385	019395	019404	019414	019423	019433	41
19	019442	019452	019461	019471	019480	019490	40
20	019500	019509	019519	019528	019538	019547	39
21	019557	019566	019576	019585	019595	019604	38
22	019614	019624	019633	019643	019652	019662	37
23	019671	019681	019691	019700	019710	019719	36
24	019729	019738	019748	019757	019767	019777	35
25	019786	019796	019806	019815	019825	019834	34
26	019844	019854	019863	019873	019882	019892	33
27	019902	019911	019921	019931	019940	019950	32
28	019959	019969	019979	019988	019998	020008	31
29	020017	020027	020037	020046	020056	020066	30
30	020075	020085	020095	020104	020114	020124	29
31	020133	020143	020153	020162	020172	020182	28
32	020191	020201	020211	020221	020230	020240	27
33	020250	020259	020269	020279	020288	020298	26
34	020308	020318	020327	020337	020347	020357	25
35	020366	020376	020386	020396	020405	020415	24
36	020425	020435	020444	020454	020464	020474	23
37	020483	020493	020503	020513	020522	020532	22
38	020542	020552	020561	020571	020581	020591	21
39	020601	020610	020620	020630	020640	020650	20
40	020659	020669	020679	020689	020699	020708	19
41	020718	020728	020738	020748	020758	020767	18
42	020777	020787	020797	020807	020817	020826	17
43	020836	020846	020856	020866	020876	020885	16
44	020895	020905	020915	020925	020935	020945	15
45	020955	020964	020974	020984	020994	021004	14
46	021014	021024	021034	021043	021053	021063	13
47	021073	021083	021093	021103	021113	021123	12
48	021133	021143	021152	021162	021172	021182	11
49	021192	021202	021212	021222	021232	021242	10
50	021252	021262	021272	021282	021292	021301	9
51	021311	021321	021331	021341	021351	021361	8
52	021371	021381	021391	021401	021411	021421	7
53	021431	021441	021451	021461	021471	021481	6
54	021491	021501	021511	021521	021531	021541	5
55	021551	021561	021571	021581	021591	021601	4
56	021611	021621	021631	021641	021651	021661	3
57	021671	021681	021691	021701	021712	021722	2
58	021732	021742	021752	021762	021772	021782	1
59	021792	021802	021812	021822	021832	021842	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 78 degrees, or Versed Sine Supplement of 168 degrees.						
Propor. parts.	1″ 1	2″ 2	3″ 3	4″ 4	5″ 5	6″ 6	7″ 7	8″ 8	9″ 9

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 12 degrees, or Co-versed Sine of 102 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	021852	021862	021873	021883	021893	021903	59
1	021913	021923	021933	021943	021953	021963	58
2	021974	021984	021994	022004	022014	022024	57
3	022034	022044	022054	022065	022075	022085	56
4	022095	022105	022115	022125	022136	022146	55
5	022156	022166	022176	022186	022196	022207	54
6	022217	022227	022237	022247	022257	022268	53
7	022278	022288	022298	022308	022319	022329	52
8	022339	022349	022359	022369	022380	022390	51
9	022400	022410	022420	022431	022441	022451	50
10	022461	022472	022482	022492	022502	022512	49
11	022523	022533	022543	022553	022564	022574	48
12	022584	022594	022605	022615	022625	022635	47
13	022646	022656	022666	022676	022687	022697	46
14	022707	022717	022728	022738	022748	022759	45
15	022769	022779	022789	022800	022810	022820	44
16	022831	022841	022851	022862	022872	022882	43
17	022892	022903	022913	022923	022934	022944	42
18	022954	022965	022975	022985	022996	023006	41
19	023016	023027	023037	023047	023058	023068	40
20	023079	023089	023099	023110	023120	023130	39
21	023141	023151	023161	023172	023182	023193	38
22	023203	023213	023224	023234	023245	023255	37
23	023265	023276	023286	023296	023307	023317	36
24	023328	023338	023349	023359	023369	023380	35
25	023390	023401	023411	023422	023432	023442	34
26	023453	023463	023474	023484	023495	023505	33
27	023515	023526	023536	023547	023557	023568	32
28	023578	023589	023599	023610	023620	023631	31
29	023641	023652	023662	023673	023683	023694	30
30	023704	023714	023725	023735	023746	023756	29
31	023767	023778	023788	023799	023809	023820	28
32	023830	023841	023851	023862	023872	023883	27
33	023893	023904	023914	023925	023935	023946	26
34	023956	023967	023978	023988	023999	024009	25
35	024020	024030	024041	024052	024062	024073	24
36	024083	024094	024104	024115	024126	024136	23
37	024147	024157	024168	024179	024189	024200	22
38	024210	024221	024232	024242	024253	024263	21
39	024274	024285	024295	024306	024316	024327	20
40	024338	024348	024359	024370	024380	024391	19
41	024402	024412	024423	024433	024444	024455	18
42	024465	024476	024487	024497	024508	024519	17
43	024529	024540	024551	024561	024572	024583	16
44	024594	024604	024615	024626	024636	024647	15
45	024658	024668	024679	024690	024700	024711	14
46	024722	024733	024743	024754	024765	024776	13
47	024786	024797	024808	024818	024829	024840	12
48	024851	024861	024872	024883	024894	024904	11
49	024915	024926	024937	024947	024958	024969	10
50	024980	024990	025001	025012	025023	025034	9
51	025044	025055	025066	025077	025088	025098	8
52	025109	025120	025131	025141	025152	025163	7
53	025174	025185	025196	025206	025217	025228	6
54	025239	025250	025260	025271	025282	025293	5
55	025304	025315	025325	025336	025347	025358	4
56	025369	025380	025391	025401	025412	025423	3
57	025434	025445	025456	025467	025477	025488	2
58	025499	025510	025521	025532	025543	025554	1
59	025565	025575	025586	025597	025608	025619	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 77 degrees, or Versed Sine Supplement of 167 degrees.						
Propor. parts.	1″ 1	2″ 2	3″ 3	4″ 4	5″ 5	6″ 6	7″ 7	8″ 8	9″ 9

Minutes	Natural Versed Sine of 13 degrees, or Co-versed Sine of 103 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	025630	025641	025652	025663	025674	025684	59
1	025695	025706	025717	025728	025739	025750	58
2	025761	025772	025783	025794	025805	025816	57
3	025827	025838	025849	025859	025870	025881	56
4	025892	025903	025914	025925	025936	025947	55
5	025958	025969	025980	025991	026002	026013	54
6	026024	026035	026046	026057	026068	026079	53
7	026090	026101	026112	026123	026134	026145	52
8	026156	026167	026178	026189	026200	026211	51
9	026222	026233	026244	026255	026266	026277	50
10	026288	026299	026311	026322	026333	026344	49
11	026355	026366	026377	026388	026399	026410	48
12	026421	026432	026443	026454	026465	026476	47
13	026488	026499	026510	026521	026532	026543	46
14	026554	026565	026576	026587	026599	026610	45
15	026621	026632	026643	026654	026665	026676	44
16	026687	026699	026710	026721	026732	026743	43
17	026754	026765	026777	026788	026799	026810	42
18	026821	026832	026843	026855	026866	026877	41
19	026888	026899	026910	026922	026933	026944	40
20	026955	026966	026977	026989	027000	027011	39
21	027022	027033	027045	027056	027067	027078	38
22	027089	027101	027112	027123	027134	027146	37
23	027157	027168	027179	027190	027202	027213	36
24	027224	027235	027247	027258	027269	027280	35
25	027292	027303	027314	027325	027337	027348	34
26	027359	027370	027382	027393	027404	027415	33
27	027427	027438	027449	027461	027472	027483	32
28	027494	027506	027517	027528	027540	027551	31
29	027562	027574	027585	027596	027607	027618	30
30	027630	027641	027653	027664	027675	027687	29
31	027698	027709	027721	027732	027743	027755	28
32	027766	027777	027789	027800	027811	027823	27
33	027834	027846	027857	027868	027880	027891	26
34	027902	027914	027925	027936	027948	027959	25
35	027970	027982	027993	028005	028016	028028	24
36	028039	028050	028062	028073	028085	028096	23
37	028107	028119	028130	028142	028153	028165	22
38	028176	028187	028199	028210	028222	028233	21
39	028245	028256	028267	028279	028290	028302	20
40	028313	028325	028336	028348	028359	028371	19
41	028382	028393	028405	028416	028428	028439	18
42	028451	028462	028474	028485	028497	028508	17
43	028520	028531	028543	028554	028566	028577	16
44	028589	028600	028612	028623	028635	028646	15
45	028658	028669	028681	028693	028704	028716	14
46	028727	028739	028750	028762	028773	028785	13
47	028796	028808	028819	028831	028843	028854	12
48	028866	028877	028889	028900	028912	028924	11
49	028935	028947	028958	028970	028981	028993	10
50	029005	029016	029028	029039	029051	029063	9
51	029074	029086	029097	029109	029121	029132	8
52	029144	029156	029167	029179	029190	029202	7
53	029214	029225	029237	029249	029260	029272	6
54	029284	029295	029307	029318	029330	029342	5
55	029353	029365	029377	029388	029400	029412	4
56	029423	029435	029447	029458	029470	029482	3
57	029494	029505	029517	029529	029540	029552	2
58	029564	029575	029587	029599	029611	029622	1
59	029634	029646	029657	029669	029681	029693	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 76 degrees, or Versed Sine Supplement of 166 degrees.						
Propor. parts.	1″ 1	2″ 2	3″ 3	4″ 4	5″ 5	6″ 6	7″ 7	8″ 8	9″ 9

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NATURAL VERSED SINES.

Natural Versed Sine of 14° degrees, or Co-versed Sine of 104 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	029704	029716	029728	029739	029751	029763	59
1	029775	029786	029798	029810	029822	029833	58
2	029845	029857	029869	029880	029892	029904	57
3	029916	029928	029939	029951	029963	029975	56
4	029986	029998	030010	030022	030034	030045	55
5	030057	030069	030081	030093	030104	030116	54
6	030128	030140	030152	030163	030175	030187	53
7	030199	030211	030223	030234	030246	030258	52
8	030270	030282	030294	030305	030317	030329	51
9	030341	030353	030365	030377	030388	030400	50
10	030412	030424	030436	030448	030460	030471	49
11	030483	030495	030507	030519	030531	030543	48
12	030555	030567	030578	030590	030602	030614	47
13	030626	030638	030650	030662	030674	030686	46
14	030698	030709	030721	030733	030745	030757	45
15	030769	030781	030793	030805	030817	030829	44
16	030841	030853	030865	030877	030889	030901	43
17	030912	030924	030936	030948	030960	030972	42
18	030984	030996	031008	031020	031032	031044	41
19	031056	031068	031080	031092	031104	031116	40
20	031128	031140	031152	031164	031176	031188	39
21	031200	031212	031224	031236	031248	031260	38
22	031272	031284	031296	031308	031320	031332	37
23	031344	031357	031369	031381	031393	031405	36
24	031417	031429	031441	031453	031465	031477	35
25	031489	031501	031513	031525	031538	031550	34
26	031562	031574	031586	031598	031610	031622	33
27	031634	031646	031658	031671	031683	031695	32
28	031707	031719	031731	031743	031755	031767	31
29	031780	031792	031804	031816	031828	031840	30
30	031852	031864	031877	031889	031901	031913	29
31	031925	031937	031950	031962	031974	031986	28
32	031998	032010	032023	032035	032047	032059	27
33	032071	032083	032096	032108	032120	032132	26
34	032144	032157	032169	032181	032193	032205	25
35	032218	032230	032242	032254	032266	032279	24
36	032291	032303	032315	032328	032340	032352	23
37	032364	032376	032389	032401	032413	032425	22
38	032438	032450	032462	032474	032487	032499	21
39	032511	032523	032536	032548	032560	032573	20
40	032585	032597	032609	032622	032634	032646	19
41	032658	032671	032683	032695	032708	032720	18
42	032732	032745	032757	032769	032781	032794	17
43	032806	032818	032831	032843	032855	032868	16
44	032880	032892	032905	032917	032929	032942	15
45	032954	032966	032979	032991	033003	033016	14
46	033028	033041	033053	033065	033078	033090	13
47	033102	033115	033127	033139	033152	033164	12
48	033177	033189	033201	033214	033226	033239	11
49	033251	033263	033276	033288	033301	033313	10
50	033325	033338	033350	033363	033375	033387	9
51	033400	033412	033424	033437	033450	033462	8
52	033474	033487	033499	033512	033524	033537	7
53	033549	033562	033574	033587	033599	033611	6
54	033624	033636	033649	033661	033674	033686	5
55	033699	033711	033724	033736	033749	033761	4
56	033774	033786	033799	033811	033824	033836	3
57	033849	033861	033874	033886	033899	033911	2
58	033924	033936	033949	033961	033974	033986	1
59	033999	034011	034024	034037	034049	034062	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 75 degrees, or Versed Sine Supplement of 165 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	2	4	5	6	7	8	10	11

Natural Versed Sine of 15 degrees, or Co-versed Sine of 105 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	034074	034087	034099	034112	034124	034137	59
1	034150	034162	034175	034187	034200	034212	58
2	034225	034237	034250	034263	034275	034288	57
3	034300	034313	034326	034338	034351	034363	56
4	034376	034389	034401	034414	034426	034439	55
5	034452	034464	034477	034489	034502	034515	54
6	034527	034540	034553	034565	034578	034591	53
7	034603	034616	034628	034641	034654	034666	52
8	034679	034692	034704	034717	034730	034742	51
9	034755	034768	034780	034793	034806	034818	50
10	034831	034844	034857	034869	034882	034895	49
11	034907	034920	034933	034945	034958	034971	48
12	034984	034996	035009	035022	035034	035047	47
13	035060	035073	035085	035098	035111	035123	46
14	035136	035149	035162	035174	035187	035200	45
15	035213	035225	035238	035251	035264	035276	44
16	035289	035302	035315	035328	035340	035353	43
17	035366	035379	035391	035404	035417	035430	42
18	035443	035455	035468	035481	035494	035507	41
19	035519	035532	035545	035558	035571	035583	40
20	035596	035609	035622	035635	035648	035660	39
21	035673	035686	035699	035712	035725	035737	38
22	035750	035763	035776	035789	035802	035815	37
23	035827	035840	035853	035866	035879	035892	36
24	035905	035917	035930	035943	035956	035969	35
25	035982	035995	036008	036021	036033	036046	34
26	036059	036072	036085	036098	036111	036124	33
27	036137	036150	036163	036175	036188	036201	32
28	036214	036227	036240	036253	036266	036279	31
29	036292	036305	036318	036331	036344	036357	30
30	036370	036383	036395	036408	036421	036434	29
31	036447	036460	036473	036486	036499	036512	28
32	036525	036538	036551	036564	036577	036590	27
33	036603	036616	036629	036642	036655	036668	26
34	036681	036694	036707	036720	036733	036746	25
35	036759	036772	036785	036798	036811	036824	24
36	036837	036850	036864	036877	036890	036903	23
37	036916	036929	036942	036955	036968	036981	22
38	036994	037007	037020	037033	037046	037059	21
39	037072	037086	037099	037112	037125	037138	20
40	037151	037164	037177	037190	037203	037216	19
41	037230	037243	037256	037269	037282	037295	18
42	037308	037321	037334	037348	037361	037374	17
43	037387	037400	037413	037426	037440	037453	16
44	037466	037479	037492	037505	037518	037532	15
45	037545	037558	037571	037584	037597	037611	14
46	037624	037637	037650	037663	037676	037690	13
47	037703	037716	037729	037742	037756	037769	12
48	037782	037795	037808	037822	037835	037848	11
49	037861	037874	037888	037901	037914	037927	10
50	037941	037954	037967	037980	037994	038007	9
51	038020	038033	038046	038060	038073	038086	8
52	038099	038113	038126	038139	038153	038166	7
53	038179	038192	038206	038219	038232	038245	6
54	038259	038272	038285	038299	038312	038325	5
55	038338	038352	038365	038378	038392	038405	4
56	038418	038432	038445	038458	038471	038485	3
57	038498	038511	038525	038538	038551	038565	2
58	038578	038591	038605	038618	038631	038645	1
59	038658	038672	038685	038698	038712	038725	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 74 degrees, or Versed Sine Supplement of 164 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	3	4	5	6	8	9	10	12

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NATURAL VERSED SINES.

Natural Versed Sine of 16 degrees, or Co-versed sine of 106 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	038738	038752	038765	038778	038792	038805	59
1	038819	038832	038845	038859	038872	038885	58
2	038899	038912	038926	038939	038952	038966	57
3	038979	038993	039006	039019	039033	039046	56
4	039060	039073	039087	039100	039113	039127	55
5	039140	039154	039167	039181	039194	039207	54
6	039221	039234	034248	039261	039275	039288	53
7	039302	039315	039328	039342	039355	039369	52
8	039382	039396	039409	039423	039436	039450	51
9	039463	039477	039490	039504	039517	039531	50
10	039544	039558	039571	039585	039598	039612	49
11	039625	039639	039652	039666	039679	039693	48
12	039706	039720	039733	039747	039760	039774	47
13	039788	039801	039815	039828	039842	039855	46
14	039869	039882	039896	039909	039923	039937	45
15	039950	039964	039977	039991	040004	040018	44
16	040032	040045	040059	040072	040086	040100	43
17	040113	040127	040140	040154	040167	040181	42
18	040195	040208	040222	040236	040249	040263	41
19	040276	040290	040304	040317	040331	040345	40
20	040358	040372	040385	040399	040413	040426	39
21	040440	040454	040467	040481	040495	040508	38
22	040522	040536	040549	040563	040577	040590	37
23	040604	040618	040631	040645	040659	040672	36
24	040686	040700	040713	040727	040741	040754	35
25	040768	040782	040796	040809	040823	040837	34
26	040850	040864	040878	040892	040905	040919	33
27	040933	040947	040960	040974	040988	041001	32
28	041015	041029	041043	041056	041070	041084	31
29	041098	041111	041125	041139	041153	041166	30
30	041180	041194	041208	041222	041235	041249	29
31	041263	041277	041290	041304	041318	041332	28
32	041346	041359	041373	041387	041401	041415	27
33	041428	041442	041456	041470	041484	041498	26
34	041511	041525	041539	041553	041567	041581	25
35	041594	041608	041622	041636	041650	041664	24
36	041677	041691	041705	041719	041733	041747	23
37	041761	041774	041788	041802	041816	041830	22
38	041844	041858	041872	041885	041899	041913	21
39	041927	041941	041955	041969	041983	041997	20
40	042010	042024	042038	042052	042066	042080	19
41	042094	042108	042122	042136	042150	042164	18
42	042178	042191	042205	042219	042233	042247	17
43	042261	042275	042289	042303	042317	042331	16
44	042345	042359	042373	042387	042401	042415	15
45	042429	042443	042457	042471	042485	042499	14
46	042513	042526	042540	042554	042568	042582	13
47	042596	042610	042624	042638	042652	042666	12
48	042681	042695	042709	042723	042737	042751	11
49	042765	042779	042793	042807	042821	042835	10
50	042849	042863	042877	042891	042905	042919	9
51	042933	042947	042961	042975	042989	043003	8
52	043017	043032	043046	043060	043074	043088	7
53	043102	043116	043130	043144	043158	043172	6
54	043186	043201	043215	043229	043243	043257	5
55	043271	043285	043299	043313	043327	043342	4
56	043356	043370	043384	043398	043412	043426	3
57	043440	043455	043469	043483	043497	043511	2
58	043525	043539	043554	043568	043582	043596	1
59	043610	043624	043639	043653	043667	043681	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 73 degrees, or Versed Sine Supplement of 163 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	3	4	6	7	8	10	11	13

Natural Versed Sine of 17 degrees, or Co-versed Sine of 107 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	043695	043709	043724	043738	043752	043766	59
1	043780	043795	043809	043823	043837	043851	58
2	043866	043880	043894	043908	043922	043937	57
3	043951	043965	043979	043993	044008	044022	56
4	044036	044050	044065	044079	044093	044107	55
5	044121	044136	044150	044164	044178	044193	54
6	044207	044222	044236	044250	044264	044278	53
7	044293	044307	044321	044335	044350	044364	52
8	044378	044392	044407	044421	044435	044450	51
9	044464	044478	044493	044507	044521	044535	50
10	044550	044564	044578	044593	044607	044621	49
11	044636	044650	044664	044679	044693	044707	48
12	044722	044736	044750	044765	044779	044793	47
13	044808	044822	044836	044851	044865	044879	46
14	044894	044908	044923	044937	044951	044966	45
15	044980	044994	045009	045023	045038	045052	44
16	045066	045081	045095	045110	045124	045138	43
17	045153	045167	045182	045196	045210	045225	42
18	045239	045254	045268	045282	045297	045311	41
19	045326	045340	045355	045369	045383	045398	40
20	045412	045427	045441	045456	045470	045485	39
21	045499	045514	045528	045542	045557	045571	38
22	045586	045600	045615	045629	045644	045658	37
23	045673	045687	045702	045716	045731	045745	36
24	045760	045774	045789	045803	045818	045832	35
25	045847	045861	045876	045890	045905	045919	34
26	045934	045948	045963	045977	045992	046006	33
27	046021	046036	046050	046065	046079	046094	32
28	046108	046123	046137	046152	046166	046181	31
29	046196	046210	046225	046239	046254	046268	30
30	046283	046298	046312	046327	046341	046356	29
31	046371	046385	046400	046414	046429	046444	28
32	046458	046473	046487	046502	046517	046531	27
33	046546	046560	046575	046590	046604	046619	26
34	046634	046648	046663	046677	046692	046707	25
35	046721	046736	046751	046765	046780	046795	24
36	046809	046824	046839	046853	046868	046883	23
37	046897	046912	046927	046941	046956	046971	22
38	046985	047000	047015	047029	047044	047059	21
39	047074	047088	047103	047118	047132	047147	20
40	047162	047177	047191	047206	047221	047235	19
41	047250	047265	047280	047294	047309	047324	18
42	047339	047353	047368	047383	047397	047412	17
43	047427	047442	047457	047471	047486	047501	16
44	047516	047530	047545	047560	047575	047589	15
45	047604	047619	047634	047649	047663	047678	14
46	047693	047708	047723	047737	047752	047767	13
47	047782	047797	047811	047826	047841	047856	12
48	047871	047885	047900	047915	047930	047945	11
49	047960	047974	047989	048004	048019	048034	10
50	048049	048063	048078	048093	048108	048123	9
51	048138	048153	048167	048182	048197	048212	8
52	048227	018242	048257	048272	048286	048301	7
53	048316	048331	048346	048361	048376	048391	6
54	048406	048420	048435	048450	048465	048480	5
55	048495	048510	048525	048540	048555	048570	4
56	048585	048599	048614	048629	048644	048659	3
57	048674	048689	048704	048719	048734	048749	2
58	048764	048779	048794	048809	048824	048839	1
59	048854	048869	048884	048899	048914	048929	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 72 degrees, or Versed Sine Supplement of 162 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	3	4	6	7	9	10	12	13

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NATURAL VERSED SINES.

Natural Versed Sine of 18 degrees, or Co-versed Sine of 108 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	048943	048958	048973	048988	049003	049018	59
1	049033	049048	049063	049078	049093	049108	58
2	049123	049138	049153	049168	049183	049198	57
3	049214	049229	049244	049259	049274	049289	56
4	049304	049319	049334	049349	049364	049379	55
5	049394	049409	049424	049439	049454	049469	54
6	049484	049499	049514	049529	049545	049560	53
7	049575	049590	049605	049620	049635	049650	52
8	049665	049680	049695	049710	049726	049741	51
9	049756	049771	049786	049801	049816	049831	50
10	049846	049862	049877	049892	049907	049922	49
11	049937	049952	049967	049982	049998	050013	48
12	050028	050043	050058	050073	050089	050104	47
13	050119	050134	050149	050164	050179	050195	46
14	050210	050225	050240	050255	050271	050286	45
15	050301	050316	050331	050346	050362	050377	44
16	050392	050407	050422	050438	050453	050468	43
17	050483	050498	050514	050529	050544	050559	42
18	050575	050590	050605	050620	050635	050651	41
19	050666	050681	050696	050712	050727	050742	40
20	050757	050773	050788	050803	050818	050834	39
21	050849	050864	050879	050895	050910	050925	38
22	050941	050956	050971	050986	051002	051017	37
23	051032	051048	051063	051078	051093	051109	36
24	051124	051139	051155	051170	051185	051201	35
25	051216	051231	051246	051262	051277	051292	34
26	051308	051323	051338	051354	051369	051384	33
27	051400	051415	051430	051446	051461	051477	32
28	051492	051507	051523	051538	051553	051569	31
29	051584	051599	051615	051630	051646	051661	30
30	051676	051692	051707	051723	051738	051753	29
31	051769	051784	051799	051815	051830	051846	28
32	051861	051877	051892	051907	051923	051938	27
33	051954	051969	051984	052000	052015	052031	26
34	052046	052062	052077	052093	052108	052123	25
35	052139	052154	052170	052185	052201	052216	24
36	052232	052247	052263	052278	052293	052309	23
37	052324	052340	052355	052371	052386	052402	22
38	052417	052433	052448	052464	052479	052495	21
39	052510	052526	052541	052557	052572	052588	20
40	052603	052619	052634	052650	052665	052681	19
41	052696	052712	052728	052743	052759	052774	18
42	052790	052805	052821	052836	052852	052867	17
43	052883	052899	052914	052930	052945	052961	16
44	052976	052992	053008	053023	053039	053054	15
45	053070	053085	053101	053117	053132	053148	14
46	053163	053179	053195	053210	053226	053241	13
47	053257	053273	053288	053304	053319	053335	12
48	053351	053366	053382	053398	053413	053429	11
49	053445	053460	053476	053491	053507	053523	10
50	053538	053554	053570	053585	053601	053617	9
51	053632	053648	053664	053679	053695	053711	8
52	053726	053742	053758	053773	053789	053805	7
53	053820	053836	053852	053868	053883	053899	6
54	053915	053930	053946	053962	053977	053993	5
55	054009	054025	054040	054056	054072	054088	4
56	054103	054119	054135	054150	054166	054182	3
57	054198	054213	054229	054245	054261	054276	2
58	054292	054308	054324	054339	054355	054371	1
59	054387	054403	054418	054434	054450	054466	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 71 degrees, or Versed Sine Supplement of 161 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	3	5	6	8	9	11	12	14

Natural Versed Sine of 19 degrees, or Co-versed Sine of 109 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	054481	054497	054513	054529	054545	054560	59
1	054576	054592	054608	054624	054639	054655	58
2	054671	054687	054703	054718	054734	054750	57
3	054766	054782	054798	054813	054829	054845	56
4	054861	054877	054893	054908	054924	054940	55
5	054956	054972	054988	055004	055019	055035	54
6	055051	055067	055083	055099	055115	055130	53
7	055146	055162	055178	055194	055210	055226	52
8	055242	055258	055273	055289	055305	055321	51
9	055337	055353	055369	055385	055401	055417	50
10	055432	055448	055464	055480	055496	055512	49
11	055528	055544	055560	055576	055592	055608	48
12	055624	055640	055656	055671	055687	055703	47
13	055719	055735	055751	055767	055783	055799	46
14	055815	055831	055847	055863	055879	055895	45
15	055911	055927	055943	055959	055975	055991	44
16	056007	056023	056039	056055	056071	056087	43
17	056103	056119	056135	056151	056167	056183	42
18	056199	056215	056231	056247	056263	056279	41
19	056295	056311	056327	056343	056359	056375	40
20	056391	056408	056424	056440	056456	056472	39
21	056488	056504	056520	056536	056552	056568	38
22	056584	056600	056616	056632	056649	056665	37
23	056681	056697	056713	056729	056745	056761	36
24	056777	056793	056810	056826	056842	056858	35
25	056874	056890	056906	056922	056938	056955	34
26	056971	056987	057003	057019	057035	057051	33
27	057068	057084	057100	057116	057132	057148	32
28	057164	057181	057197	057213	057229	057245	31
29	057261	057278	057294	057310	057326	057342	30
30	057359	057375	057391	057407	057423	057439	29
31	057456	057472	057488	057504	057520	057537	28
32	057553	057569	057585	057602	057618	057634	27
33	057650	057666	057683	057699	057715	057731	26
34	057748	057764	057780	057796	057813	057829	25
35	057845	057861	057878	057894	057910	057926	24
36	057943	057959	057975	057991	058008	058024	23
37	058040	058056	058073	058089	058105	058122	22
38	058138	058154	058170	058187	058203	058219	21
39	058236	058252	058268	058285	058301	058317	20
40	058334	058350	058366	058382	058399	058415	19
41	058431	058448	058464	058480	058497	058513	18
42	058529	058546	058562	058578	058595	058611	17
43	058628	058644	058660	058677	058693	058709	16
44	058726	058742	058758	058775	058791	058808	15
45	058824	058840	058857	058873	058890	058906	14
46	058922	058939	058955	058972	058988	059004	13
47	059021	059037	059054	059070	059086	059103	12
48	059119	059136	059152	059169	059185	059201	11
49	059218	059234	059251	059267	059284	059300	10
50	059316	059333	059349	059366	059382	059399	9
51	059415	059432	059448	059465	059481	059498	8
52	059514	059530	059547	059563	059580	059596	7
53	059613	059629	059646	059662	059679	059695	6
54	059712	059728	059745	059761	059778	059794	5
55	059811	059827	059844	059860	059877	059894	4
56	059910	059927	059943	059960	059976	059993	3
57	060009	060026	060042	060059	060075	060092	2
58	060109	060125	060142	060158	060175	060191	1
59	060208	060224	060241	060258	060274	060291	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 70 degrees, or Versed Sine Supplement of 160 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	3	5	6	8	10	11	13	15

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NATURAL VERSED SINES.

Natural Versed Sine of 20 degrees, or Co-versed Sine of 110 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	060307	060324	060341	060357	060374	060390	59
1	060407	060424	060440	060457	060473	060490	58
2	060507	060523	060540	060556	060573	060590	57
3	060606	060623	060639	060656	060673	060689	56
4	060706	060723	060739	060756	060773	060789	55
5	060806	060822	060839	060856	060872	060889	54
6	060906	060922	060939	060956	060972	060989	53
7	061006	061022	061039	061056	061072	061089	52
8	061106	061123	061139	061156	061173	061189	51
9	061206	061223	061239	061256	061273	061290	50
10	061306	061323	061340	061356	061373	061390	49
11	061407	061423	061440	061457	061474	061490	48
12	061507	061524	061540	061557	061574	061591	47
13	061607	061624	061641	061658	061674	061691	46
14	061708	061725	061742	061758	061775	061792	45
15	061809	061825	061842	061859	061876	061893	44
16	061909	061926	061943	061960	061977	061993	43
17	062010	062027	062044	062061	062077	062094	42
18	062111	062128	062145	062162	062178	062195	41
19	062212	062229	062246	062263	062279	062296	40
20	062313	062330	062347	062364	062380	062397	39
21	062414	062431	062448	062465	062482	062499	38
22	062515	062532	062549	062566	062583	062600	37
23	062617	062634	062650	062667	062684	062701	36
24	062718	062735	062752	062769	062786	062803	35
25	062819	062836	062853	062870	062887	062904	34
26	062921	062938	062955	062972	062989	063006	33
27	063023	063039	063056	063073	063090	063107	32
28	063124	063141	063158	063175	063192	063209	31
29	063226	063243	063260	063277	063294	063311	30
30	063328	063345	063362	063379	063396	063413	29
31	063430	063447	063464	063481	063498	063515	28
32	063532	063549	063566	063583	063600	063617	27
33	063634	063651	063668	063685	063702	063719	26
34	063736	063753	063770	063787	063804	063821	25
35	063838	063855	063872	063889	063906	063923	24
36	063940	063958	063975	063992	064009	064026	23
37	064043	064060	064077	064094	064111	064128	22
38	064145	064162	064179	064197	064214	064231	21
39	064248	064265	064282	064299	064316	064333	20
40	064350	064368	064385	064402	064419	064436	19
41	064453	064470	064487	064505	064522	064539	18
42	064556	064573	064590	064607	064625	064642	17
43	064659	064676	064693	064710	064727	064745	16
44	064762	064779	064796	064813	064830	064848	15
45	064865	064882	064899	064916	064934	064951	14
46	064968	064985	065002	065019	065037	065054	13
47	065071	065088	065105	065123	065140	065157	12
48	065174	065192	065209	065226	065243	065260	11
49	065278	065295	065312	065329	065347	065364	10
50	065381	065398	065416	065433	065450	065467	9
51	065485	065502	065519	065536	065554	065571	8
52	065588	065605	065623	065640	065657	065675	7
53	065692	065709	065726	065744	065761	065778	6
54	065796	065813	065830	065847	065865	065882	5
55	065899	065917	065934	065951	065969	065986	4
56	066003	066021	066038	066055	066073	066090	3
57	066107	066125	066142	066159	066177	066194	2
58	066211	066229	066246	066263	066281	066298	1
59	066315	066333	066350	066367	066385	066402	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 69 degrees, or Versed Sine Supplement of 159 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	3	5	7	8	10	12	14	15

Natural Versed Sine of 21 degrees, or Co-versed Sine of 111 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	066420	066437	066454	066472	066489	066506	59
1	066524	066541	066559	066576	066593	066611	58
2	066628	066646	066663	066680	066698	066715	57
3	066733	066750	066768	066785	066802	066820	56
4	066837	066855	066872	066889	066907	066924	55
5	066942	066959	066977	066994	067012	067029	54
6	067046	067064	067081	067099	067116	067134	53
7	067151	067169	067186	067204	067221	067239	52
8	067256	067274	067291	067309	067326	067343	51
9	067361	067378	067396	067413	067431	067448	50
10	067466	067483	067501	067518	067536	067554	49
11	067571	067589	067606	067624	067641	067659	48
12	067676	067694	067711	067729	067746	067764	47
13	067781	067799	067817	067834	067852	067869	46
14	067887	067904	067922	067939	067957	067975	45
15	067992	068010	068027	068045	068062	068080	44
16	068098	068115	068133	068150	068168	068186	43
17	068203	068221	068238	068256	068274	068291	42
18	068309	068326	068344	068362	068379	068397	41
19	068414	068432	068450	068467	068485	068503	40
20	068520	068538	068556	068573	068591	068608	39
21	068626	068644	068661	068679	068697	068714	38
22	068732	068750	068767	068785	068803	068820	37
23	068838	068856	068873	068891	068909	068926	36
24	068944	068962	068980	068997	069015	069033	35
25	069050	069068	069086	069103	069121	069139	34
26	069157	069174	069192	069210	069227	069245	33
27	069263	069281	069298	069316	069334	069352	32
28	069369	069387	069405	069423	069440	069458	31
29	069476	069494	069511	069529	069547	069565	30
30	069582	069600	069618	069636	069654	069671	29
31	069689	069707	069725	069742	069760	069778	28
32	069796	069814	069831	069849	069867	069885	27
33	069903	069920	069938	069956	069974	069992	26
34	070010	070027	070045	070063	070081	070099	25
35	070116	070134	070152	070170	070188	070206	24
36	070224	070241	070259	070277	070295	070313	23
37	070331	070348	070366	070384	070402	070420	22
38	070438	070456	070474	070491	070509	070527	21
39	070545	070563	070581	070599	070617	070635	20
40	070652	070670	070688	070706	070724	070742	19
41	070760	070778	070796	070814	070832	070850	18
42	070867	070885	070903	070921	070939	070957	17
43	070975	070993	071011	071029	071047	071065	16
44	071083	071101	071119	071137	071155	071172	15
45	071190	071208	071226	071244	071262	071280	14
46	071298	071316	071334	071352	071370	071388	13
47	071406	071424	071442	071460	071478	071496	12
48	071514	071532	071550	071568	071586	071604	11
49	071622	071640	071658	071676	071694	071712	10
50	071730	071748	071766	071784	071803	071821	9
51	071839	071857	071875	071893	071911	071929	8
52	071947	071965	071983	072001	072019	072037	7
53	072055	072073	072091	072110	072128	072146	6
54	072164	072182	072200	072218	072236	072254	5
55	072272	072290	072308	072327	072345	072363	4
56	072381	072399	072417	072435	072453	072471	3
57	072490	072508	072526	072544	072562	072580	2
58	072598	072617	072635	072653	072671	072689	1
59	072707	072725	072744	072762	072780	072798	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 68 degrees, or Versed Sine Supplement of 158 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	5	7	9	11	13	14	16

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NATURAL VERSED SINES.

Natural Versed Sine of 22 degrees, or Co-versed Sine of 112 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	072816	072834	072852	072871	072889	072907	59
1	072925	072943	072962	072980	072998	073016	58
2	073034	073052	073071	073089	073107	073125	57
3	073143	073162	073180	073198	073216	073234	56
4	073253	073271	073289	073307	073326	073344	55
5	073362	073380	073398	073417	073435	073453	54
6	073471	073490	073508	073526	073544	073563	53
7	073581	073599	073617	073636	073654	073672	52
8	073690	073709	073727	073745	073763	073782	51
9	073800	073818	073837	073855	073873	073891	50
10	073910	073928	073946	073965	073983	074001	49
11	074020	074038	074056	074074	074093	074111	48
12	074129	074148	074166	074184	074203	074221	47
13	074239	074258	074276	074294	074313	074331	46
14	074349	074368	074386	074404	074423	074441	45
15	074459	074478	074496	074515	074533	074551	44
16	074570	074588	074606	074625	074643	074662	43
17	074680	074698	074717	074735	074753	074772	42
18	074790	074809	074827	074845	074864	074882	41
19	074901	074919	074938	074956	074974	074993	40
20	075011	075030	075048	075066	075085	075103	39
21	075122	075140	075159	075177	075196	075214	38
22	075232	075251	075269	075288	075306	075325	37
23	075343	075362	075380	075399	075417	075435	36
24	075454	075472	075491	075509	075528	075546	35
25	075565	075583	075602	075620	075639	075657	34
26	075676	075694	075713	075731	075750	075768	33
27	075787	075805	075824	075842	075861	075879	32
28	075898	075916	075935	075954	075972	075991	31
29	076009	076028	076046	076065	076083	076102	30
30	076120	076139	076158	076176	076195	076213	29
31	076232	076250	076269	076288	076306	076325	28
32	076343	076362	076380	076399	076418	076436	27
33	076455	076473	076492	076511	076529	076548	26
34	076566	076585	076604	076622	076641	076659	25
35	076678	076697	076715	076734	076753	076771	24
36	076790	076808	076827	076846	076864	076883	23
37	076902	076920	076939	076958	076976	076995	22
38	077014	077032	077051	077069	077088	077107	21
39	077126	077144	077163	077182	077200	077219	20
40	077238	077256	077275	077294	077312	077331	19
41	077350	077368	077387	077406	077424	077443	18
42	077462	077481	077499	077518	077537	077555	17
43	077574	077593	077612	077630	077649	077668	16
44	077687	077705	077724	077743	077762	077780	15
45	077799	077818	077837	077855	077874	077893	14
46	077912	077930	077949	077968	077987	078005	13
47	078024	078043	078062	078080	078099	078118	12
48	078137	078156	078174	078193	078212	078231	11
49	078250	078268	078287	078306	078325	078344	10
50	078362	078381	078400	078419	078438	078457	9
51	078475	078494	078513	078532	078551	078570	8
52	078588	078607	078626	078645	078664	078683	7
53	078701	078720	078739	078758	078777	078796	6
54	078815	078833	078852	078871	078890	078909	5
55	078928	078947	078966	078984	079003	079022	4
56	079041	079060	079079	079098	079117	079136	3
57	079154	079173	079192	079211	079230	079249	2
58	079268	079287	079306	079325	079344	079363	1
59	079382	079400	079419	079438	079457	079476	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 67 degrees, or Versed Sine Supplement of 157 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	7	9	11	13	15	17

Natural Versed Sine of 23 degrees, or Co-versed Sine of 113 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	079495	079514	079533	079552	079571	079590	59
1	079609	079628	079647	079666	079685	079704	58
2	079723	079742	079761	079780	079799	079817	57
3	079836	079855	079874	079893	079912	079931	56
4	079950	079969	079988	080007	080026	080045	55
5	080064	080083	080102	080121	080140	080159	54
6	080179	080198	080217	080236	080255	080274	53
7	080293	080312	080331	080350	080369	080388	52
8	080407	080426	080445	080464	080483	080502	51
9	080521	080540	080559	080578	080597	080617	50
10	080636	080655	080674	080693	080712	080731	49
11	080750	080769	080788	080807	080826	080846	48
12	080865	080884	080903	080922	080941	080960	47
13	080979	080998	081018	081037	081056	081075	46
14	081094	081113	081132	081151	081170	081190	45
15	081209	081228	081247	081266	081285	081305	44
16	081324	081343	081362	081381	081400	081419	43
17	081439	081458	081477	081496	081515	081534	42
18	081554	081573	081592	081611	081630	081650	41
19	081669	081688	081707	081726	081745	081765	40
20	081784	081803	081822	081842	081861	081880	39
21	081899	081918	081938	081957	081976	081995	38
22	082014	082034	082053	082072	082091	082111	37
23	082130	082149	082168	082188	082207	082226	36
24	082245	082265	082284	082303	082322	082342	35
25	082361	082380	082399	082419	082438	082457	34
26	082477	082496	082515	082534	082554	082573	33
27	082592	082612	082631	082650	082669	082689	32
28	082708	082727	082747	082766	082785	082805	31
29	082824	082843	082863	082882	082901	082921	30
30	082940	082959	082979	082998	083017	083037	29
31	083056	083075	083095	083114	083133	083153	28
32	083172	083191	083211	083230	083249	083269	27
33	083288	083308	083327	083346	083366	083385	26
34	083405	083424	083443	083463	083482	083501	25
35	083521	083540	083560	083579	083598	083618	24
36	083637	083657	083676	083696	083715	083734	23
37	083754	083773	083793	083812	083831	083851	22
38	083870	083890	083909	083929	083948	083968	21
39	083987	084006	084026	084045	084065	084084	20
40	084104	084123	084143	084162	084182	084201	19
41	084221	084240	084259	084279	084298	084318	18
42	084337	084357	084376	084396	084415	084435	17
43	084454	084474	084493	084513	084532	084552	16
44	084571	084591	084610	084630	084649	084669	15
45	084689	084708	084728	084747	084767	084786	14
46	084806	084825	084845	084864	084884	084904	13
47	084923	084943	084962	084982	085001	085021	12
48	085040	085060	085079	085099	085119	085138	11
49	085158	085177	085197	085216	085236	085256	10
50	085275	085295	085314	085334	085354	085373	9
51	085393	085412	085432	085452	085471	085491	8
52	085510	085530	085550	085569	085589	085609	7
53	085628	085648	085667	085687	085707	085726	6
54	085746	085766	085785	085805	085825	085844	5
55	085864	085884	085903	085923	085943	085962	4
56	085982	086002	086021	086041	086061	086080	3
57	086100	086120	086139	086159	086179	086198	2
58	086218	086238	086257	086277	086297	086317	1
59	086336	086356	086376	086395	086415	086435	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 66 degrees, or Versed Sine Supplement of 156 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	12	14	16	17

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NATURAL VERSED SINES.

Natural Versed Sine of 24 degrees, or Co-versed Sine of 114 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	086455	086474	086494	086514	086533	086553	59
1	086573	086593	086612	086632	086652	086672	58
2	086691	086711	086731	086751	086770	086790	57
3	086810	086830	086849	086869	086889	086909	56
4	086928	086948	086968	086988	087008	087027	55
5	087047	087067	087087	087106	087126	087146	54
6	087166	087186	087205	087225	087245	087265	53
7	087285	087304	087324	087344	087364	087384	52
8	087404	087423	087443	087463	087483	087503	51
9	087523	087542	087562	087582	087602	087622	50
10	087642	087661	087681	087701	087721	087741	49
11	087761	087781	087800	087820	087840	087860	48
12	087880	087900	087920	087940	087959	087979	47
13	087999	088019	088039	088059	088079	088099	46
14	088119	088138	088158	088178	088198	088218	45
15	088238	088258	088278	088298	088318	088338	44
16	088357	088377	088397	088417	088437	088457	43
17	088477	088497	088517	088537	088557	088577	42
18	088597	088617	088637	088657	088677	088697	41
19	088716	088736	088756	088776	088796	088816	40
20	088836	088856	088876	088896	088916	088936	39
21	088956	088976	088996	089016	089036	089056	38
22	089076	089096	089116	089136	089156	089176	37
23	089196	089216	089236	089256	089276	089296	36
24	089316	089336	089356	089376	089396	089417	35
25	089437	089457	089477	089497	089517	089537	34
26	089557	089577	089597	089617	089637	089657	33
27	089677	089697	089717	089737	089757	089778	32
28	089798	089818	089838	089858	089878	089898	31
29	089918	089938	089958	089978	089999	090019	30
30	090039	090059	090079	090099	090119	090139	29
31	090159	090180	090200	090220	090240	090260	28
32	090280	090300	090320	090341	090361	090381	27
33	090401	090421	090441	090461	090482	090502	26
34	090522	090542	090562	090582	090603	090623	25
35	090643	090663	090683	090703	090724	090744	24
36	090764	090784	090804	090824	090845	090865	23
37	090885	090905	090925	090946	090966	090986	22
38	091006	091026	091047	091067	091087	091107	21
39	091128	091148	091168	091188	091208	091229	20
40	091249	091269	091289	091310	091330	091350	19
41	091370	091391	091411	091431	091451	091472	18
42	091492	091512	091532	091553	091573	091593	17
43	091613	091634	091654	091674	091695	091715	16
44	091735	091755	091776	091796	091816	091837	15
45	091857	091877	091897	091918	091938	091958	14
46	091979	091999	092019	092040	092060	092080	13
47	092101	092121	092141	092162	092182	092202	12
48	092223	092243	092263	092284	092304	092324	11
49	092345	092365	092385	092406	092426	092446	10
50	092467	092487	092507	092528	092548	092569	9
51	092589	092609	092630	092650	092670	092691	8
52	092711	092732	092752	092772	092793	092813	7
53	092834	092854	092874	092895	092915	092936	6
54	092956	092976	092997	093017	093038	093058	5
55	093078	093099	093119	093140	093160	093181	4
56	093201	093222	093242	093262	093283	093303	3
57	093324	093344	093365	093385	093406	093426	2
58	093446	093467	093487	093508	093528	093549	1
59	093569	093590	093610	093631	093651	093672	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 65 degrees, or Versed Sine Supplement of 155 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	12	14	16	18

Natural Versed Sine of 25 degrees, or Co-versed Sine of 115 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	093692	093713	093733	093754	093774	093795	59
1	093815	093836	093856	093877	093897	093918	58
2	093938	093959	093979	094000	094020	094041	57
3	094061	094082	094102	094123	094143	094164	56
4	094185	094205	094226	094246	094267	094287	55
5	094308	094328	094349	094369	094490	094411	54
6	094431	094452	094472	094493	094513	094534	53
7	094555	094575	094596	094616	094637	094658	52
8	094678	094699	094719	094740	094760	094781	51
9	094802	094822	094843	094864	094884	094905	50
10	094925	094946	094967	094987	095008	095029	49
11	095049	095070	095090	095111	095132	095152	48
12	095173	095194	095214	095235	095256	095276	47
13	095297	095317	095338	095359	095379	095400	46
14	095421	095441	095462	095483	095503	095524	45
15	095545	095566	095586	095607	095628	095648	44
16	095669	095690	095710	095731	095752	095772	43
17	095793	095814	095835	095855	095876	095897	42
18	095917	095938	095959	095980	096000	096021	41
19	096042	096063	096083	096104	096125	096145	40
20	096166	096187	096208	096228	096249	096270	39
21	096291	096311	096332	096353	096374	096395	38
22	096415	096436	096457	096478	096498	096519	37
23	096540	096561	096582	096602	096623	096644	36
24	096665	096686	096706	096727	096748	096769	35
25	096790	096810	096831	096852	096873	096894	34
26	096914	096935	096956	096977	096998	097019	33
27	097039	097060	097081	097102	097123	097144	32
28	097164	097185	097206	097227	097248	097269	31
29	097290	097310	097331	097352	097373	097394	30
30	097415	097436	097456	097477	097498	097519	29
31	097540	097561	097582	097603	097624	097644	28
32	097665	097686	097707	097728	097749	097770	27
33	097791	097812	097833	097853	097874	097895	26
34	097916	097937	097958	097979	098000	098021	25
35	098042	098063	098084	098105	098126	098147	24
36	098167	098188	098209	098230	098251	098272	23
37	098293	098314	098335	098356	098377	098398	22
38	098419	098440	098461	098482	098503	098524	21
39	098545	098566	098587	098608	098629	098650	20
40	098671	098692	098713	098734	098755	098776	19
41	098797	098818	098839	098860	098881	098902	18
42	098923	098944	098965	098986	099007	099028	17
43	099049	099070	099091	099112	099133	099154	16
44	099175	099196	099218	099239	099260	099281	15
45	099302	099323	099344	099365	099386	099407	14
46	099428	099449	099470	099491	099512	099534	13
47	099555	099576	099597	099618	099639	099660	12
48	099681	099702	099723	099745	099766	099787	11
49	099808	099829	099850	099871	099892	099913	10
50	099935	099956	099977	099998	100019	100040	9
51	100061	100083	100104	100125	100146	100167	8
52	100188	100209	100231	100252	100273	100294	7
53	100315	100336	100358	100379	100400	100421	6
54	100442	100463	100485	100506	100527	100548	5
55	100569	100591	100612	100633	100654	100675	4
56	100696	100718	100739	100760	100781	100803	3
57	100824	100845	100866	100887	100909	100930	2
58	100951	100972	100994	101015	101036	101057	1
59	101078	101100	101121	101142	101163	101185	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 64 degrees, or Versed Sine Supplement of 154 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	13	15	17	19

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 26 degrees, or Co-versed sine of 116 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	101206	101227	101248	101270	101291	101312	59
1	101334	101355	101376	101397	101419	101440	58
2	101461	101482	101504	101525	101546	101568	57
3	101589	101610	101631	101653	101674	101695	56
4	101717	101738	101759	101781	101802	101823	55
5	101844	101866	101887	101908	101930	101951	54
6	101972	101994	102015	102036	102058	102079	53
7	102100	102122	102143	102164	102186	102207	52
8	102229	102250	102271	102293	102314	102335	51
9	102357	102378	102399	102421	102442	102464	50
10	102485	102506	102528	102549	102570	102592	49
11	102613	102635	102656	102677	102699	102720	48
12	102742	102763	102784	102806	102827	102849	47
13	102870	102892	102913	102934	102956	102977	46
14	102999	103020	103042	103063	103084	103106	45
15	103127	103149	103170	103192	103213	103234	44
16	103256	103277	103299	103320	103342	103363	43
17	103385	103406	103428	103449	103471	103492	42
18	103514	103535	103557	103578	103600	103621	41
19	103642	103664	103685	103707	103728	103750	40
20	103771	103793	103815	103836	103858	103879	39
21	103901	103922	103944	103965	103987	104008	38
22	104030	104051	104073	104094	104116	104137	37
23	104159	104180	104202	104224	104245	104267	36
24	104288	104310	104331	104353	104374	104396	35
25	104418	104439	104461	104482	104504	104525	34
26	104547	104569	104590	104612	104633	104655	33
27	104677	104698	104720	104741	104763	104785	32
28	104806	104828	104849	104871	104893	104914	31
29	104936	104958	104979	105001	105022	105044	30
30	105066	105087	105109	105131	105152	105174	29
31	105195	105217	105239	105260	105282	105304	28
32	105325	105347	105369	105390	105412	105434	27
33	105455	105477	105499	105520	105542	105564	26
34	105585	105607	105629	105650	105672	105694	25
35	105716	105737	105759	105781	105802	105824	24
36	105846	105867	105889	105911	105933	105954	23
37	105976	105998	106019	106041	106063	106085	22
38	106106	106128	106150	106172	106193	106215	21
39	106237	106259	106280	106302	106324	106346	20
40	106367	106389	106411	106433	106454	106476	19
41	106498	106520	106541	106563	106585	106607	18
42	106629	106650	106672	106694	106716	106738	17
43	106759	106781	106803	106825	106847	106868	16
44	106890	106912	106934	106956	106977	106999	15
45	107021	107043	107065	107087	107108	107130	14
46	107152	107174	107196	107218	107239	107261	13
47	107283	107305	107327	107349	107370	107392	12
48	107414	107436	107458	107480	107502	107524	11
49	107545	107567	107589	107611	107633	107655	10
50	107677	107699	107720	107742	107764	107786	9
51	107808	107830	107852	107874	107896	107917	8
52	107939	107961	107983	108005	108027	108049	7
53	108071	108093	108115	108137	108159	108181	6
54	108202	108224	108246	108268	108290	108312	5
55	108334	108356	108378	108400	108422	108444	4
56	108466	108488	108510	108532	108554	108576	3
57	108598	108620	108642	108664	108686	108708	2
58	108730	108751	108773	108795	108817	108839	1
59	108861	108883	108905	108927	108949	108971	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 63 degrees, or Versed Sine Supplement of 153 degrees.						
Propor. parts.	1″ 2	2″ 4	3″ 6	4″ 9	5″ 11	6″ 13	7″ 15	8″ 17	9″ 19

Minutes	Natural Versed Sine of 27 degrees, or Co-versed Sine of 117 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	108993	109015	109038	109060	109082	109104	59
1	109126	109148	109170	109192	109214	109236	58
2	109258	109280	109302	109324	109346	109368	57
3	109390	109412	109434	109456	109478	109500	56
4	109522	109544	109567	109589	109611	109633	55
5	109655	109677	109699	109721	109743	109765	54
6	109787	109809	109831	109853	109876	109898	53
7	109920	109942	109964	109986	110008	110030	52
8	110052	110074	110097	110119	110141	110163	51
9	110185	110207	110229	110251	110274	110296	50
10	110318	110340	110362	110384	110406	110429	49
11	110451	110473	110495	110517	110539	110561	48
12	110584	110606	110628	110650	110672	110694	47
13	110717	110739	110761	110783	110805	110828	46
14	110850	110872	110894	110916	110938	110961	45
15	110983	111005	111027	111049	111072	111094	44
16	111116	111138	111161	111183	111205	111227	43
17	111249	111272	111294	111316	111338	111361	42
18	111383	111405	111427	111449	111472	111494	41
19	111516	111538	111561	111583	111605	111627	40
20	111650	111672	111694	111717	111739	111761	39
21	111783	111806	111828	111850	111872	111895	38
22	111917	111939	111962	111984	112006	112028	37
23	112051	112073	112095	112118	112140	112162	36
24	112185	112207	112229	112252	112274	112296	35
25	112319	112341	112363	112385	112408	112430	34
26	112452	112475	112497	112520	112542	112564	33
27	112587	112609	112631	112654	112676	112698	32
28	112721	112743	112765	112788	112810	112833	31
29	112855	112877	112900	112922	112944	112967	30
30	112989	113012	113034	113056	113079	113101	29
31	113124	113146	113168	113191	113213	113236	28
32	113258	113280	113303	113325	113348	113370	27
33	113392	113415	113437	113460	113482	113505	26
34	113527	113549	113572	113594	113617	113639	25
35	113662	113684	113707	113729	113752	113774	24
36	113796	113819	113841	113864	113886	113909	23
37	113931	113954	113976	113999	114021	114044	22
38	114066	114089	114111	114134	114156	114179	21
39	114201	114224	114246	114269	114291	114314	20
40	114336	114359	114381	114404	114426	114449	19
41	114471	114494	114516	114539	114561	114584	18
42	114606	114629	114651	114674	114697	114719	17
43	114742	114764	114787	114809	114832	114854	16
44	114877	114900	114922	114945	114967	114990	15
45	115012	115035	115058	115080	115103	115125	14
46	115148	115170	115193	115216	115238	115261	13
47	115283	115306	115329	115351	115374	115396	12
48	115419	115442	115464	115487	115509	115532	11
49	115555	115577	115600	115623	115645	115668	10
50	115691	115713	115736	115758	115781	115804	9
51	115826	115849	115872	115894	115917	115940	8
52	115962	115985	116008	116030	116053	116076	7
53	116098	116121	116144	116166	116189	116212	6
54	116234	116257	116280	116302	116325	116348	5
55	116371	116393	116416	116439	116461	116484	4
56	116507	116529	116552	116575	116598	116620	3
57	116643	116666	116689	116711	116734	116757	2
58	116779	116802	116825	116848	116870	116893	1
59	116916	116939	116961	116984	117007	117030	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 62 degrees, or Versed Sine Supplement of 152 degrees.						
Propor. parts.	1″ 2	2″ 4	3″ 7	4″ 9	5″ 11	6″ 13	7″ 16	8″ 18	9″ 20

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 28 degrees, or Co-versed Sine of 118 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	117052	117075	117098	117121	117143	117166	59
1	117189	117212	117235	117257	117280	117303	58
2	117326	117348	117371	117394	117417	117440	57
3	117462	117485	117508	117531	117554	117576	56
4	117599	117622	117645	117668	117691	117713	55
5	117736	117759	117782	117805	117827	117850	54
6	117873	117896	117919	117942	117964	117987	53
7	118010	118033	118056	118079	118102	118124	52
8	118147	118170	118193	118216	118239	118262	51
9	118284	118307	118330	118353	118376	118399	50
10	118422	118445	118468	118490	118513	118536	49
11	118559	118582	118605	118628	118651	118674	48
12	118697	118719	118742	118765	118788	118811	47
13	118834	118857	118880	118903	118926	118949	46
14	118972	118995	119017	119040	119063	119086	45
15	119109	119132	119155	119178	119201	119224	44
16	119247	119270	119293	119316	119339	119362	43
17	119385	119408	119431	119454	119477	119500	42
18	119523	119546	119569	119592	119615	119638	41
19	119661	119684	119707	119730	119753	119776	40
20	119799	119822	119845	119868	119891	119914	39
21	119937	119960	119983	120006	120029	120052	38
22	120075	120098	120121	120144	120167	120190	37
23	120213	120236	120259	120282	120305	120328	36
24	120351	120374	120398	120421	120444	120467	35
25	120490	120513	120536	120559	120582	120605	34
26	120628	120651	120674	120698	120721	120744	33
27	120767	120790	120813	120836	120859	120882	32
28	120905	120929	120952	120975	120998	121021	31
29	121044	121067	121090	121113	121137	121160	30
30	121183	121206	121229	121252	121275	121299	29
31	121322	121345	121368	121391	121414	121437	28
32	121461	121484	121507	121530	121553	121576	27
33	121600	121623	121646	121669	121692	121715	26
34	121739	121762	121785	121808	121831	121855	25
35	121878	121901	121924	121947	121971	121994	24
36	122017	122040	122063	122087	122110	122133	23
37	122156	122180	122203	122226	122249	122272	22
38	122296	122319	122342	122365	122389	122412	21
39	122435	122458	122482	122505	122528	122551	20
40	122575	122598	122621	122644	122668	122691	19
41	122714	122737	122761	122784	122807	122831	18
42	122854	122877	122900	122924	122947	122970	17
43	122994	123017	123040	123063	123087	123110	16
44	123133	123157	123180	123203	123227	123250	15
45	123273	123297	123320	123343	123367	123390	14
46	123413	123437	123460	123483	123507	123530	13
47	123553	123577	123600	123623	123647	123670	12
48	123693	123717	123740	123763	123787	123810	11
49	123833	123857	123880	123904	123927	123950	10
50	123974	123997	124021	124044	124067	124091	9
51	124114	124137	124161	124184	124208	124231	8
52	124254	124278	124301	124325	124348	124372	7
53	124395	124418	124442	124465	124489	124512	6
54	124535	124559	124582	124606	124629	124653	5
55	124676	124700	124723	124746	124770	124793	4
56	124817	124840	124864	124887	124911	124934	3
57	124958	124981	125004	125028	125051	125075	2
58	125098	125122	125145	125169	125192	125216	1
59	125239	125263	125286	125310	125333	125357	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 61 degrees, or Versed Sine Supplement of 151 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	9	12	14	16	18	21

Minutes	Natural Versed Sine of 29 degrees, or Co-versed Sine of 119 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	125380	125404	125427	125451	125474	125498	59
1	125521	125545	125568	125592	125615	125639	58
2	125662	125686	125710	125733	125757	125780	57
3	125804	125827	125851	125874	125898	125921	56
4	125945	125969	125992	126016	126039	126063	55
5	126086	126110	126133	126157	126181	126204	54
6	126228	126251	126275	126299	126322	126346	53
7	126369	126393	126416	126440	126464	126487	52
8	126511	126534	126558	126582	126605	126629	51
9	126653	126676	126700	126723	126747	126771	50
10	126794	126818	126842	126865	126889	126912	49
11	126936	126960	126983	127007	127031	127054	48
12	127078	127102	127125	127149	127173	127196	47
13	127220	127244	127267	127291	127315	127338	46
14	127362	127386	127409	127433	127457	127480	45
15	127504	127528	127551	127575	127599	127622	44
16	127646	127670	127694	127717	127741	127765	43
17	127788	127812	127836	127860	127883	127907	42
18	127931	127954	127978	128002	128026	128049	41
19	128073	128097	128121	128144	128168	128192	40
20	128216	128239	128263	128287	128311	128334	39
21	128358	128382	128406	128429	128453	128477	38
22	128501	128525	128548	128572	128596	128620	37
23	128643	128667	128691	128715	128739	128762	36
24	128786	128810	128834	128858	128881	128905	35
25	128929	128953	128977	129000	129024	129048	34
26	129072	129096	129120	129143	129167	129191	33
27	129215	129239	129263	129286	129310	129334	32
28	129358	129382	129406	129430	129453	129477	31
29	129501	129525	129549	129573	129597	129620	30
30	129644	129668	129692	129716	129740	129764	29
31	129788	129811	129835	129859	129883	129907	28
32	129931	129955	129979	130003	130027	130050	27
33	130074	130098	130122	130146	130170	130194	26
34	130218	130242	130266	130290	130314	130337	25
35	130361	130385	130409	130433	130457	130481	24
36	130505	130529	130553	130577	130601	130625	23
37	130649	130673	130697	130721	130745	130769	22
38	130793	130817	130841	130865	130888	130912	21
39	130936	130960	130984	131008	131032	131056	20
40	131080	131104	131128	131152	131176	131200	19
41	131224	131248	131272	131296	131320	131344	18
42	131368	131393	131417	131441	131465	131489	17
43	131513	131537	131561	131585	131609	131633	16
44	131657	131681	131705	131729	131753	131777	15
45	131801	131825	131849	131873	131897	131921	14
46	131946	131970	131994	132018	132042	132066	13
47	132090	132114	132138	132162	132186	132210	12
48	132235	132259	132283	132307	132331	132355	11
49	132379	132403	132427	132451	132476	132500	10
50	132524	132548	132572	132596	132620	132644	9
51	132669	132693	132717	132741	132765	132789	8
52	132813	132838	132862	132886	132910	132934	7
53	132958	132982	133007	133031	133055	133079	6
54	133103	133127	133152	133176	133200	133224	5
55	133248	133272	133297	133321	133345	133369	4
56	133393	133418	133442	133466	133490	133514	3
57	133539	133563	133587	133611	133635	133660	2
58	133684	133708	133732	133756	133781	133805	1
59	133829	133853	133878	133902	133926	133950	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 60 degrees, or Versed Sine Supplement of 150 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	10	12	14	17	19	21

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 30 degrees, or Co-versed Sine of 120 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	133975	133999	134023	134047	134072	134096	59
1	134120	134144	134169	134193	134217	134241	58
2	134266	134290	134314	134338	134363	134387	57
3	134411	134436	134460	134484	134508	134533	56
4	134557	134581	134606	134630	134654	134678	55
5	134703	134727	134751	134776	134800	134824	54
6	134849	134873	134897	134922	134946	134970	53
7	134994	135019	135043	135067	135092	135116	52
8	135140	135165	135189	135213	135238	135262	51
9	135287	135311	135335	135360	135384	135408	50
10	135433	135457	135481	135506	135530	135555	49
11	135579	135603	135628	135652	135676	135701	48
12	135725	135750	135774	135798	135823	135847	47
13	135872	135896	135920	135945	135969	135994	46
14	136018	136042	136067	136091	136116	136140	45
15	136164	136189	136213	136238	136262	136287	44
16	136311	136336	136360	136384	136409	136433	43
17	136458	136482	136507	136531	136556	136580	42
18	136604	136629	136653	136678	136702	136727	41
19	136751	136776	136800	136825	136849	136874	40
20	136898	136923	136947	136972	136996	137021	39
21	137045	137070	137094	137119	137143	137168	38
22	137192	137217	137241	137266	137290	137315	37
23	137339	137364	137388	137413	137437	137462	36
24	137486	137511	137535	137560	137584	137609	35
25	137634	137658	137683	137707	137732	137756	34
26	137781	137805	137830	137855	137879	137904	33
27	137928	137953	137977	138002	138027	138051	32
28	138076	138100	138125	138149	138174	138199	31
29	138223	138248	138272	138297	138322	138346	30
30	138371	138395	138420	138445	138469	138494	29
31	138519	138543	138568	138592	138617	138642	28
32	138666	138691	138716	138740	138765	138790	27
33	138814	138839	138863	138888	138913	138937	26
34	138962	138987	139011	139036	139061	139085	25
35	139110	139135	139159	139184	139209	139233	24
36	139258	139283	139307	139332	139357	139381	23
37	139406	139431	139455	139480	139505	139530	22
38	139554	139579	139604	139628	139653	139678	21
39	139703	139727	139752	139777	139801	139826	20
40	139851	139876	139900	139925	139950	139975	19
41	139999	140024	140049	140073	140098	140123	18
42	140148	140172	140197	140222	140247	140272	17
43	140296	140321	140346	140371	140395	140420	16
44	140445	140470	140494	140519	140544	140569	15
45	140594	140618	140643	140668	140692	140717	14
46	140742	140767	140792	140817	140842	140866	13
47	140891	140916	140941	140966	140991	141015	12
48	141040	141065	141090	141115	141140	141164	11
49	141189	141214	141239	141264	141288	141313	10
50	141338	141363	141388	141413	141438	141462	9
51	141487	141512	141537	141562	141587	141612	8
52	141636	141661	141686	141711	141736	141761	7
53	141786	141811	141836	141860	141885	141910	6
54	141935	141960	141985	142010	142035	142060	5
55	142085	142109	142134	142159	142184	142209	4
56	142234	142259	142284	142309	142334	142359	3
57	142384	142409	142434	142459	142483	142508	2
58	142533	142558	142583	142608	142633	142658	1
59	142683	142708	142733	142758	142783	142808	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 59 degrees, or Versed Sine Supplement of 149 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	10	12	15	17	20	22

Minutes	Natural Versed Sine of 31 degrees, or Co-versed Sine of 121 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	142833	142858	142883	142908	142933	142958	59
1	142983	143008	143033	143058	143082	143107	58
2	143132	143157	143182	143207	143232	143257	57
3	143282	143307	143332	143358	143383	143408	56
4	143433	143458	143483	143508	143533	143558	55
5	143583	143608	143633	143658	143683	143708	54
6	143733	143758	143783	143808	143833	143858	53
7	143883	143908	143933	143958	143983	144009	52
8	144034	144059	144084	144109	144134	144159	51
9	144184	144209	144234	144259	144284	144309	50
10	144335	144360	144385	144410	144435	144460	49
11	144485	144510	144535	144560	144586	144611	48
12	144636	144661	144686	144711	144736	144761	47
13	144786	144812	144837	144862	144887	144912	46
14	144937	144962	144988	145013	145038	145063	45
15	145088	145113	145138	145164	145189	145214	44
16	145239	145264	145289	145315	145340	145365	43
17	145390	145415	145440	145466	145491	145516	42
18	145541	145566	145592	145617	145642	145667	41
19	145692	145718	145743	145768	145793	145818	40
20	145844	145869	145894	145919	145944	145970	39
21	145995	146020	146045	146071	146096	146121	38
22	146146	146171	146197	146222	146247	146272	37
23	146298	146323	146348	146373	146399	146424	36
24	146449	146474	146500	146525	146550	146576	35
25	146601	146626	146651	146677	146702	146727	34
26	146752	146778	146803	146828	146854	146879	33
27	146904	146929	146955	146980	147005	147031	32
28	147056	147081	147107	147132	147157	147183	31
29	147208	147233	147259	147284	147309	147335	30
30	147360	147385	147411	147436	147461	147487	29
31	147512	147537	147563	147588	147613	147638	28
32	147664	147689	147715	147740	147765	147791	27
33	147816	147841	147867	147892	147918	147943	26
34	147968	147994	148019	148045	148070	148095	25
35	148121	148146	148171	148197	148222	148248	24
36	148273	148298	148324	148349	148375	148400	23
37	148425	148451	148476	148502	148527	148553	22
38	148578	148603	148629	148654	148680	148705	21
39	148731	148756	148782	148807	148832	148858	20
40	148883	148909	148934	148960	148985	149011	19
41	149036	149062	149087	149112	149138	149163	18
42	149189	149214	149240	149265	149291	149316	17
43	149342	149367	149393	149418	149444	149469	16
44	149495	149520	149546	149571	149597	149622	15
45	149648	149673	149699	149724	149750	149775	14
46	149801	149826	149852	149877	149903	149929	13
47	149954	149980	150005	150031	150056	150082	12
48	150107	150133	150158	150184	150210	150235	11
49	150261	150286	150312	150337	150363	150388	10
50	150414	150440	150465	150491	150516	150542	9
51	150567	150593	150619	150644	150670	150695	8
52	150721	150747	150772	150798	150823	150849	7
53	150875	150900	150926	150951	150977	151003	6
54	151028	151054	151080	151105	151131	151156	5
55	151182	151208	151233	151259	151285	151310	4
56	151336	151362	151387	151413	151438	151464	3
57	151490	151515	151541	151567	151592	151618	2
58	151644	151669	151695	151721	151746	151772	1
59	151798	151823	151849	151875	151901	151926	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 58 degrees, or Versed Sine Supplement of 148 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	10	13	15	18	20	23

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NATURAL VERSED SINES.

Natural Versed Sine of 32 degrees, or Co-versed Sine of 122 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	151952	151978	152003	152029	152055	152080	59
1	152106	152132	152157	152183	152209	152235	58
2	152260	152286	152312	152337	152363	152389	57
3	152415	152440	152466	152492	152518	152544	56
4	152569	152595	152621	152646	152672	152698	55
5	152724	152749	152775	152801	152826	152852	54
6	152878	152904	152930	152955	152981	153007	53
7	153033	153058	153084	153110	153136	153162	52
8	153187	153213	153239	153265	153291	153316	51
9	153342	153368	153394	153420	153445	153471	50
10	153497	153523	153549	153574	153600	153626	49
11	153652	153678	153704	153729	153755	153781	48
12	153807	153833	153859	153884	153910	153936	47
13	153962	153988	154014	154039	154065	154091	46
14	154117	154143	154169	154195	154220	154246	45
15	154272	154298	154324	154350	154376	154402	44
16	154427	154453	154479	154505	154531	154557	43
17	154583	154609	154635	154660	154686	154712	42
18	154738	154764	154790	154816	154842	154868	41
19	154894	154920	154945	154971	154997	155023	40
20	155049	155075	155101	155127	155153	155179	39
21	155205	155231	155257	155283	155309	155335	38
22	155360	155386	155412	155438	155464	155490	37
23	155516	155542	155568	155594	155620	155646	36
24	155672	155698	155724	155750	155776	155802	35
25	155828	155854	155880	155906	155932	155958	34
26	155984	156010	156036	156062	156088	156114	33
27	156140	156166	156192	156218	156244	156270	32
28	156296	156322	156348	156374	156400	156426	31
29	156452	156478	156504	156530	156556	156583	30
30	156609	156635	156661	156687	156713	156739	29
31	156765	156791	156817	156843	156869	156895	28
32	156921	156947	156973	157000	157026	157052	27
33	157078	157104	157130	157156	157182	157208	26
34	157234	157260	157286	157313	157339	157365	25
35	157391	157417	157443	157469	157495	157521	24
36	157548	157574	157600	157626	157652	157678	23
37	157704	157730	157757	157783	157809	157835	22
38	157861	157887	157913	157940	157966	157992	21
39	158018	158044	158070	158097	158123	158149	20
40	158175	158201	158227	158254	158280	158306	19
41	158332	158358	158384	158411	158437	158463	18
42	158489	158515	158542	158568	158594	158620	17
43	158646	158673	158699	158725	158751	158777	16
44	158804	158830	158856	158882	158909	158935	15
45	158961	158987	159013	159040	159066	159092	14
46	159118	159145	159171	159197	159223	159250	13
47	159276	159302	159328	159355	159381	159407	12
48	159433	159460	159486	159512	159538	159565	11
49	159591	159617	159644	159670	159696	159722	10
50	159749	159775	159801	159828	159854	159880	9
51	159906	159933	159959	159985	160012	160038	8
52	160064	160091	160117	160143	160170	160196	7
53	160222	160248	160275	160301	160327	160354	6
54	160380	160406	160433	160459	160485	160512	5
55	160538	160565	160591	160617	160644	160670	4
56	160696	160723	160749	160775	160802	160828	3
57	160854	160881	160907	160934	160960	160986	2
58	161013	161039	161065	161092	161118	161145	1
59	161171	161197	161224	161250	161277	161303	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 57 degrees, or Versed Sine Supplement of 147 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	10	13	16	18	21	23

Natural Versed Sine of 33 degrees, or Co-versed Sine of 123 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	161329	161356	161382	161409	161435	161461	59
1	161488	161514	161541	161567	161594	161620	58
2	161646	161673	161699	161726	161752	161779	57
3	161805	161831	161858	161884	161911	161937	56
4	161964	161990	162017	162043	162070	162096	55
5	162122	162149	162175	162202	162228	162255	54
6	162281	162308	162334	162361	162387	162414	53
7	162440	162467	162493	162520	162546	162573	52
8	162599	162626	162652	162679	162705	162732	51
9	162758	162785	162811	162838	162864	162891	50
10	162918	162944	162970	162997	163023	163050	49
11	163076	163103	163130	163156	163183	163209	48
12	163236	163262	163289	163315	163342	163368	47
13	163395	163422	163448	163475	163501	163528	46
14	163554	163581	163608	163634	163661	163687	45
15	163714	163740	163767	163794	163820	163847	44
16	163873	163900	163927	163953	163980	164006	43
17	164033	164060	164086	164113	164139	164166	42
18	164193	164219	164246	164272	164299	164326	41
19	164352	164379	164406	164432	164459	164486	40
20	164512	164539	164565	164592	164619	164645	39
21	164672	164699	164725	164752	164779	164805	38
22	164832	164859	164885	164912	164939	164965	37
23	164992	165019	165045	165072	165099	165125	36
24	165152	165179	165206	165232	165259	165286	35
25	165312	165339	165366	165392	165419	165446	34
26	165473	165499	165526	165553	165579	165606	33
27	165633	165660	165686	165713	165740	165766	32
28	165793	165820	165847	165873	165900	165927	31
29	165954	165980	166007	166034	166061	166087	30
30	166114	166141	166168	166194	166221	166248	29
31	166275	166302	166328	166355	166382	166409	28
32	166435	166462	166489	166516	166543	166569	27
33	166596	166623	166650	166677	166703	166730	26
34	166757	166784	166811	166837	166864	166891	25
35	166918	166945	166971	166998	167025	167052	24
36	167079	167106	167132	167159	167186	167213	23
37	167240	167267	167293	167320	167347	167374	22
38	167401	167428	167455	167482	167508	167535	21
39	167562	167589	167616	167643	167669	167696	20
40	167723	167750	167777	167804	167831	167858	19
41	167885	167911	167938	167965	167992	168019	18
42	168046	168073	168100	168127	168153	168180	17
43	168207	168234	168261	168288	168315	168342	16
44	168369	168396	168423	168450	168477	168503	15
45	168530	168557	168584	168611	168638	168665	14
46	168692	168719	168746	168773	168800	168827	13
47	168854	168881	168908	168935	168962	168989	12
48	169016	169043	169069	169096	169123	169150	11
49	169177	169204	169231	169258	169285	169312	10
50	169339	169366	169393	169420	169447	169474	9
51	169501	169528	169555	169582	169609	169636	8
52	169663	169690	169717	169744	169771	169798	7
53	169826	169853	169880	169907	169934	169961	6
54	169988	170015	170042	170069	170096	170123	5
55	170150	170177	170204	170231	170258	170285	4
56	170312	170339	170366	170394	170421	170448	3
57	170475	170502	170529	170556	170583	170610	2
58	170637	170664	170691	170719	170746	170773	1
59	170800	170827	170854	170881	170908	170935	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 56 degrees, or Versed Sine Supplement of 146 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	11	13	16	19	22	24

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NATURAL VERSED SINES.

Natural Versed Sine of 34 degrees, or Co-versed sine of 124 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	170962	170990	171017	171044	171071	171098	59
1	171125	171152	171179	171207	171234	171261	58
2	171288	171315	171342	171369	171396	171424	57
3	171451	171478	171505	171532	171559	171586	56
4	171614	171641	171668	171695	171722	171749	55
5	171777	171804	171831	171858	171885	171912	54
6	171940	171967	171994	172021	172048	172076	53
7	172103	172130	172157	172184	172212	172239	52
8	172266	172293	172320	172348	172375	172402	51
9	172429	172456	172484	172511	172538	172565	50
10	172593	172620	172647	172674	172701	172729	49
11	172756	172783	172810	172838	172865	172892	48
12	172920	172947	172974	173001	173028	173056	47
13	173083	173110	173137	173165	173192	173219	46
14	173247	173274	173301	173328	173356	173383	45
15	173410	173438	173465	173492	173519	173547	44
16	173574	173601	173629	173656	173683	173711	43
17	173738	173765	173792	173820	173847	173874	42
18	173902	173929	173956	173984	174011	174038	41
19	174066	174093	174120	174148	174175	174202	40
20	174230	174257	174284	174312	174339	174366	39
21	174394	174421	174449	174476	174503	174531	38
22	174558	174585	174613	174640	174667	174695	37
23	174722	174750	174777	174804	174832	174859	36
24	174887	174914	174941	174969	174996	175023	35
25	175051	175078	175106	175133	175161	175188	34
26	175215	175243	175270	175298	175325	175352	33
27	175380	175407	175435	175462	175490	175517	32
28	175544	175572	175599	175627	175654	175682	31
29	175709	175737	175764	175791	175819	175846	30
30	175874	175901	175929	175956	175984	176011	29
31	176039	176066	176094	176121	176149	176176	28
32	176203	176231	176258	176286	176313	176341	27
33	176368	176396	176423	176451	176478	176506	26
34	176533	176561	176588	176616	176643	176671	25
35	176698	176726	176754	176781	176809	176836	24
36	176864	176891	176919	176946	176974	177001	23
37	177029	177056	177084	177111	177139	177167	22
38	177194	177222	177249	177277	177304	177332	21
39	177359	177387	177415	177442	177470	177497	20
40	177525	177552	177580	177608	177635	177663	19
41	177690	177718	177746	177773	177801	177828	18
42	177856	177884	177911	177939	177966	177994	17
43	178022	178049	178077	178104	178132	178160	16
44	178187	178215	178243	178270	178298	178325	15
45	178353	178381	178408	178436	178464	178491	14
46	178519	178547	178574	178602	178630	178657	13
47	178685	178712	178740	178768	178795	178823	12
48	178851	178878	178906	178934	178961	178989	11
49	179017	179045	179072	179100	179128	179155	10
50	179183	179211	179238	179266	179294	179321	9
51	179349	179377	179405	179432	179460	179488	8
52	179515	179543	179571	179599	179626	179654	7
53	179682	179709	179737	179765	179793	179820	6
54	179848	179876	179904	179931	179959	179987	5
55	180015	180042	180070	180098	180126	180153	4
56	180181	180209	180237	180264	180292	180320	3
57	180348	180376	180403	180431	180459	180487	2
58	180514	180542	180570	180598	180626	180653	1
59	180681	180709	180737	180765	180792	180820	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 55 degrees, or Versed Sine Supplement of 145 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	11	14	16	19	22	25

Natural Versed Sine of 35 degrees, or Co-versed Sine of 125 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	180848	180876	180904	180931	180959	180987	59
1	181015	181043	181070	181098	181126	181154	58
2	181182	181210	181237	181265	181293	181321	57
3	181349	181377	181404	181432	181460	181488	56
4	181516	181544	181572	181599	181627	181655	55
5	181683	181711	181739	181767	181795	181822	54
6	181850	181878	181906	181934	181962	181990	53
7	182018	182045	182073	182101	182129	182157	52
8	182185	182213	182241	182269	182297	182324	51
9	182352	182380	182408	182436	182464	182492	50
10	182520	182548	182576	182604	182632	182660	49
11	182687	182715	182743	182771	182799	182827	48
12	182855	182883	182911	182939	182967	182995	47
13	183023	183051	183079	183107	183135	183163	46
14	183191	183219	183247	183275	183302	183330	45
15	183358	183386	183414	183442	183470	183498	44
16	183526	183554	183582	183610	183638	183666	43
17	183694	183722	183750	183778	183806	183834	42
18	183862	183890	183918	183946	183974	184003	41
19	184031	184059	184087	184115	184143	184171	40
20	184199	184227	184255	184283	184311	184339	39
21	184367	184395	184423	184451	184479	184507	38
22	184535	184563	184591	184620	184648	184676	37
23	184704	184732	184760	184788	184816	184844	36
24	184872	184900	184928	184956	184985	185013	35
25	185041	185069	185097	185125	185153	185181	34
26	185209	185237	185266	185294	185322	185350	33
27	185378	185406	185434	185462	185491	185519	32
28	185547	185575	185603	185631	185659	185687	31
29	185716	185744	185772	185800	185828	185856	30
30	185884	185913	185941	185969	185997	186025	29
31	186053	186082	186110	186138	186166	186194	28
32	186222	186251	186279	186307	186335	186363	27
33	186392	186420	186448	186476	186504	186533	26
34	186561	186589	186617	186645	186674	186702	25
35	186730	186758	186786	186815	186843	186871	24
36	186899	186927	186956	186984	187012	187040	23
37	187069	187097	187125	187153	187182	187210	22
38	187238	187266	187295	187323	187351	187379	21
39	187408	187436	187464	187492	187521	187549	20
40	187577	187605	187634	187662	187690	187718	19
41	187747	187775	187803	187832	187860	187888	18
42	187916	187945	187973	188001	188030	188058	17
43	188086	188115	188143	188171	188199	188228	16
44	188256	188284	188313	188341	188369	188398	15
45	188426	188454	188483	188511	188539	188568	14
46	188596	188624	188653	188681	188709	188738	13
47	188766	188794	188823	188851	188879	188908	12
48	188936	188965	188993	189021	189050	189078	11
49	189106	189135	189163	189191	189220	189248	10
50	189277	189305	189333	189362	189390	189419	9
51	189447	189475	189504	189532	189561	189589	8
52	189617	189646	189674	189703	189731	189759	7
53	189788	189816	189845	189873	189902	189930	6
54	189958	189987	190015	190044	190072	190101	5
55	190129	190157	190186	190214	190243	190271	4
56	190300	190328	190357	190385	190413	190442	3
57	190470	190499	190527	190556	190584	190613	2
58	190641	190670	190698	190727	190755	190784	1
59	190812	190841	190869	190898	190926	190955	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 54 degrees, or Versed Sine Supplement of 144 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	8	11	14	17	20	22	25

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 36 degrees, or Co-versed sine of 126 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	190983	191012	191040	191069	191097	191126	59
1	191154	191183	191211	191240	191268	191297	58
2	191325	191354	191382	191411	191439	191468	57
3	191496	191525	191553	191582	191610	191639	56
4	191667	191696	191725	191753	191782	191810	55
5	191839	191867	191896	191924	191953	191982	54
6	192010	192039	192067	192096	192124	192153	53
7	192182	192210	192239	192267	192296	192324	52
8	192353	192382	192410	192439	192467	192496	51
9	192525	192553	192582	192610	192639	192668	50
10	192696	192725	192753	192782	192811	192839	49
11	192868	192897	192925	192954	192982	193011	48
12	193040	193068	193097	193126	193154	193183	47
13	193212	193240	193269	193297	193326	193355	46
14	193383	193412	193441	193469	193498	193527	45
15	193555	193584	193613	193641	193670	193699	44
16	193727	193756	193785	193813	193842	193871	43
17	193900	193928	193957	193986	194014	194043	42
18	194072	194100	194129	194158	194187	194215	41
19	194244	194273	194301	194330	194359	194388	40
20	194416	194445	194474	194502	194531	194560	39
21	194589	194617	194646	194675	194704	194732	38
22	194761	194790	194819	194847	194876	194905	37
23	194934	194962	194991	195020	195049	195077	36
24	195106	195135	195164	195193	195221	195250	35
25	195279	195308	195336	195365	195394	195423	34
26	195452	195480	195509	195538	195567	195596	33
27	195624	195653	195682	195711	195740	195768	32
28	195797	195826	195855	195884	195912	195941	31
29	195970	195999	196028	196057	196085	196114	30
30	196143	196172	196201	196230	196259	196287	29
31	196316	196345	196374	196403	196432	196460	28
32	196489	196518	196547	196576	196605	196634	27
33	196663	196691	196720	196749	196778	196807	26
34	196836	196865	196894	196922	196951	196980	25
35	197009	197038	197067	197096	197125	197154	24
36	197183	197211	197240	197269	197298	197327	23
37	197356	197385	197414	197443	197472	197501	22
38	197530	197558	197587	197616	197645	197674	21
39	197703	197732	197761	197790	197819	197848	20
40	197877	197906	197935	197964	197993	198022	19
41	198051	198080	198108	198137	198166	198195	18
42	198224	198253	198282	198311	198340	198369	17
43	198398	198427	198456	198485	198514	198543	16
44	198572	198601	198630	198659	198688	198717	15
45	198746	198775	198804	198833	198862	198891	14
46	198920	198949	198978	199007	199036	199065	13
47	199094	199123	199152	199181	199211	199240	12
48	199269	199298	199327	199356	199385	199414	11
49	199443	199472	199501	199530	199559	199588	10
50	199617	199646	199675	199704	199734	199763	9
51	199792	199821	199850	199879	199908	199937	8
52	199966	199995	200024	200054	200083	200112	7
53	200141	200170	200199	200228	200257	200286	6
54	200315	200344	200374	200403	200432	200461	5
55	200490	200519	200548	200577	200607	200636	4
56	200665	200694	200723	200752	200781	200810	3
57	200840	200869	200898	200927	200956	200985	2
58	201015	201044	201073	201102	201131	201160	1
59	201189	201219	201248	201277	201306	201335	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 53 degrees, or Versed Sine Supplement of 143 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	14	17	20	23	26

Minutes	Natural Versed Sine of 37 degrees, or Co-versed Sine of 127 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	201364	201394	201423	201452	201481	201510	59
1	201540	201569	201598	201627	201656	201686	58
2	201715	201744	201773	201802	201832	201861	57
3	201890	201919	201948	201978	202007	202036	56
4	202065	202094	202124	202153	202182	202211	55
5	202241	202270	202299	202328	202358	202387	54
6	202416	202445	202475	202504	202533	202562	53
7	202592	202621	202650	202679	202709	202738	52
8	202767	202796	202826	202855	202884	202913	51
9	202943	202972	203001	203031	203060	203089	50
10	203118	203148	203177	203206	203236	203265	49
11	203294	203324	203353	203382	203411	203441	48
12	203470	203499	203528	203558	203587	203617	47
13	203646	203675	203705	203734	203763	203793	46
14	203822	203851	203881	203910	203939	203969	45
15	203998	204027	204057	204086	204115	204145	44
16	204174	204203	204233	204262	204292	204321	43
17	204350	204380	204409	204438	204468	204497	42
18	204527	204556	204585	204615	204644	204673	41
19	204703	204732	204762	204791	204820	204850	40
20	204879	204909	204938	204967	204997	205026	39
21	205056	205085	205114	205144	205173	205203	38
22	205232	205262	205291	205320	205350	205379	37
23	205409	205438	205468	205497	205526	205556	36
24	205585	205615	205644	205674	205703	205733	35
25	205762	205792	205821	205850	205880	205909	34
26	205939	205968	205998	206027	206057	206086	33
27	206116	206145	206175	206204	206234	206263	32
28	206293	206322	206352	206381	206411	206440	31
29	206470	206499	206529	206558	206588	206617	30
30	206647	206676	206706	206735	206765	206794	29
31	206824	206853	206883	206912	206942	206971	28
32	207001	207030	207060	207090	207119	207149	27
33	207178	207208	207237	207267	207296	207326	26
34	207356	207385	207415	207444	207474	207503	25
35	207533	207562	207592	207622	207651	207681	24
36	207710	207740	207770	207799	207829	207858	23
37	207888	207917	207947	207977	208006	208036	22
38	208065	208095	208125	208154	208184	208213	21
39	208243	208273	208302	208332	208362	208391	20
40	208421	208450	208480	208510	208539	208569	19
41	208599	208628	208658	208688	208717	208747	18
42	208776	208806	208836	208865	208895	208925	17
43	208954	208984	209014	209043	209073	209103	16
44	209132	209162	209192	209221	209251	209281	15
45	209310	209340	209370	209399	209429	209459	14
46	209489	209518	209548	209578	209607	209637	13
47	209667	209696	209726	209756	209786	209815	12
48	209845	209875	209904	209934	209964	209994	11
49	210023	210053	210083	210112	210142	210172	10
50	210202	210231	210261	210291	210321	210350	9
51	210380	210410	210440	210469	210499	210529	8
52	210559	210588	210618	210648	210678	210707	7
53	210737	210767	210797	210827	210856	210886	6
54	210916	210946	210975	211005	211035	211065	5
55	211095	211124	211154	211184	211214	211244	4
56	211273	211303	211333	211363	211393	211422	3
57	211452	211482	211512	211542	211572	211601	2
58	211631	211661	211691	211721	211751	211780	1
59	211810	211840	211870	211900	211930	211959	0
Minutes	60″	50″	40″	30	20″	10	Minutes

Co-versed Sine of 52 degrees, or Versed Sine Supplement of 142 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

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NATURAL VERSED SINES.

Natural Versed Sine of 38 degrees, or Co-versed Sine of 128 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	212009	212019	212049	212079	212109	212139	59
1	212168	212198	212228	212258	212288	212318	58
2	212348	212377	212407	212437	212467	212497	57
3	212527	212557	212587	212616	212646	212676	56
4	212706	212736	212766	212796	212826	212856	55
5	212886	212915	212945	212975	213005	213035	54
6	213065	213095	213125	213155	213185	213215	53
7	213244	213274	213304	213334	213364	213394	52
8	213424	213454	213484	213514	213544	213574	51
9	213604	213634	213664	213694	213724	213754	50
10	213783	213813	213843	213873	213903	213933	49
11	213963	213993	214023	214053	214083	214113	48
12	214143	214173	214203	214233	214263	214293	47
13	214323	214353	214383	214413	214443	214473	46
14	214503	214533	214563	214593	214623	214653	45
15	214683	214713	214743	214773	214803	214833	44
16	214863	214893	214923	214953	214983	215013	43
17	215043	215073	215103	215133	215164	215194	42
18	215224	215254	215284	215314	215344	215374	41
19	215404	215434	215464	215494	215524	215554	40
20	215584	215614	215644	215675	215705	215735	39
21	215765	215795	215825	215855	215885	215915	38
22	215945	215975	216006	216036	216066	216096	37
23	216126	216156	216186	216216	216246	216276	36
24	216307	216337	216367	216397	216427	216457	35
25	216487	216517	216548	216578	216608	216638	34
26	216668	216698	216728	216758	216789	216819	33
27	216849	216879	216909	216939	216969	217000	32
28	217030	217060	217090	217120	217150	217181	31
29	217211	217241	217271	217301	217331	217362	30
30	217392	217422	217452	217482	217513	217543	29
31	217573	217603	217633	217664	217694	217724	28
32	217754	217784	217815	217845	217875	217905	27
33	217935	217966	217996	218026	218056	218086	26
34	218117	218147	218177	218207	218238	218268	25
35	218298	218328	218359	218389	218419	218449	24
36	218480	218510	218540	218570	218601	218631	23
37	218661	218691	218722	218752	218782	218812	22
38	218843	218873	218903	218933	218964	218994	21
39	219024	219055	219085	219115	219145	219176	20
40	219206	219236	219267	219297	219327	219357	19
41	219388	219418	219448	219479	219509	219539	18
42	219570	219600	219630	219661	219691	219721	17
43	219751	219782	219812	219842	219873	219903	16
44	219933	219964	219994	220024	220055	220085	15
45	220116	220146	220176	220207	220237	220267	14
46	220298	220328	220358	220389	220419	220449	13
47	220480	220510	220541	220571	220601	220632	12
48	220662	220692	220723	220753	220784	220814	11
49	220844	220875	220905	220936	220966	220996	10
50	221027	221057	221088	221118	221148	221179	9
51	221209	221240	221270	221300	221331	221361	8
52	221392	221422	221452	221483	221513	221544	7
53	221574	221605	221635	221666	221696	221726	6
54	221757	221787	221818	221848	221879	221909	5
55	221940	221970	222000	222031	222061	222092	4
56	222122	222153	222183	222214	222244	222275	3
57	222305	222336	222366	222397	222427	222458	2
58	222488	222519	222549	222580	222610	222641	1
59	222671	222702	222732	222763	222793	222824	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 51 degrees, or Versed Sine Supplement of 141 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

Natural Versed Sine of 39 degrees, or Co-versed Sine of 129 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	222854	222885	222915	222946	222976	223007	59
1	223037	223068	223098	223129	223159	223190	58
2	223220	223251	223281	223312	223342	223373	57
3	223404	223434	223465	223495	223526	223556	56
4	223587	223617	223648	223678	223709	223740	55
5	223770	223801	223831	223862	223892	223923	54
6	223954	223984	224015	224045	224076	224106	53
7	224137	224168	224198	224229	224259	224290	52
8	224321	224351	224382	224412	224443	224474	51
9	224504	224535	224565	224596	224627	224657	50
10	224688	224719	224749	224780	224810	224841	49
11	224872	224902	224933	224964	224994	225025	48
12	225056	225086	225117	225147	225178	225209	47
13	225239	225270	225301	225331	225362	225393	46
14	225423	225454	225485	225515	225546	225577	45
15	225607	225638	225669	225699	225730	225761	44
16	225791	225822	225853	225883	225914	225945	43
17	225976	226006	226037	226068	226098	226129	42
18	226160	226190	226221	226252	226283	226313	41
19	226344	226375	226406	226436	226467	226498	40
20	226528	226559	226590	226621	226651	226682	39
21	226713	226744	226774	226805	226836	226867	38
22	226897	226928	226959	226990	227020	227051	37
23	227082	227113	227143	227174	227205	227236	36
24	227266	227297	227328	227359	227390	227420	35
25	227451	227482	227513	227543	227574	227605	34
26	227636	227667	227697	227728	227759	227790	33
27	227821	227851	227882	227913	227944	227975	32
28	228005	228036	228067	228098	228129	228160	31
29	228190	228221	228252	228283	228314	228345	30
30	228375	228406	228437	228468	228499	228530	29
31	228560	228591	228622	228653	228684	228715	28
32	228746	228776	228807	228838	228869	228900	27
33	228931	228962	228993	229023	229054	229085	26
34	229116	229147	229178	229209	229240	229270	25
35	229301	229332	229363	229394	229425	229456	24
36	229487	229518	229549	229579	229610	229641	23
37	229672	229703	229734	229765	229796	229827	22
38	229858	229889	229920	229951	229981	230012	21
39	230043	230074	230105	230136	230167	230198	20
40	230229	230260	230291	230322	230353	230384	19
41	230415	230446	230477	230508	230539	230569	18
42	230600	230631	230662	230693	230724	230755	17
43	230786	230817	230848	230879	230910	230941	16
44	230972	231003	231034	231065	231096	231127	15
45	231158	231189	231220	231251	231282	231313	14
46	231344	231375	231406	231437	231468	231499	13
47	231530	231561	231592	231623	231654	231685	12
48	231716	231748	231779	231810	231841	231872	11
49	231903	231934	231965	231996	232027	232058	10
50	232089	232120	232151	232182	232213	232244	9
51	232275	232306	232338	232369	232400	232431	8
52	232462	232493	232524	232555	232586	232617	7
53	232648	232679	232710	232742	232773	232804	6
54	232835	232866	232897	232928	232959	232990	5
55	233021	233053	233084	233115	233146	233177	4
56	233208	233239	233270	233302	233333	233364	3
57	233395	233426	233457	233488	233519	233551	2
58	233582	233613	233644	233675	233706	233737	1
59	233769	233800	233831	233862	233893	233924	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 50 degrees, or Versed Sine Supplement of 140 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	19	22	25	28

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NATURAL VERSED SINES.

Natural Versed Sine of 40 degrees, or Co-versed Sine of 130 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	233956	233987	234018	234049	234080	234111	59
1	234143	234174	234205	234236	234267	234298	58
2	234330	234361	234392	234423	234454	234486	57
3	234517	234548	234579	234610	234642	234673	56
4	234704	234735	234766	234798	234829	234860	55
5	234891	234922	234954	234985	235016	235047	54
6	235079	235110	235141	235172	235204	235235	53
7	235266	235297	235328	235360	235391	235422	52
8	235453	235485	235516	235547	235578	235610	51
9	235641	235672	235704	235735	235766	235797	50
10	235829	235860	235891	235922	235954	235985	49
11	236016	236048	236079	236110	236141	236173	48
12	236204	236235	236267	236298	236329	236360	47
13	236392	236423	236454	236486	236517	236548	46
14	236580	236611	236642	236674	236705	236736	45
15	236768	236799	236830	236862	236893	236924	44
16	236956	236987	237018	237050	237081	237112	43
17	237144	237175	237206	237238	237269	237300	42
18	237332	237363	237394	237426	237457	237488	41
19	237519	237551	237583	237614	237645	237677	40
20	237708	237739	237771	237802	237834	237865	39
21	237896	237928	237959	237991	238022	238053	38
22	238085	238116	238148	238179	238210	238242	37
23	238273	238305	238336	238367	238399	238430	36
24	238462	238493	238525	238556	238587	238619	35
25	238650	238682	238713	238745	238776	238807	34
26	238839	238870	238902	238933	238965	238996	33
27	239028	239059	239090	239122	239153	239185	32
28	239216	239248	239279	239311	239342	239374	31
29	239405	239437	239468	239500	239531	239563	30
30	239594	239626	239657	239689	239720	239751	29
31	239783	239814	239846	239877	239909	239940	28
32	239972	240004	240035	240067	240098	240130	27
33	240161	240193	240224	240256	240287	240319	26
34	240350	240382	240413	240445	240476	240508	25
35	240539	240571	240603	240634	240666	240697	24
36	240729	240760	240792	240823	240855	240886	23
37	240918	240950	240981	241013	241044	241076	22
38	241107	241139	241171	241202	241234	241265	21
39	241297	241328	241360	241392	241423	241455	20
40	241486	241518	241550	241581	241613	241644	19
41	241676	241708	241739	241771	241802	241834	18
42	241866	241897	241929	241961	241992	242024	17
43	242055	242087	242119	242150	242182	242214	16
44	242245	242277	242308	242340	242372	242403	15
45	242435	242467	242498	242530	242562	242593	14
46	242625	242657	242688	242720	242752	242783	13
47	242815	242847	242878	242910	242942	242973	12
48	243005	243037	243068	243100	243132	243163	11
49	243195	243227	243258	243290	243322	243354	10
50	243385	243417	243449	243480	243512	243544	9
51	243575	243607	243639	243671	243702	243734	8
52	243766	243797	243829	243861	243893	243924	7
53	243956	243988	244020	244051	244083	244115	6
54	244147	244178	244210	244242	244274	244305	5
55	244337	244369	244401	244432	244464	244496	4
56	244528	244559	244591	244623	244655	244686	3
57	244718	244750	244782	244814	244845	244877	2
58	244909	244941	244972	245004	245036	245068	1
59	245100	245131	245163	245195	245227	245259	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 49 degrees, or Versed Sine Supplement of 139 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	13	16	19	22	25	28

Natural Versed Sine of 41 degrees, or Co-versed Sine of 131 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	245290	245322	245354	245386	245418	245449	59
1	245481	245513	245545	245577	245609	245640	58
2	245672	245704	245736	245768	245800	245831	57
3	245863	245895	245927	245959	245991	246022	56
4	246054	246086	246118	246150	246182	246214	55
5	246245	246277	246309	246341	246373	246405	54
6	246437	246468	246500	246532	246564	246596	53
7	246628	246660	246692	246724	246755	246787	52
8	246819	246851	246883	246915	246947	246979	51
9	247011	247042	247074	247106	247138	247170	50
10	247202	247234	247266	247298	247330	247362	49
11	247394	247425	247457	247489	247521	247553	48
12	247585	247617	247649	247681	247713	247745	47
13	247777	247809	247841	247873	247905	247936	46
14	247968	248000	248032	248064	248096	248128	45
15	248160	248192	248224	248256	248288	248320	44
16	248352	248384	248416	248448	248480	248512	43
17	248544	248576	248608	248640	248672	248704	42
18	248736	248768	248800	248832	248864	248896	41
19	248928	248960	248992	249024	249056	249088	40
20	249120	249152	249184	249216	249248	249280	39
21	249312	249344	249376	249408	249440	249472	38
22	249504	249536	249568	249600	249632	249665	37
23	249697	249729	249761	249793	249825	249857	36
24	249889	249921	249953	249985	250017	250049	35
25	250081	250113	250145	250178	250210	250242	34
26	250274	250306	250338	250370	250402	250434	33
27	250466	250498	250531	250563	250595	250627	32
28	250659	250691	250723	250755	250787	250819	31
29	250852	250884	250916	250948	250980	251012	30
30	251044	251076	251109	251141	251173	251205	29
31	251237	251269	251301	251333	251366	251398	28
32	251430	251462	251494	251526	251559	251591	27
33	251623	251655	251687	251719	251751	251784	26
34	251816	251848	251880	251912	251944	251977	25
35	252009	252041	252073	252105	252138	252170	24
36	252202	252234	252266	252298	252331	252363	23
37	252395	252427	252459	252492	252524	252556	22
38	252588	252621	252653	252685	252717	252749	21
39	252782	252814	252846	252878	252910	252943	20
40	252975	253007	253039	253072	253104	253136	19
41	253168	253201	253233	253265	253297	253330	18
42	253362	253394	253426	253459	253491	253523	17
43	253555	253588	253620	253652	253684	253717	16
44	253749	253781	253814	253846	253878	253910	15
45	253943	253975	254007	254039	254072	254104	14
46	254136	254169	254201	254233	254266	254298	13
47	254330	254362	254395	254427	254459	254492	12
48	254524	254556	254589	254621	254653	254686	11
49	254718	254750	254783	254815	254847	254880	10
50	254912	254944	254977	255009	255041	255074	9
51	255106	255138	255171	255203	255235	255268	8
52	255300	255332	255365	255397	255429	255462	7
53	255494	255527	255559	255591	255624	255656	6
54	255688	255721	255753	255786	255818	255850	5
55	255883	255915	255948	255980	256012	256045	4
56	256077	256110	256142	256174	256207	256239	3
57	256272	256304	256336	256369	256401	256434	2
58	256466	256498	256531	256563	256596	256629	1
59	256661	256693	256725	256758	256790	256823	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 48 degrees, or Versed Sine Supplement of 138 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	10	13	16	19	22	26	29

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NATURAL VERSED SINES.

Natural Versed Sine of 42 degrees, or Co-versed Sine of 132 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	256855	256888	256920	256953	256985	257017	59
1	257050	257082	257115	257147	257180	257212	58
2	257245	257277	257310	257342	257374	257407	57
3	257439	257472	257504	257537	257569	257602	56
4	257634	257667	257699	257732	257764	257797	55
5	257829	257862	257894	257927	257959	257992	54
6	258024	258057	258089	258122	258154	258187	53
7	258219	258252	258284	258317	258349	258382	52
8	258414	258447	258479	258512	258544	258577	51
9	258609	258642	258675	258707	258740	258772	50
10	258805	258837	258870	258902	258935	258967	49
11	259000	259033	259065	259098	259130	259163	48
12	259195	259228	259261	259293	259326	259358	47
13	259391	259423	259456	259489	259521	259554	46
14	259586	259619	259651	259684	259717	259749	45
15	259782	259814	259847	259880	259912	259945	44
16	259977	260010	260043	260075	260108	260141	43
17	260173	260206	260239	260271	260304	260336	42
18	260369	260402	260434	260467	260499	260532	41
19	260565	260597	260630	260663	260695	260728	40
20	260761	260793	260826	260859	260891	260924	39
21	260957	260989	261022	261054	261087	261120	38
22	261152	261185	261218	261251	261283	261316	37
23	261349	261381	261414	261447	261479	261512	36
24	261545	261577	261610	261643	261675	261708	35
25	261741	261774	261806	261839	261872	261904	34
26	261937	261970	262003	262035	262068	262101	33
27	262133	262166	262199	262232	262264	262297	32
28	262330	262362	262395	262428	262461	262493	31
29	262526	262559	262592	262624	262657	262690	30
30	262723	262755	262788	262821	262854	262886	29
31	262919	262952	262985	263018	263050	263083	28
32	263116	263149	263181	263214	263247	263280	27
33	263313	263345	263378	263411	263444	263476	26
34	263509	263542	263575	263608	263640	263673	25
35	263706	263739	263772	263804	263837	263870	24
36	263903	263936	263969	264001	264034	264067	23
37	264100	264133	264166	264198	264231	264264	22
38	264297	264330	264363	264395	264428	264461	21
39	264494	264527	264560	264592	264625	264658	20
40	264691	264724	264757	264790	264822	264855	19
41	264888	264921	264954	264987	265020	265053	18
42	265085	265118	265151	265184	265217	265250	17
43	265283	265316	265348	265381	265414	265447	16
44	265480	265513	265546	265579	265612	265645	15
45	265677	265710	265743	265776	265809	265842	14
46	265875	265908	265941	265974	266007	266040	13
47	266073	266105	266138	266171	266204	266237	12
48	266270	266303	266336	266369	266402	266435	11
49	266468	266501	266534	266567	266600	266633	10
50	266666	266699	266731	266764	266797	266830	9
51	266863	266896	266929	266962	266995	267028	8
52	267061	267094	267127	267160	267193	267226	7
53	267259	267292	267325	267358	267391	267424	6
54	267457	267490	267523	267556	267589	267622	5
55	267655	267688	267721	267754	267787	267820	4
56	267853	267886	267919	267952	267985	268018	3
57	268051	268084	268117	268151	268184	268217	2
58	268250	268283	268316	268349	268382	268415	1
59	268448	268481	268514	268547	268580	268613	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 47 degrees, or Versed Sine Supplement of 137 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	13	16	20	23	26	29

Natural Versed Sine of 43 degrees, or Co-versed Sine of 133 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	268646	268679	268712	268745	268779	268812	59
1	268845	268878	268911	268944	268977	269010	58
2	269043	269076	269109	269142	269176	269209	57
3	269242	269275	269308	269341	269374	269407	56
4	269440	269473	269507	269540	269573	269606	55
5	269639	269672	269705	269738	269771	269805	54
6	269838	269871	269904	269937	269970	270003	53
7	270037	270070	270103	270136	270169	270202	52
8	270235	270269	270302	270335	270368	270401	51
9	270434	270467	270501	270534	270567	270600	50
10	270633	270666	270700	270733	270766	270799	49
11	270832	270865	270899	270932	270965	270998	48
12	271031	271065	271098	271131	271164	271197	47
13	271231	271264	271297	271330	271363	271397	46
14	271430	271463	271496	271529	271563	271596	45
15	271629	271662	271695	271729	271762	271795	44
16	271829	271862	271895	271928	271961	271995	43
17	272028	272061	272094	272128	272161	272194	42
18	272227	272260	272294	272327	272360	272394	41
19	272427	272460	272493	272527	272560	272593	40
20	272626	272660	272693	272726	272759	272793	39
21	272826	272859	272893	272926	272959	272992	38
22	273026	273059	273092	273126	273159	273192	37
23	273225	273259	273292	273325	273359	273392	36
24	273425	273459	273492	273525	273559	273592	35
25	273625	273659	273692	273725	273759	273792	34
26	273825	273859	273892	273925	273959	273992	33
27	274025	274059	274092	274125	274159	274192	32
28	274225	274259	274292	274325	274359	274392	31
29	274425	274459	274492	274526	274559	274592	30
30	274626	274659	274692	274726	274759	274793	29
31	274826	274859	274893	274926	274959	274993	28
32	275026	275060	275093	275126	275160	275193	27
33	275227	275260	275293	275327	275360	275394	26
34	275427	275460	275494	275527	275561	275594	25
35	275628	275661	275694	275728	275761	275795	24
36	275828	275862	275895	275928	275962	275995	23
37	276029	276062	276096	276129	276163	276196	22
38	276229	276263	276296	276330	276363	276397	21
39	276430	276464	276497	276531	276564	276598	20
40	276631	276665	276698	276731	276765	276798	19
41	276832	276865	276899	276932	276966	276999	18
42	277033	277066	277100	277133	277167	277200	17
43	277234	277267	277301	277334	277368	277401	16
44	277435	277468	277502	277535	277569	277603	15
45	277636	277670	277703	277736	277770	277804	14
46	277837	277871	277904	277938	277971	278005	13
47	278038	278072	278106	278139	278173	278206	12
48	278240	278273	278307	278340	278374	278408	11
49	278441	278475	278508	278542	278575	278609	10
50	278643	278676	278710	278743	278777	278810	9
51	278844	278878	278911	278945	278978	279012	8
52	279046	279079	279113	279146	279180	279214	7
53	279247	279281	279314	279348	279382	279415	6
54	279449	279483	279516	279550	279583	279617	5
55	279651	279684	279718	279752	279785	279819	4
56	279852	279886	279920	279953	279987	280021	3
57	280054	280088	280122	280155	280189	280223	2
58	280256	280290	280324	280357	280391	280425	1
59	280458	280492	280525	280559	280593	280627	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 46 degrees, or Versed Sine Supplement of 136 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	13	17	20	23	27	30

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NATURAL VERSED SINES.

Natural Versed Sine of 40 degrees, or Co-versed Sine of 130 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	233956	233987	234018	234049	234080	234111	59
1	234143	234174	234205	234236	234267	234298	58
2	234330	234361	234392	234423	234454	234486	57
3	234517	234548	234579	234610	234642	234673	56
4	234704	234735	234766	234798	234829	234860	55
5	234891	234922	234954	234985	235016	235047	54
6	235079	235110	235141	235172	235204	235235	53
7	235266	235297	235328	235360	235391	235422	52
8	235453	235485	235516	235547	235578	235610	51
9	235641	235672	235704	235735	235766	235797	50
10	235829	235860	235891	235922	235954	235985	49
11	236016	236048	236079	236110	236141	236173	48
12	236204	236235	236267	236298	236329	236360	47
13	236392	236423	236454	236486	236517	236548	46
14	236580	236611	236642	236674	236705	236736	45
15	236768	236799	236830	236862	236893	236924	44
16	236956	236987	237018	237050	237081	237112	43
17	237144	237175	237206	237238	237269	237300	42
18	237332	237363	237394	237426	237457	237488	41
19	237519	237551	237583	237614	237645	237677	40
20	237708	237739	237771	237802	237834	237865	39
21	237896	237928	237959	237991	238022	238053	38
22	238085	238116	238148	238179	238210	238242	37
23	238273	238305	238336	238367	238399	238430	36
24	238462	238493	238525	238556	238587	238619	35
25	238650	238682	238713	238745	238776	238807	34
26	238839	238870	238902	238933	238965	238996	33
27	239028	239059	239090	239122	239153	239185	32
28	239216	239248	239279	239311	239342	239374	31
29	239405	239437	239468	239500	239531	239563	30
30	239594	239626	239657	239689	239720	239751	29
31	239783	239814	239846	239877	239909	239940	28
32	239972	240004	240035	240067	240098	240130	27
33	240161	240193	240224	240256	240287	240319	26
34	240350	240382	240413	240445	240476	240508	25
35	240539	240571	240603	240634	240666	240697	24
36	240729	240760	240792	240823	240855	240886	23
37	240918	240950	240981	241013	241044	241076	22
38	241107	241139	241171	241202	241234	241265	21
39	241297	241328	241360	241392	241423	241455	20
40	241486	241518	241550	241581	241613	241644	19
41	241676	241708	241739	241771	241802	241834	18
42	241866	241897	241929	241961	241992	242024	17
43	242055	242087	242119	242150	242182	242214	16
44	242245	242277	242308	242340	242372	242403	15
45	242435	242467	242498	242530	242562	242593	14
46	242625	242657	242688	242720	242752	242783	13
47	242815	242847	242878	242910	242942	242973	12
48	243005	243037	243068	243100	243132	243163	11
49	243195	243227	243258	243290	243322	243354	10
50	243385	243417	243449	243480	243512	243544	9
51	243575	243607	243639	243671	243702	243734	8
52	243766	243797	243829	243861	243893	243924	7
53	243956	243988	244020	244051	244083	244115	6
54	244147	244178	244210	244242	244274	244305	5
55	244337	244369	244401	244432	244464	244496	4
56	244528	244559	244591	244623	244655	244686	3
57	244718	244750	244782	244814	244845	244877	2
58	244909	244941	244972	245004	245036	245068	1
59	245100	245131	245163	245195	245227	245259	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 49 degrees, or Versed Sine Supplement of 139 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	13	16	19	22	25	28

Natural Versed Sine of 41 degrees, or Co-versed Sine of 131 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	245290	245322	245354	245386	245418	245449	59
1	245481	245513	245545	245577	245609	245640	58
2	245672	245704	245736	245768	245800	245831	57
3	245863	245895	245927	245959	245991	246022	56
4	246054	246086	246118	246150	246182	246214	55
5	246245	246277	246309	246341	246373	246405	54
6	246437	246468	246500	246532	246564	246596	53
7	246628	246660	246692	246724	246755	246787	52
8	246819	246851	246883	246915	246947	246979	51
9	247011	247042	247074	247106	247138	247170	50
10	247202	247234	247266	247298	247330	247362	49
11	247394	247425	247457	247489	247521	247553	48
12	247585	247617	247649	247681	247713	247745	47
13	247777	247809	247841	247873	247905	247936	46
14	247968	248000	248032	248064	248096	248128	45
15	248160	248192	248224	248256	248288	248320	44
16	248352	248384	248416	248448	248480	248512	43
17	248544	248576	248608	248640	248672	248704	42
18	248736	248768	248800	248832	248864	248896	41
19	248928	248960	248992	249024	249056	249088	40
20	249120	249152	249184	249216	249248	249280	39
21	249312	249344	249376	249408	249440	249472	38
22	249504	249536	249568	249600	249632	249665	37
23	249697	249729	249761	249793	249825	249857	36
24	249889	249921	249953	249985	250017	250049	35
25	250081	250113	250145	250178	250210	250242	34
26	250274	250306	250338	250370	250402	250434	33
27	250466	250498	250531	250563	250595	250627	32
28	250659	250691	250723	250755	250787	250819	31
29	250852	250884	250916	250948	250980	251012	30
30	251044	251076	251109	251141	251173	251205	29
31	251237	251269	251301	251333	251366	251398	28
32	251430	251462	251494	251526	251559	251591	27
33	251623	251655	251687	251719	251751	251784	26
34	251816	251848	251880	251912	251944	251977	25
35	252009	252041	252073	252105	252138	252170	24
36	252202	252234	252266	252298	252331	252363	23
37	252395	252427	252459	252492	252524	252556	22
38	252588	252621	252653	252685	252717	252749	21
39	252782	252814	252846	252878	252910	252943	20
40	252975	253007	253039	253072	253104	253136	19
41	253168	253201	253233	253265	253297	253330	18
42	253362	253394	253426	253459	253491	253523	17
43	253555	253588	253620	253652	253684	253717	16
44	253749	253781	253814	253846	253878	253910	15
45	253943	253975	254007	254039	254072	254104	14
46	254136	254169	254201	254233	254266	254298	13
47	254330	254362	254395	254427	254459	254492	12
48	254524	254556	254589	254621	254653	254686	11
49	254718	254750	254783	254815	254847	254880	10
50	254912	254944	254977	255009	255041	255074	9
51	255106	255138	255171	255203	255235	255268	8
52	255300	255332	255365	255397	255429	255462	7
53	255494	255527	255559	255591	255624	255656	6
54	255688	255721	255753	255786	255818	255850	5
55	255883	255915	255948	255980	256012	256045	4
56	256077	256110	256142	256174	256207	256239	3
57	256272	256304	256336	256369	256401	256434	2
58	256466	256498	256531	256563	256596	256629	1
59	256661	256693	256725	256758	256790	256823	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 48 degrees, or Versed Sine Supplement of 138 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	10	13	16	19	22	26	29

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NATURAL VERSED SINES.

Natural Versed Sine of 42 degrees, or Co-versed Sine of 132 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	256855	256888	256920	256953	256985	257017	59
1	257050	257082	257115	257147	257180	257212	58
2	257245	257277	257310	257342	257374	257407	57
3	257439	257472	257504	257537	257569	257602	56
4	257634	257667	257699	257732	257764	257797	55
5	257829	257862	257894	257927	257959	257992	54
6	258024	258057	258089	258122	258154	258187	53
7	258219	258252	258284	258317	258349	258382	52
8	258414	258447	258479	258512	258544	258577	51
9	258609	258642	258675	258707	258740	258772	50
10	258805	258837	258870	258902	258935	258967	49
11	259000	259033	259065	259098	259130	259163	48
12	259195	259228	259261	259293	259326	259358	47
13	259391	259423	259456	259489	259521	259554	46
14	259586	259619	259651	259684	259717	259749	45
15	259782	259814	259847	259880	259912	259945	44
16	259977	260010	260043	260075	260108	260141	43
17	260173	260206	260239	260271	260304	260336	42
18	260369	260402	260434	260467	260499	260532	41
19	260565	260597	260630	260663	260695	260728	40
20	260761	260793	260826	260859	260891	260924	39
21	260957	260989	261022	261054	261087	261120	38
22	261152	261185	261218	261251	261283	261316	37
23	261349	261381	261414	261447	261479	261512	36
24	261545	261577	261610	261643	261675	261708	35
25	261741	261774	261806	261839	261872	261904	34
26	261937	261970	262003	262035	262068	262101	33
27	262133	262166	262199	262232	262264	262297	32
28	262330	262362	262395	262428	262461	262493	31
29	262526	262559	262592	262624	262657	262690	30
30	262723	262755	262788	262821	262854	262886	29
31	262919	262952	262985	263018	263050	263083	28
32	263116	263149	263181	263214	263247	263280	27
33	263313	263345	263378	263411	263444	263476	26
34	263509	263542	263575	263608	263640	263673	25
35	263706	263739	263772	263804	263837	263870	24
36	263903	263936	263969	264001	264034	264067	23
37	264100	264133	264166	264198	264231	264264	22
38	264297	264330	264363	264395	264428	264461	21
39	264494	264527	264560	264592	264625	264658	20
40	264691	264724	264757	264790	264822	264855	19
41	264888	264921	264954	264987	265020	265053	18
42	265085	265118	265151	265184	265217	265250	17
43	265283	265316	265348	265381	265414	265447	16
44	265480	265513	265546	265579	265612	265645	15
45	265677	265710	265743	265776	265809	265842	14
46	265875	265908	265941	265974	266007	266040	13
47	266073	266105	266138	266171	266204	266237	12
48	266270	266303	266336	266369	266402	266435	11
49	266468	266501	266534	266567	266600	266633	10
50	266666	266699	266731	266764	266797	266830	9
51	266865	266898	266929	266962	266995	267028	8
52	267061	267094	267127	267160	267193	267226	7
53	267259	267292	267325	267358	267391	267424	6
54	267457	267490	267523	267556	267589	267622	5
55	267655	267688	267721	267754	267787	267820	4
56	267853	267886	267919	267952	267985	268018	3
57	268051	268084	268117	268151	268184	268217	2
58	268250	268283	268316	268349	268382	268415	1
59	268448	268481	268514	268547	268580	268613	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 47 degrees, or Versed Sine Supplement of 137 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	13	16	20	23	26	29

Natural Versed Sine of 43 degrees, or Co-versed Sine of 133 degrees.

Minutes	0′	10″	20″	30″	40″	50″	Minutes
0	268646	268679	268712	268745	268779	268812	59
1	268845	268878	268911	268944	268977	269010	58
2	269043	269076	269109	269142	269176	269209	57
3	269242	269275	269308	269341	269374	269407	56
4	269440	269473	269507	269540	269573	269606	55
5	269639	269672	269705	269738	269771	269805	54
6	269838	269871	269904	269937	269970	270003	53
7	270037	270070	270103	270136	270169	270202	52
8	270235	270269	270302	270335	270368	270401	51
9	270434	270467	270501	270534	270567	270600	50
10	270633	270666	270700	270733	270766	270799	49
11	270832	270865	270899	270932	270965	270998	48
12	271031	271065	271098	271131	271164	271197	47
13	271231	271264	271297	271330	271363	271397	46
14	271430	271463	271496	271529	271563	271596	45
15	271629	271662	271695	271729	271762	271795	44
16	271829	271862	271895	271928	271961	271995	43
17	272028	272061	272094	272128	272161	272194	42
18	272227	272260	272294	272327	272360	272394	41
19	272427	272460	272493	272527	272560	272593	40
20	272626	272660	272693	272726	272759	272793	39
21	272826	272859	272893	272926	272959	272992	38
22	273026	273059	273092	273126	273159	273192	37
23	273225	273259	273292	273325	273359	273392	36
24	273425	273459	273492	273525	273559	273592	35
25	273625	273659	273692	273725	273759	273792	34
26	273825	273859	273892	273925	273959	273992	33
27	274025	274059	274092	274125	274159	274192	32
28	274225	274259	274292	274325	274359	274392	31
29	274425	274459	274492	274526	274559	274592	30
30	274626	274659	274692	274726	274759	274793	29
31	274826	274859	274893	274926	274959	274993	28
32	275026	275060	275093	275126	275160	275193	27
33	275227	275260	275293	275327	275360	275394	26
34	275427	275460	275494	275527	275561	275594	25
35	275628	275661	275694	275728	275761	275795	24
36	275828	275862	275895	275928	275962	275995	23
37	276029	276062	276096	276129	276163	276196	22
38	276229	276263	276296	276330	276363	276397	21
39	276430	276464	276497	276531	276564	276598	20
40	276631	276665	276698	276731	276765	276798	19
41	276832	276865	276899	276932	276966	276999	18
42	277033	277066	277100	277133	277167	277200	17
43	277234	277267	277301	277334	277368	277401	16
44	277435	277468	277502	277535	277569	277603	15
45	277636	277670	277703	277736	277770	277804	14
46	277837	277871	277904	277938	277971	278005	13
47	278038	278072	278106	278139	278173	278206	12
48	278240	278273	278307	278340	278374	278408	11
49	278441	278475	278508	278542	278575	278609	10
50	278643	278676	278710	278743	278777	278810	9
51	278844	278878	278911	278945	278978	279012	8
52	279046	279079	279113	279146	279180	279214	7
53	279247	279281	279314	279348	279382	279415	6
54	279449	279483	279516	279550	279583	279617	5
55	279651	279684	279718	279752	279785	279819	4
56	279852	279886	279920	279953	279987	280021	3
57	280054	280088	280122	280155	280189	280223	2
58	280256	280290	280324	280357	280391	280425	1
59	280458	280492	280525	280559	280593	280627	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 46 degrees, or Versed Sine Supplement of 136 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	13	17	20	23	27	30

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 44 degrees, or Co-versed Sine of 134 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	280660	280694	280728	280761	280795	280829	59
1	280862	280896	280930	280963	280997	281031	58
2	281064	281098	281132	281166	281199	281233	57
3	281267	281300	281334	281368	281402	281435	56
4	281469	281503	281536	281570	281604	281638	55
5	281671	281705	281739	281772	281806	281840	54
6	281874	281907	281941	281975	282009	282042	53
7	282076	282110	282144	282177	282211	282245	52
8	282279	282312	282346	282380	282414	282448	51
9	282481	282515	282549	282583	282616	282650	50
10	282684	282718	282751	282785	282819	282853	49
11	282887	282920	282954	282988	283022	283056	48
12	283089	283123	283157	283191	283225	283258	47
13	283292	283326	283360	283394	283427	283461	46
14	283495	283529	283563	283597	283630	283664	45
15	283698	283732	283766	283800	283833	283867	44
16	283901	283935	283969	284003	284036	284070	43
17	284104	284138	284172	284206	284240	284273	42
18	284307	284341	284375	284409	284443	284477	41
19	284510	284544	284578	284612	284646	284680	40
20	284714	284748	284781	284815	284849	284883	39
21	284917	284951	284985	285019	285053	285086	38
22	285120	285154	285188	285222	285256	285290	37
23	285324	285358	285392	285426	285459	285493	36
24	285527	285561	285595	285629	285663	285697	35
25	285731	285765	285799	285833	285867	285901	34
26	285934	285968	286002	286036	286070	286104	33
27	286138	286172	286206	286240	286274	286308	32
28	286342	286376	286410	286444	286478	286512	31
29	286546	286580	286614	286648	286682	286716	30
30	286750	286784	286818	286852	286885	286919	29
31	286953	286987	287021	287055	287089	287123	28
32	287157	287191	287225	287259	287293	287327	27
33	287361	287395	287430	287464	287498	287532	26
34	287566	287600	287634	287668	287702	287736	25
35	287770	287804	287838	287872	287906	287940	24
36	287974	288008	288042	288076	288110	288144	23
37	288178	288212	288246	288280	288314	288349	22
38	288383	288417	288451	288485	288519	288553	21
39	288587	288621	288655	288689	288723	288757	20
40	288791	288826	288860	288894	288928	288962	19
41	288996	289030	289064	289098	289132	289166	18
42	289201	289235	289269	289303	289337	289371	17
43	289405	289439	289473	289508	289542	289576	16
44	289610	289644	289678	289712	289746	289780	15
45	289815	289849	289883	289917	289951	289985	14
46	290019	290054	290088	290122	290156	290190	13
47	290224	290258	290293	290327	290361	290395	12
48	290429	290463	290498	290532	290566	290600	11
49	290634	290668	290703	290737	290771	290805	10
50	290839	290874	290908	290942	290976	291010	9
51	291044	291079	291113	291147	291181	291215	8
52	291250	291284	291318	291352	291386	291421	7
53	291455	291489	291523	291558	291592	291626	6
54	291660	291694	291729	291763	291797	291831	5
55	291866	291900	291934	291968	292002	292037	4
56	292071	292105	292139	292174	292208	292242	3
57	292277	292311	292345	292379	292413	292448	2
58	292482	292516	292550	292585	292619	292653	1
59	292688	292722	292756	292790	292825	292859	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 45 degrees, or Versed Sine Supplement of 135 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	14	17	20	24	27	31

Minutes	Natural Versed Sine of 45 degrees, or Co-versed Sine of 135 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	292893	292928	292962	292996	293030	293065	59
1	293099	293133	293168	293202	293236	293270	58
2	293305	293339	293373	293408	293442	293476	57
3	293511	293545	293579	293613	293648	293682	56
4	293716	293751	293785	293819	293854	293888	55
5	293922	293957	293991	294025	294060	294094	54
6	294128	294163	294197	294231	294266	294300	53
7	294335	294369	294403	294438	294472	294506	52
8	294541	294575	294609	294644	294678	294712	51
9	294747	294781	294816	294850	294884	294919	50
10	294953	294987	295022	295056	295091	295125	49
11	295159	295194	295228	295263	295297	295331	48
12	295366	295400	295435	295469	295503	295538	47
13	295572	295607	295641	295675	295710	295744	46
14	295779	295813	295848	295882	295916	295951	45
15	295985	296020	296054	296089	296123	296157	44
16	296192	296226	296261	296295	296330	296364	43
17	296399	296433	296467	296502	296536	296571	42
18	296605	296640	296674	296709	296743	296778	41
19	296812	296847	296881	296916	296950	296984	40
20	297019	297053	297088	297122	297157	297191	39
21	297226	297260	297295	297329	297364	297398	38
22	297433	297467	297502	297536	297571	297605	37
23	297640	297674	297709	297743	297778	297812	36
24	297847	297881	297916	297951	297985	298020	35
25	298054	298089	298123	298158	298192	298227	34
26	298261	298296	298330	298365	298399	298434	33
27	298469	298503	298538	298572	298607	298641	32
28	298676	298710	298745	298780	298814	298849	31
29	298883	298918	298952	298987	299022	299056	30
30	299091	299125	299160	299194	299229	299264	29
31	299298	299333	299367	299402	299437	299471	28
32	299506	299540	299575	299610	299644	299679	27
33	299713	299748	299783	299817	299852	299886	26
34	299921	299956	299990	300025	300060	300094	25
35	300129	300163	300198	300233	300267	300302	24
36	300337	300371	300406	300441	300475	300510	23
37	300545	300579	300614	300648	300683	300718	22
38	300752	300787	300822	300856	300891	300926	21
39	300960	300995	301030	301064	301099	301134	20
40	301168	301203	301238	301273	301307	301342	19
41	301377	301411	301446	301481	301515	301550	18
42	301585	301619	301654	301689	301724	301758	17
43	301793	301828	301862	301897	301932	301966	16
44	302001	302036	302071	302105	302140	302175	15
45	302210	302244	302279	302314	302348	302383	14
46	302418	302453	302487	302522	302557	302592	13
47	302626	302661	302696	302731	302765	302800	12
48	302835	302870	302904	302939	302974	303009	11
49	303043	303078	303113	303148	303183	303217	10
50	303252	303287	303322	303356	303391	303426	9
51	303461	303496	303530	303565	303600	303635	8
52	303670	303704	303739	303774	303809	303844	7
53	303878	303913	303948	303983	304018	304052	6
54	304087	304122	304157	304192	304226	304261	5
55	304296	304331	304366	304401	304435	304470	4
56	304505	304540	304575	304610	304644	304679	3
57	304714	304749	304784	304819	304854	304888	2
58	304923	304958	304993	305028	305063	305098	1
59	305132	305167	305202	305237	305272	305307	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 44 degrees, or Versed Sine Supplement of 134 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	14	17	21	24	28	31

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NATURAL VERSED SINES.

Natural Versed Sine of 46 degrees, or Co-versed Sine of 136 degrees.

Minutes	0′	10′	20′	30′	40′	50′	Minutes
0	305342	305377	305411	305446	305481	305516	59
1	305551	305586	305621	305656	305690	305725	58
2	305760	305795	305830	305865	305900	305935	57
3	305970	306005	306039	306074	306109	306144	56
4	306179	306214	306249	306284	306319	306354	55
5	306389	306424	306458	306493	306528	306563	54
6	306598	306633	306668	306703	306738	306773	53
7	306808	306843	306878	306913	306948	306983	52
8	307017	307052	307087	307122	307157	307192	51
9	307227	307262	307297	307332	307367	307402	50
10	307437	307472	307507	307542	307577	307612	49
11	307647	307682	307717	307752	307787	307822	48
12	307857	307892	307927	307962	307997	308032	47
13	308067	308102	308137	308172	308207	308242	46
14	308277	308312	308347	308382	308417	308452	45
15	308487	308522	308557	308592	308627	308662	44
16	308697	308732	308767	308802	308837	308872	43
17	308907	308942	308977	309012	309047	309083	42
18	309118	309153	309188	309223	309258	309293	41
19	309328	309363	309398	309433	309468	309503	40
20	309538	309573	309608	309644	309679	309714	39
21	309749	309784	309819	309854	309889	309924	38
22	309959	309994	310029	310065	310100	310135	37
23	310170	310205	310240	310275	310310	310345	36
24	310380	310416	310451	310486	310521	310556	35
25	310591	310626	310661	310697	310732	310767	34
26	310802	310837	310872	310907	310942	310978	33
27	311013	311048	311083	311118	311153	311188	32
28	311224	311259	311294	311329	311364	311399	31
29	311434	311470	311505	311540	311575	311610	30
30	311645	311681	311716	311751	311786	311821	29
31	311856	311892	311927	311962	311997	312032	28
32	312068	312103	312138	312173	312208	312243	27
33	312279	312314	312349	312384	312419	312455	26
34	312490	312525	312560	312596	312631	312666	25
35	312701	312736	312772	312807	312842	312877	24
36	312912	312948	312983	313018	313053	313089	23
37	313124	313159	313194	313230	313265	313300	22
38	313335	313371	313406	313441	313476	313512	21
39	313547	313582	313617	313653	313688	313723	20
40	313758	313794	313829	313864	313899	313935	19
41	313970	314005	314041	314076	314111	314146	18
42	314182	314217	314252	314288	314323	314358	17
43	314393	314429	314464	314499	314535	314570	16
44	314605	314640	314676	314711	314746	314782	15
45	314817	314852	314888	314923	314958	314994	14
46	315029	315064	315100	315135	315170	315206	13
47	315241	315276	315312	315347	315382	315418	12
48	315453	315488	315524	315559	315594	315630	11
49	315665	315700	315736	315771	315806	315842	10
50	315877	315912	315948	315983	316019	316054	9
51	316089	316125	316160	316195	316231	316266	8
52	316302	316337	316372	316408	316443	316478	7
53	316514	316549	316585	316620	316655	316691	6
54	316726	316762	316797	316832	316868	316903	5
55	316939	316974	317009	317045	317080	317116	4
56	317151	317187	317222	317257	317293	317328	3
57	317364	317399	317435	317470	317505	317541	2
58	317576	317611	317647	317683	317718	317753	1
59	317789	317824	317860	317895	317931	317966	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 43 degrees, or Versed Sine Supplement of 133 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	14	18	21	25	28	32

Natural Versed Sine of 47 degrees, or Co-versed Sine of 137 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	318002	318037	318073	318108	318143	318179	59
1	318214	318250	318285	318321	318356	318392	58
2	318427	318463	318498	318534	318569	318605	57
3	318640	318676	318711	318747	318782	318818	56
4	318853	318889	318924	318960	318995	319031	55
5	319066	319102	319137	319173	319208	319244	54
6	319279	319315	319350	319386	319421	319457	53
7	319492	319528	319563	319599	319634	319670	52
8	319705	319741	319776	319812	319848	319883	51
9	319919	319954	319990	320025	320061	320096	50
10	320132	320167	320203	320239	320274	320310	49
11	320345	320381	320416	320452	320488	320523	48
12	320559	320594	320630	320665	320701	320737	47
13	320772	320808	320843	320879	320914	320950	46
14	320986	321021	321057	321092	321128	321164	45
15	321199	321235	321270	321306	321342	321377	44
16	321413	321448	321484	321520	321555	321591	43
17	321627	321662	321698	321733	321769	321805	42
18	321840	321876	321912	321947	321983	322018	41
19	322054	322090	322125	322161	322197	322232	40
20	322268	322304	322339	322375	322411	322446	39
21	322482	322518	322553	322589	322624	322660	38
22	322696	322732	322767	322803	322839	322874	37
23	322910	322946	322981	323017	323053	323088	36
24	323124	323160	323195	323231	323267	323302	35
25	323338	323374	323410	323445	323481	323517	34
26	323552	323588	323624	323660	323695	323731	33
27	323767	323802	323838	323874	323910	323945	32
28	323981	324017	324052	324088	324124	324160	31
29	324195	324231	324267	324303	324338	324374	30
30	324410	324446	324481	324517	324553	324589	29
31	324624	324660	324696	324732	324767	324803	28
32	324839	324875	324910	324946	324982	325018	27
33	325053	325089	325125	325161	325197	325232	26
34	325268	325304	325340	325375	325411	325447	25
35	325483	325519	325554	325590	325626	325662	24
36	325698	325733	325769	325805	325841	325877	23
37	325912	325948	325984	326020	326056	326092	22
38	326127	326163	326199	326235	326271	326306	21
39	326342	326378	326414	326450	326486	326521	20
40	326557	326593	326629	326665	326701	326737	19
41	326772	326808	326844	326880	326916	326952	18
42	326987	327023	327059	327095	327131	327167	17
43	327203	327239	327274	327310	327346	327382	16
44	327418	327454	327490	327526	327561	327597	15
45	327633	327669	327705	327741	327777	327813	14
46	327849	327884	327920	327956	327992	328028	13
47	328064	328100	328136	328172	328208	328243	12
48	328279	328315	328351	328387	328423	328459	11
49	328495	328531	328567	328603	328639	328675	10
50	328711	328746	328782	328818	328854	328890	9
51	328926	328962	328998	329034	329070	329106	8
52	329142	329178	329214	329250	329286	329322	7
53	329358	329394	329430	329465	329501	329537	6
54	329573	329609	329645	329681	329717	329753	5
55	329789	329825	329861	329897	329933	329969	4
56	330005	330041	330077	330113	330149	330185	3
57	330221	330257	330293	330329	330365	330401	2
58	330437	330473	330509	330545	330581	330617	1
59	330653	330689	330725	330761	330797	330833	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 42 degrees, or Versed Sine Supplement of 132 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	14	18	21	25	29	32

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NATURAL VERSED SINES.

Natural Versed Sine of 48 degrees, or Co-versed Sine of 138 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	330869	330905	330941	330977	331014	331050	59
1	331086	331122	331158	331194	331230	331266	58
2	331302	331338	331374	331410	331446	331482	57
3	331518	331554	331590	331626	331662	331698	56
4	331735	331771	331807	331843	331879	331915	55
5	331951	331987	332023	332059	332095	332131	54
6	332167	332204	332240	332276	332312	332348	53
7	332384	332420	332456	332492	332528	332564	52
8	332601	332637	332673	332709	332745	332781	51
9	332817	332853	332889	332926	332962	332998	50
10	333034	333070	333106	333142	333178	333215	49
11	333251	333287	333323	333359	333395	333431	48
12	333468	333504	333540	333576	333612	333648	47
13	333684	333721	333757	333793	333829	333865	46
14	333901	333938	333974	334010	334046	334082	45
15	334118	334155	334191	334227	334263	334299	44
16	334335	334372	334408	334444	334480	334516	43
17	334552	334589	334625	334661	334697	334733	42
18	334770	334806	334842	334878	334914	334951	41
19	334987	335023	335059	335095	335132	335168	40
20	335204	335240	335277	335313	335349	335385	39
21	335421	335458	335494	335530	335566	335603	38
22	335639	335675	335711	335748	335784	335820	37
23	335856	335893	335929	335965	336001	336038	36
24	336074	336110	336146	336183	336219	336255	35
25	336291	336328	336364	336400	336436	336473	34
26	336509	336545	336582	336618	336654	336690	33
27	336727	336763	336799	336835	336872	336908	32
28	336944	336981	337017	337053	337090	337126	31
29	337162	337198	337235	337271	337307	337344	30
30	337380	337416	337453	337489	337525	337562	29
31	337598	337634	337670	337707	337743	337779	28
32	337816	337852	337888	337925	337961	337997	27
33	338034	338070	338106	338143	338179	338216	26
34	338252	338288	338325	338361	338397	338434	25
35	338470	338506	338543	338579	338615	338652	24
36	338688	338725	338761	338797	338834	338870	23
37	338906	338943	338979	339015	339052	339088	22
38	339125	339161	339197	339234	339270	339307	21
39	339343	339379	339416	339452	339489	339525	20
40	339561	339598	339634	339671	339707	339743	19
41	339780	339816	339853	339889	339925	339962	18
42	339998	340035	340071	340108	340144	340180	17
43	340217	340253	340290	340326	340363	340399	16
44	340435	340472	340508	340545	340581	340618	15
45	340654	340691	340727	340764	340800	340836	14
46	340873	340909	340946	340982	341019	341055	13
47	341092	341128	341165	341201	341238	341274	12
48	341311	341347	341383	341420	341456	341493	11
49	341529	341566	341602	341639	341675	341712	10
50	341748	341785	341821	341858	341894	341931	9
51	341967	342004	342040	342077	342113	342150	8
52	342186	342223	342259	342296	342333	342369	7
53	342406	342442	342479	342515	342552	342588	6
54	342625	342661	342698	342734	342771	342807	5
55	342844	342881	342917	342954	342990	343027	4
56	343063	343100	343136	343173	343209	343246	3
57	343283	343319	343356	343392	343429	343465	2
58	343502	343539	343575	343612	343648	343685	1
59	343721	343758	343795	343831	343868	343904	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 41 degrees, or Versed Sine Supplement of 131 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	15	18	22	25	29	33

Natural Versed Sine of 49 degrees, or Co-versed Sine of 139 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	343941	343978	344014	344051	344087	344124	59
1	344161	344197	344234	344270	344307	344344	58
2	344380	344417	344453	344490	344527	344563	57
3	344600	344636	344673	344710	344746	344783	56
4	344820	344856	344893	344929	344966	345003	55
5	345039	345076	345113	345149	345186	345223	54
6	345259	345296	345332	345369	345406	345442	53
7	345479	345516	345552	345589	345626	345662	52
8	345699	345736	345772	345809	345846	345882	51
9	345919	345956	345992	346029	346066	346102	50
10	346139	346176	346212	346249	346286	346323	49
11	346359	346396	346433	346469	346506	346543	48
12	346579	346616	346653	346690	346726	346763	47
13	346800	346836	346873	346910	346946	346983	46
14	347020	347057	347093	347130	347167	347204	45
15	347240	347277	347314	347350	347387	347424	44
16	347461	347497	347534	347571	347608	347644	43
17	347681	347718	347755	347791	347828	347865	42
18	347902	347938	347975	348012	348049	348085	41
19	348122	348159	348196	348232	348269	348306	40
20	348343	348380	348416	348453	348490	348527	39
21	348563	348600	348637	348674	348711	348747	38
22	348784	348821	348858	348895	348931	348968	37
23	349005	349042	349079	349115	349152	349189	36
24	349226	349263	349299	349336	349373	349410	35
25	349447	349483	349520	349557	349594	349631	34
26	349668	349704	349741	349778	349815	349852	33
27	349889	349925	349962	349999	350036	350073	32
28	350110	350147	350183	350220	350257	350294	31
29	350331	350368	350405	350441	350478	350515	30
30	350552	350589	350626	350663	350699	350736	29
31	350773	350810	350847	350884	350921	350958	28
32	350994	351031	351068	351105	351142	351179	27
33	351216	351253	351290	351326	351363	351400	26
34	351437	351474	351511	351548	351585	351622	25
35	351659	351696	351732	351769	351806	351843	24
36	351880	351917	351954	351991	352028	352065	23
37	352102	352139	352176	352212	352249	352286	22
38	352323	352360	352397	352434	352471	352508	21
39	352545	352582	352619	352656	352693	352730	20
40	352767	352804	352841	352878	352914	352951	19
41	352988	353025	353062	353099	353136	353173	18
42	353210	353247	353284	353321	353358	353395	17
43	353432	353469	353506	353543	353580	353617	16
44	353654	353691	353728	353765	353802	353839	15
45	353876	353913	353950	353987	354024	354061	14
46	354098	354135	354172	354209	354246	354283	13
47	354320	354357	354394	354431	354468	354505	12
48	354542	354579	354616	354653	354690	354727	11
49	354764	354802	354839	354876	354913	354950	10
50	354987	355024	355061	355098	355135	355172	9
51	355209	355246	355283	355320	355357	355394	8
52	355431	355469	355506	355543	355580	355617	7
53	355654	355691	355728	355765	355802	355839	6
54	355876	355913	355951	355988	356025	356062	5
55	356099	356136	356173	356210	356247	356284	4
56	356321	356359	356396	356433	356470	356507	3
57	356544	356581	356618	356655	356693	356730	2
58	356767	356804	356841	356878	356915	356952	1
59	356989	357027	357064	357101	357138	357175	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 40 degrees, or Versed Sine Supplement of 130 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	15	18	22	26	29	33

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NATURAL VERSED SINES.

Natural Versed Sine of 50 degrees, or Co-versed Sine of 140 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	357212	357250	357287	357324	357361	357398	59
1	357435	357472	357510	357547	357584	357621	58
2	357658	357695	357732	357770	357807	357844	57
3	357881	357918	357955	357993	358030	358067	56
4	358104	358141	358179	358216	358253	358290	55
5	358327	358364	358402	358439	358476	358513	54
6	358550	358588	358625	358662	358699	358736	53
7	358774	358811	358848	358885	358922	358960	52
8	358997	359034	359071	359108	359146	359183	51
9	359220	359257	359295	359332	359369	359406	50
10	359443	359481	359518	359555	359592	359630	49
11	359667	359704	359741	359779	359816	359853	48
12	359890	359928	359965	360002	360039	360077	47
13	360114	360151	360188	360226	360263	360300	46
14	360337	360375	360412	360449	360486	360524	45
15	360561	360598	360636	360673	360710	360747	44
16	360785	360822	360859	360897	360934	360971	43
17	361008	361046	361083	361120	361158	361195	42
18	361232	361269	361307	361344	361381	361419	41
19	361456	361493	361531	361568	361605	361643	40
20	361680	361717	361755	361792	361829	361867	39
21	361904	361941	361979	362016	362053	362091	38
22	362128	362165	362203	362240	362277	362315	37
23	362352	362389	362427	362464	362501	362539	36
24	362576	362613	362651	362688	362725	362763	35
25	362800	362838	362875	362912	362950	362987	34
26	363024	363062	363099	363137	363174	363211	33
27	363249	363286	363323	363361	363398	363436	32
28	363473	363510	363548	363585	363623	363660	31
29	363697	363735	363772	363810	363847	363884	30
30	363922	363959	363997	364034	364071	364109	29
31	364146	364184	364221	364259	364296	364333	28
32	364371	364408	364446	364483	364521	364558	27
33	364595	364633	364670	364708	364745	364783	26
34	364820	364857	364895	364932	364970	365007	25
35	365045	365082	365120	365157	365195	365232	24
36	365269	365307	365344	365382	365419	365457	23
37	365494	365532	365569	365607	365644	365682	22
38	365719	365757	365794	365832	365869	365907	21
39	365944	365982	366019	366057	366095	366132	20
40	366169	366207	366244	366282	366319	366357	19
41	366394	366432	366469	366507	366544	366582	18
42	366619	366657	366694	366732	366769	366807	17
43	366844	366882	366919	366957	366994	367032	16
44	367069	367107	367145	367182	367220	367257	15
45	367295	367332	367370	367407	367445	367482	14
46	367520	367558	367595	367633	367670	367708	13
47	367745	367783	367820	367858	367896	367933	12
48	367971	368008	368046	368084	368121	368159	11
49	368196	368234	368271	368309	368346	368384	10
50	368422	368459	368497	368534	368572	368610	9
51	368647	368685	368722	368760	368798	368835	8
52	368873	368910	368948	368986	369023	369061	7
53	369098	369136	369174	369211	369249	369287	6
54	369324	369362	369399	369437	369475	369512	5
55	369550	369588	369625	369663	369701	369738	4
56	369776	369813	369851	369889	369926	369964	3
57	370002	370039	370077	370115	370152	370190	2
58	370228	370265	370303	370341	370378	370416	1
59	370454	370491	370529	370567	370604	370642	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 39 degrees, or Versed Sine Supplement of 129 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	15	19	22	26	30	34

Natural Versed Sine of 51 degrees, or Co-versed Sine of 141 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	370680	370718	370755	370793	370830	370868	59
1	370906	370944	370981	371019	371056	371094	58
2	371132	371170	371207	371245	371283	371320	57
3	371358	371396	371433	371471	371509	371547	56
4	371584	371622	371660	371697	371735	371773	55
5	371811	371848	371886	371924	371961	371999	54
6	372037	372075	372112	372150	372188	372226	53
7	372263	372301	372339	372377	372414	372452	52
8	372490	372528	372565	372603	372641	372679	51
9	372716	372754	372792	372830	372867	372905	50
10	372943	372981	373018	373056	373094	373132	49
11	373170	373207	373245	373283	373321	373358	48
12	373396	373434	373472	373510	373547	373585	47
13	373623	373661	373699	373736	373774	373812	46
14	373850	373887	373925	373963	374001	374039	45
15	374077	374114	374152	374190	374228	374266	44
16	374303	374341	374379	374417	374455	374493	43
17	374530	374568	374606	374644	374682	374720	42
18	374757	374795	374833	374871	374909	374947	41
19	374984	375022	375060	375098	375136	375174	40
20	375211	375249	375287	375325	375363	375401	39
21	375439	375476	375514	375552	375590	375628	38
22	375666	375704	375742	375779	375817	375855	37
23	375893	375931	375969	376007	376045	376083	36
24	376120	376158	376196	376234	376272	376310	35
25	376348	376386	376424	376461	376499	376537	34
26	376575	376613	376651	376689	376727	376765	33
27	376803	376841	376878	376916	376954	376992	32
28	377030	377068	377106	377144	377182	377220	31
29	377258	377296	377334	377372	377409	377447	30
30	377485	377523	377561	377599	377637	377675	29
31	377713	377751	377789	377827	377865	377903	28
32	377941	377979	378017	378055	378093	378131	27
33	378169	378207	378244	378282	378320	378358	26
34	378396	378434	378472	378510	378548	378586	25
35	378624	378662	378700	378738	378776	378814	24
36	378852	378890	378928	378966	379004	379042	23
37	379080	379118	379156	379194	379232	379270	22
38	379308	379346	379384	379422	379460	379498	21
39	379536	379574	379612	379650	379688	379726	20
40	379765	379803	379841	379879	379917	379955	19
41	379993	380031	380069	380107	380145	380183	18
42	380221	380259	380297	380335	380373	380411	17
43	380449	380487	380525	380563	380601	380639	16
44	380678	380716	380754	380792	380830	380868	15
45	380906	380944	380982	381020	381058	381096	14
46	381135	381173	381211	381249	381287	381325	13
47	381363	381401	381439	381477	381515	381554	12
48	381592	381630	381668	381706	381744	381782	11
49	381820	381858	381896	381935	381973	382011	10
50	382049	382087	382125	382163	382201	382240	9
51	382278	382316	382354	382392	382430	382468	8
52	382506	382545	382583	382621	382659	382697	7
53	382735	382773	382812	382850	382888	382926	6
54	382964	383002	383040	383079	383117	383155	5
55	383193	383231	383269	383308	383346	383384	4
56	383422	383460	383498	383537	383575	383613	3
57	383651	383689	383727	383766	383804	383842	2
58	383880	383918	383957	383995	384033	384071	1
59	384109	384148	384186	384224	384262	384300	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 38 degrees, or Versed Sine Supplement of 128 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	11	15	19	23	27	30	34

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 52 degrees, or Co-versed Sine of 142 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	384339	384377	384415	384453	384491	384530	59
1	384568	384606	384644	384682	384721	384759	58
2	384797	384835	384874	384912	384950	384988	57
3	385026	385065	385103	385141	385179	385218	56
4	385256	385294	385332	385371	385409	385447	55
5	385485	385524	385562	385600	385638	385677	54
6	385715	385753	385791	385830	385868	385906	53
7	385944	385983	386021	386059	386097	386136	52
8	386174	386212	386251	386289	386327	386365	51
9	386404	386442	386480	386518	386557	386595	50
10	386633	386672	386710	386748	386787	386825	49
11	386863	386901	386940	386978	387016	387055	48
12	387093	387131	387170	387208	387246	387285	47
13	387323	387361	387399	387438	387476	387514	46
14	387553	387591	387629	387668	387706	387744	45
15	387783	387821	387859	387898	387936	387974	44
16	388013	388051	388089	388128	388166	388204	43
17	388243	388281	388320	388358	388396	388435	42
18	388473	388511	388550	388588	388626	388665	41
19	388703	388742	388780	388818	388857	388895	40
20	388933	388972	389010	389049	389087	389125	39
21	389164	389202	389240	389279	389317	389356	38
22	389394	389432	389471	389509	389548	389586	37
23	389624	389663	389701	389740	389778	389816	36
24	389855	389893	389932	389970	390008	390047	35
25	390085	390124	390162	390201	390239	390277	34
26	390316	390354	390393	390431	390470	390508	33
27	390546	390585	390623	390662	390700	390739	32
28	390777	390816	390854	390892	390931	390969	31
29	391008	391046	391085	391123	391162	391200	30
30	391239	391277	391315	391354	391392	391431	29
31	391469	391508	391546	391585	391623	391662	28
32	391700	391739	391777	391816	391854	391893	27
33	391931	391970	392008	392047	392085	392124	26
34	392162	392201	392239	392278	392316	392355	25
35	392393	392432	392470	392509	392547	392586	24
36	392624	392663	392701	392740	392778	392817	23
37	392855	392894	392932	392971	393009	393048	22
38	393086	393125	393164	393202	393241	393279	21
39	393318	393356	393395	393433	393472	393510	20
40	393549	393587	393626	393665	393703	393742	19
41	393780	393819	393857	393896	393934	393973	18
42	394012	394050	394089	394127	394166	394204	17
43	394243	394282	394320	394359	394397	394436	16
44	394474	394513	394552	394590	394629	394668	15
45	394706	394745	394783	394822	394860	394899	14
46	394938	394976	395015	395053	395092	395131	13
47	395169	395208	395246	395285	395324	395362	12
48	395401	395440	395478	395517	395555	395594	11
49	395633	395671	395710	395748	395787	395826	10
50	395864	395903	395942	395980	396019	396058	9
51	396096	396135	396174	396212	396251	396289	8
52	396328	396367	396405	396444	396483	396521	7
53	396560	396599	396637	396676	396715	396753	6
54	396792	396831	396869	396908	396947	396985	5
55	397024	397063	397101	397140	397179	397217	4
56	397256	397295	397334	397372	397411	397450	3
57	397488	397527	397566	397604	397643	397682	2
58	397720	397759	397798	397837	397875	397914	1
59	397953	397991	398030	398069	398108	398146	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 37 degrees, or Versed Sine Supplement of 127 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	15	19	23	27	31	35

Minutes	Natural Versed Sine of 53 degrees, or Co-versed Sine of 143 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	398185	398224	398262	398301	398340	398379	59
1	398417	398456	398495	398534	398572	398611	58
2	398650	398688	398727	398766	398805	398843	57
3	398882	398921	398960	398998	399037	399076	56
4	399115	399153	399192	399231	399270	399308	55
5	399347	399386	399425	399463	399502	399541	54
6	399580	399619	399657	399696	399735	399774	53
7	399812	399851	399890	399929	399968	400006	52
8	400045	400084	400123	400161	400200	400239	51
9	400278	400317	400355	400394	400433	400472	50
10	400511	400549	400588	400627	400666	400705	49
11	400744	400782	400821	400860	400899	400938	48
12	400976	401015	401054	401093	401132	401171	47
13	401209	401248	401287	401326	401365	401404	46
14	401442	401481	401520	401559	401598	401637	45
15	401675	401714	401753	401792	401831	401870	44
16	401908	401947	401986	402025	402064	402103	43
17	402142	402181	402219	402258	402297	402336	42
18	402375	402414	402453	402491	402530	402569	41
19	402608	402647	402686	402725	402764	402803	40
20	402841	402880	402919	402958	402997	403036	39
21	403075	403114	403153	403191	403230	403269	38
22	403308	403347	403386	403425	403464	403503	37
23	403542	403581	403619	403658	403697	403736	36
24	403775	403814	403853	403892	403931	403970	35
25	404009	404048	404087	404125	404164	404203	34
26	404242	404281	404320	404359	404398	404437	33
27	404476	404515	404554	404593	404632	404671	32
28	404710	404749	404788	404827	404865	404904	31
29	404943	404982	405021	405060	405099	405138	30
30	405177	405216	405255	405294	405333	405372	29
31	405411	405450	405489	405528	405567	405606	28
32	405645	405684	405723	405762	405801	405840	27
33	405879	405918	405957	405996	406035	406074	26
34	406113	406152	406191	406230	406269	406308	25
35	406347	406386	406425	406464	406503	406542	24
36	406581	406620	406659	406698	406737	406776	23
37	406815	406854	406893	406932	406971	407010	22
38	407049	407089	407128	407167	407206	407245	21
39	407284	407323	407362	407401	407440	407479	20
40	407518	407557	407596	407635	407674	407713	19
41	407752	407791	407831	407870	407909	407948	18
42	407987	408026	408065	408104	408143	408182	17
43	408221	408260	408299	408339	408378	408417	16
44	408456	408495	408534	408573	408612	408651	15
45	408690	408729	408769	408808	408847	408886	14
46	408925	408964	409003	409042	409081	409121	13
47	409160	409199	409238	409277	409316	409355	12
48	409394	409433	409473	409512	409551	409590	11
49	409629	409668	409707	409746	409786	409825	10
50	409864	409903	409942	409981	410020	410060	9
51	410099	410138	410177	410216	410255	410295	8
52	410334	410373	410412	410451	410490	410529	7
53	410569	410608	410647	410686	410725	410764	6
54	410804	410843	410882	410921	410960	411000	5
55	411039	411078	411117	411156	411195	411235	4
56	411274	411313	411352	411391	411431	411470	3
57	411509	411548	411587	411627	411666	411705	2
58	411744	411783	411823	411862	411901	411940	1
59	411979	412019	412058	412097	412136	412176	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 36 degrees, or Versed Sine Supplement of 126 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	19	23	27	31	35

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NATURAL VERSED SINES.

Natural Versed Sine of 54 degrees, or Co-versed Sine of 144 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	412215	412254	412293	412332	412372	412411	59
1	412450	412489	412529	412568	412607	412646	58
2	412686	412725	412764	412803	412842	412882	57
3	412921	412960	412999	413039	413078	413117	56
4	413156	413196	413235	413274	413314	413353	55
5	413392	413431	413471	413510	413549	413588	54
6	413628	413667	413706	413745	413785	413824	53
7	413863	413903	413942	413981	414020	414060	52
8	414099	414138	414178	414217	414256	414295	51
9	414335	414374	414413	414453	414492	414531	50
10	414571	414610	414649	414688	414728	414767	49
11	414806	414846	414885	414924	414964	415003	48
12	415042	415082	415121	415160	415200	415239	47
13	415278	415318	415357	415396	415436	415475	46
14	415514	415554	415593	415632	415672	415711	45
15	415750	415790	415829	415868	415908	415947	44
16	415986	416026	416065	416105	416144	416183	43
17	416223	416262	416301	416341	416380	416419	42
18	416459	416498	416538	416577	416616	416656	41
19	416695	416734	416774	416813	416853	416892	40
20	416931	416971	417010	417050	417089	417128	39
21	417168	417207	417246	417286	417325	417365	38
22	417404	417443	417483	417522	417562	417601	37
23	417641	417680	417719	417759	417798	417838	36
24	417877	417916	417956	417995	418035	418074	35
25	418114	418153	418192	418232	418271	418311	34
26	418350	418390	418429	418468	418508	418547	33
27	418587	418626	418666	418705	418745	418784	32
28	418824	418863	418902	418942	418981	419021	31
29	419060	419100	419139	419179	419218	419258	30
30	419297	419337	419376	419415	419455	419494	29
31	419534	419573	419613	419652	419692	419731	28
32	419771	419810	419850	419889	419929	419968	27
33	420008	420047	420087	420126	420166	420205	26
34	420245	420284	420324	420363	420403	420442	25
35	420482	420521	420561	420600	420640	420679	24
36	420719	420758	420798	420837	420877	420916	23
37	420956	420995	421035	421075	421114	421154	22
38	421193	421233	421272	421312	421351	421391	21
39	421430	421470	421509	421549	421589	421628	20
40	421668	421707	421747	421786	421826	421865	19
41	421905	421945	421984	422024	422063	422103	18
42	422142	422182	422222	422261	422301	422340	17
43	422380	422419	422459	422499	422538	422578	16
44	422617	422657	422696	422736	422776	422815	15
45	422855	422894	422934	422974	423013	423053	14
46	423092	423132	423172	423211	423251	423290	13
47	423330	423370	423409	423449	423488	423528	12
48	423568	423607	423647	423687	423726	423766	11
49	423805	423845	423885	423924	423964	424004	10
50	424043	424083	424122	424162	424202	424241	9
51	424281	424321	424360	424400	424440	424479	8
52	424519	424559	424598	424638	424677	424717	7
53	424757	424796	424836	424876	424915	424955	6
54	424995	425034	425074	425114	425153	425193	5
55	425233	425272	425312	425352	425391	425431	4
56	425471	425511	425550	425590	425630	425669	3
57	425709	425749	425788	425828	425868	425907	2
58	425947	425987	426026	426066	426106	426146	1
59	426185	426225	426265	426304	426344	426384	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 35 degrees, or Versed Sine Supplement of 125 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	24	28	32	35

Natural Versed Sine of 55 degrees, or Co-versed Sine of 145 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	426424	426463	426503	426543	426582	426622	59
1	426662	426702	426741	426781	426821	426860	58
2	426900	426940	426980	427019	427059	427099	57
3	427139	427178	427218	427258	427298	427337	56
4	427377	427417	427457	427496	427536	427576	55
5	427616	427655	427695	427735	427775	427814	54
6	427854	427894	427934	427973	428013	428053	53
7	428093	428132	428172	428212	428252	428292	52
8	428331	428371	428411	428451	428490	428530	51
9	428570	428610	428650	428689	428729	428769	50
10	428809	428849	428888	428928	428968	429008	49
11	429048	429087	429127	429167	429207	429247	48
12	429286	429326	429366	429406	429446	429486	47
13	429525	429565	429605	429645	429685	429724	46
14	429764	429804	429844	429884	429924	429963	45
15	430003	430043	430083	430123	430163	430202	44
16	430242	430282	430322	430362	430402	430441	43
17	430481	430521	430561	430601	430641	430681	42
18	430720	430760	430800	430840	430880	430920	41
19	430960	431000	431039	431079	431119	431159	40
20	431199	431239	431279	431319	431358	431398	39
21	431438	431478	431518	431558	431598	431638	38
22	431677	431717	431757	431797	431837	431877	37
23	431917	431957	431997	432037	432076	432116	36
24	432156	432196	432236	432276	432316	432356	35
25	432396	432436	432476	432515	432555	432595	34
26	432635	432675	432715	432755	432795	432835	33
27	432875	432915	432955	432995	433035	433074	32
28	433114	433154	433194	433234	433274	433314	31
29	433354	433394	433434	433474	433514	433554	30
30	433594	433634	433674	433714	433754	433794	29
31	433834	433873	433913	433953	433993	434033	28
32	434073	434113	434153	434193	434233	434273	27
33	434313	434353	434393	434433	434473	434513	26
34	434553	434593	434633	434673	434713	434753	25
35	434793	434833	434873	434913	434953	434993	24
36	435033	435073	435113	435153	435193	435233	23
37	435273	435313	435353	435393	435433	435473	22
38	435513	435553	435593	435633	435673	435713	21
39	435753	435793	435833	435873	435913	435953	20
40	435993	436033	436074	436114	436154	436194	19
41	436234	436274	436314	436354	436394	436434	18
42	436474	436514	436554	436594	436634	436674	17
43	436714	436754	436794	436834	436875	436915	16
44	436955	436995	437035	437075	437115	437155	15
45	437195	437235	437275	437315	437355	437396	14
46	437436	437476	437516	437556	437596	437636	13
47	437676	437716	437756	437796	437836	437877	12
48	437917	437957	437997	438037	438077	438117	11
49	438157	438197	438237	438278	438318	438358	10
50	438398	438438	438478	438518	438558	438598	9
51	438639	438679	438719	438759	438799	438839	8
52	438879	438919	438960	439000	439040	439080	7
53	439120	439160	439200	439241	439281	439321	6
54	439361	439401	439441	439481	439522	439562	5
55	439602	439642	439682	439722	439763	439803	4
56	439843	439883	439923	439963	440004	440044	3
57	440084	440124	440164	440204	440245	440285	2
58	440325	440365	440405	440445	440486	440526	1
59	440566	440606	440646	440687	440727	440767	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 34 degrees, or Versed Sine Supplement of 124 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	24	28	32	36

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 56 degrees, or Co-versed sine of 146 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	440807	440847	440887	440928	440968	441008	59
1	441048	441088	441129	441169	441209	441249	58
2	441290	441330	441370	441410	441450	441491	57
3	441531	441571	441611	441651	441692	441732	56
4	441772	441812	441853	441893	441933	441973	55
5	442013	442054	442094	442134	442174	442215	54
6	442255	442295	442335	442376	442416	442456	53
7	442496	442537	442577	442617	442657	442698	52
8	442738	442778	442818	442859	442899	442939	51
9	442979	443020	443060	443100	443140	443181	50
10	443221	443261	443302	443342	443382	443422	49
11	443463	443503	443543	443584	443624	443664	48
12	443704	443745	443785	443825	443866	443906	47
13	443946	443986	444027	444067	444107	444148	46
14	444188	444228	444269	444309	444349	444389	45
15	444430	444470	444510	444551	444591	444631	44
16	444672	444712	444752	444793	444833	444873	43
17	444914	444954	444994	445035	445075	445115	42
18	445156	445196	445236	445277	445317	445357	41
19	445398	445438	445478	445519	445559	445599	40
20	445640	445680	445720	445761	445801	445841	39
21	445882	445922	445963	446003	446043	446084	38
22	446124	446164	446205	446245	446285	446326	37
23	446366	446407	446447	446487	446528	446568	36
24	446608	446649	446689	446730	446770	446810	35
25	446851	446891	446932	446972	447012	447053	34
26	447093	447134	447174	447214	447255	447295	33
27	447336	447376	447416	447457	447497	447538	32
28	447578	447618	447659	447699	447740	447780	31
29	447820	447861	447901	447942	447982	448023	30
30	448063	448103	448144	448184	448225	448265	29
31	448306	448346	448386	448427	448467	448508	28
32	448548	448589	448629	448670	448710	448750	27
33	448791	448831	448872	448912	448953	448993	26
34	449034	449074	449115	449155	449196	449236	25
35	449276	449317	449357	449398	449438	449479	24
36	449519	449560	449600	449641	449681	449722	23
37	449762	449803	449843	449884	449924	449965	22
38	450005	450046	450086	450127	450167	450208	21
39	450248	450289	450329	450370	450410	450451	20
40	450491	450532	450572	450613	450653	450694	19
41	450734	450775	450815	450856	450896	450937	18
42	450977	451018	451058	451099	451139	451180	17
43	451220	451261	451301	451342	451382	451423	16
44	451464	451504	451545	451585	451626	451666	15
45	451707	451747	451788	451828	451869	451910	14
46	451950	451991	452031	452072	452112	452153	13
47	452193	452234	452275	452315	452356	452396	12
48	452437	452477	452518	452558	452599	452640	11
49	452680	452721	452761	452802	452843	452883	10
50	452924	452964	453005	453045	453086	453127	9
51	453167	453208	453248	453289	453330	453370	8
52	453411	453451	453492	453533	453573	453614	7
53	453654	453695	453736	453776	453817	453857	6
54	453898	453939	453979	454020	454061	454101	5
55	454142	454182	454223	454264	454304	454345	4
56	454385	454426	454467	454507	454548	454589	3
57	454629	454670	454711	454751	454792	454832	2
58	454873	454914	454954	454995	455036	455076	1
59	455117	455158	455198	455239	455280	455320	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 33 degrees, or Versed Sine Supplement of 123 degrees.						
Propor. parts.	1″ 4	2″ 8	3″ 12	4″ 16	5″ 20	6″ 24	7″ 28	8″ 32	9″ 36

Minutes	Natural Versed Sine of 57 degrees, or Co-versed Sine of 147 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	455361	455402	455442	455483	455524	455564	59
1	455605	455646	455686	455727	455768	455808	58
2	455849	455890	455930	455971	456012	456052	57
3	456093	456134	456174	456215	456256	456296	56
4	456337	456378	456419	456459	456500	456541	55
5	456581	456622	456663	456703	456744	456785	54
6	456826	456866	456907	456948	456988	457029	53
7	457070	457111	457151	457192	457233	457273	52
8	457314	457355	457396	457436	457477	457518	51
9	457558	457599	457640	457681	457721	457762	50
10	457803	457844	457884	457925	457966	458007	49
11	458047	458088	458129	458170	458210	458251	48
12	458292	458333	458373	458414	458455	458496	47
13	458536	458577	458618	458659	458699	458740	46
14	458781	458822	458862	458903	458944	458985	45
15	459026	459066	459107	459148	459189	459229	44
16	459270	459311	459352	459393	459433	459474	43
17	459515	459556	459596	459637	459678	459719	42
18	459760	459800	459841	459882	459923	459964	41
19	460004	460045	460086	460127	460168	460209	40
20	460249	460290	460331	460372	460413	460453	39
21	460494	460535	460576	460617	460658	460698	38
22	460739	460780	460821	460862	460903	460943	37
23	460984	461025	461066	461107	461148	461188	36
24	461229	461270	461311	461352	461393	461433	35
25	461474	461515	461556	461597	461638	461679	34
26	461719	461760	461801	461842	461883	461924	33
27	461965	462005	462046	462087	462128	462169	32
28	462210	462251	462292	462332	462373	462414	31
29	462455	462496	462537	462578	462619	462660	30
30	462700	462741	462782	462823	462864	462905	29
31	462946	462987	463028	463068	463109	463150	28
32	463191	463232	463273	463314	463355	463396	27
33	463437	463478	463518	463559	463600	463641	26
34	463682	463723	463764	463805	463846	463887	25
35	463928	463969	464009	464050	464091	464132	24
36	464173	464214	464255	464296	464337	464378	23
37	464419	464460	464501	464542	464583	464624	22
38	464665	464705	464746	464787	464828	464869	21
39	464910	464951	464992	465033	465074	465115	20
40	465156	465197	465238	465279	465320	465361	19
41	465402	465443	465484	465525	465566	465607	18
42	465648	465689	465730	465771	465812	465853	17
43	465894	465935	465976	466017	466058	466099	16
44	466140	466181	466222	466263	466304	466345	15
45	466386	466427	466468	466509	466550	466591	14
46	466632	466673	466714	466755	466796	466837	13
47	466878	466919	466960	467001	467042	467083	12
48	467124	467165	467206	467247	467288	467329	11
49	467370	467411	467452	467493	467534	467576	10
50	467616	467657	467698	467739	467780	467821	9
51	467862	467903	467944	467986	468027	468068	8
52	468109	468150	468191	468232	468273	468314	7
53	468355	468396	468437	468478	468519	468560	6
54	468601	468642	468684	468725	468766	468807	5
55	468848	468889	468930	468971	469012	469053	4
56	469094	469135	469177	469218	469259	469300	3
57	469341	469382	469423	469464	469505	469546	2
58	469587	469629	469670	469711	469752	469793	1
59	469834	469875	469916	469957	469999	470040	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 32 degrees, or Versed Sine Supplement of 122 degrees						
Propor. parts.	1″ 4	2″ 8	3″ 12	4″ 16	5″ 20	6″ 24	7″ 28	8″ 32	9″ 37

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NATURAL VERSED SINES.

Natural Versed Sine of 58 degrees, or Co-versed Sine of 148 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	470081	470122	470163	470204	470245	470286	59
1	470327	470369	470410	470451	470492	470533	58
2	470574	470615	470656	470698	470739	470780	57
3	470821	470862	470903	470944	470986	471027	56
4	471068	471109	471150	471191	471232	471274	55
5	471315	471356	471397	471438	471479	471521	54
6	471562	471603	471644	471685	471726	471767	53
7	471809	471850	471891	471932	471973	472014	52
8	472056	472097	472138	472179	472220	472262	51
9	472303	472344	472385	472426	472467	472509	50
10	472550	472591	472632	472673	472715	472756	49
11	472797	472838	472879	472921	472962	473003	48
12	473044	473085	473127	473168	473209	473250	47
13	473291	473333	473374	473415	473456	473498	46
14	473539	473580	473621	473662	473704	473745	45
15	473786	473827	473869	473910	473951	473992	44
16	474033	474075	474116	474157	474198	474240	43
17	474281	474322	474363	474405	474446	474487	42
18	474528	474570	474611	474652	474693	474735	41
19	474776	474817	474858	474900	474941	474982	40
20	475023	475065	475106	475147	475188	475230	39
21	475271	475312	475354	475395	475436	475477	38
22	475519	475560	475601	475643	475684	475725	37
23	475766	475808	475849	475890	475932	475973	36
24	476014	476055	476097	476138	476179	476221	35
25	476262	476303	476344	476386	476427	476468	34
26	476510	476551	476592	476634	476675	476716	33
27	476758	476799	476840	476882	476923	476964	32
28	477005	477047	477088	477129	477171	477212	31
29	477253	477295	477336	477377	477419	477460	30
30	477501	477543	477584	477625	477667	477708	29
31	477749	477791	477832	477874	477915	477956	28
32	477998	478039	478080	478122	478163	478204	27
33	478246	478287	478328	478370	478411	478453	26
34	478494	478535	478577	478618	478659	478701	25
35	478742	478783	478825	478866	478908	478949	24
36	478990	479032	479073	479115	479156	479197	23
37	479239	479280	479321	479363	479404	479446	22
38	479487	479528	479570	479611	479653	479694	21
39	479735	479777	479818	479860	479901	479942	20
40	479984	480025	480067	480108	480150	480191	19
41	480232	480274	480315	480357	480398	480439	18
42	480481	480522	480564	480605	480647	480688	17
43	480729	480771	480812	480854	480895	480937	16
44	480978	481020	481061	481102	481144	481185	15
45	481227	481268	481310	481351	481393	481434	14
46	481475	481517	481558	481600	481641	481683	13
47	481724	481766	481807	481849	481890	481932	12
48	481973	482014	482056	482097	482139	482180	11
49	482222	482263	482305	482346	482388	482429	10
50	482471	482512	482554	482595	482637	482678	9
51	482720	482761	482803	482844	482886	482927	8
52	482969	483010	483052	483093	483135	483176	7
53	483218	483259	483301	483342	483384	483425	6
54	483467	483508	483550	483591	483633	483674	5
55	483716	483757	483799	483840	483882	483923	4
56	483965	484006	484048	484090	484131	484173	3
57	484214	484256	484297	484339	484380	484422	2
58	484463	484505	484546	484588	484630	484671	1
59	484713	484754	484796	484837	484879	484920	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 31 degrees, or Versed Sine Supplement of 121 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	17	21	25	29	33	37

Natural Versed Sine of 59 degrees, or Co-versed Sine of 149 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	484962	485003	485045	485087	485128	485170	59
1	485211	485253	485294	485336	485378	485419	58
2	485461	485502	485544	485585	485627	485669	57
3	485710	485752	485793	485835	485876	485918	56
4	485960	486001	486043	486084	486126	486168	55
5	486209	486251	486292	486334	486376	486417	54
6	486459	486500	486542	486584	486625	486667	53
7	486708	486750	486792	486833	486875	486916	52
8	486958	487000	487042	487083	487125	487166	51
9	487208	487249	487291	487333	487374	487416	50
10	487457	487499	487541	487582	487624	487666	49
11	487707	487749	487791	487832	487874	487915	48
12	487957	487999	488040	488082	488124	488165	47
13	488207	488249	488290	488332	488374	488415	46
14	488457	488499	488540	488582	488624	488665	45
15	488707	488749	488790	488832	488874	488915	44
16	488957	488999	489040	489082	489124	489165	43
17	489207	489249	489290	489332	489374	489415	42
18	489457	489499	489540	489582	489624	489666	41
19	489707	489749	489791	489832	489874	489916	40
20	489957	489999	490041	490083	490124	490166	39
21	490208	490249	490291	490333	490374	490416	38
22	490458	490500	490541	490583	490625	490667	37
23	490708	490750	490792	490833	490875	490917	36
24	490959	491000	491042	491084	491126	491167	35
25	491209	491251	491292	491334	491376	491418	34
26	491459	491501	491543	491585	491626	491668	33
27	491710	491752	491793	491835	491877	491919	32
28	491960	492002	492044	492086	492127	492169	31
29	492211	492253	492295	492336	492378	492420	30
30	492462	492503	492545	492587	492629	492671	29
31	492712	492754	492796	492838	492879	492921	28
32	492963	493005	493047	493088	493130	493172	27
33	493214	493256	493297	493339	493381	493423	26
34	493465	493506	493548	493590	493632	493674	25
35	493715	493757	493799	493841	493883	493924	24
36	493966	494008	494050	494092	494134	494175	23
37	494217	494259	494301	494343	494384	494426	22
38	494468	494510	494552	494594	494635	494677	21
39	494719	494761	494803	494845	494886	494928	20
40	494970	495012	495054	495096	495138	495179	19
41	495221	495263	495305	495347	495389	495431	18
42	495472	495514	495556	495598	495640	495682	17
43	495724	495765	495807	495849	495891	495933	16
44	495975	496017	496059	496100	496142	496184	15
45	496226	496268	496310	496352	496394	496435	14
46	496477	496519	496561	496603	496645	496687	13
47	496729	496771	496812	496854	496896	496938	12
48	496980	497022	497064	497106	497148	497190	11
49	497231	497273	497315	497357	497399	497441	10
50	497483	497525	497567	497609	497651	497693	9
51	497734	497776	497818	497860	497902	497944	8
52	497986	498028	498070	498112	498154	498196	7
53	498238	498280	498321	498363	498405	498447	6
54	498489	498531	498573	498615	498657	498699	5
55	498741	498783	498825	498867	498909	498951	4
56	498993	499035	499077	499119	499161	499202	3
57	499244	499286	499328	499370	499412	499454	2
58	499496	499538	499580	499622	499664	499706	1
59	499748	499790	499832	499874	499916	499958	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 30 degrees, or Versed Sine Supplement of 120 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	13	17	21	25	29	33	38

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NATURAL VERSED SINES.

Natural Versed Sine of 60 degrees, or Co-versed Sine of 150 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	500000	500042	500084	500126	500168	500210	59
1	500252	500294	500336	500378	500420	500462	58
2	500504	500546	500588	500630	500672	500714	57
3	500756	500798	500840	500882	500924	500966	56
4	501008	501050	501092	501134	501176	501218	55
5	501260	501302	501344	501386	501428	501470	54
6	501512	501554	501596	501638	501680	501722	53
7	501764	501806	501849	501891	501933	501975	52
8	502017	502059	502101	502143	502185	502227	51
9	502269	502311	502353	502395	502437	502479	50
10	502521	502563	502605	502647	502690	502732	49
11	502774	502816	502858	502900	502942	502984	48
12	503026	503068	503110	503152	503194	503236	47
13	503278	503321	503363	503405	503447	503489	46
14	503531	503573	503615	503657	503699	503741	45
15	503783	503826	503868	503910	503952	503994	44
16	504036	504078	504120	504162	504204	504247	43
17	504289	504331	504373	504415	504457	504499	42
18	504541	504583	504626	504668	504710	504752	41
19	504794	504836	504878	504920	504963	505005	40
20	505047	505089	505131	505173	505215	505257	39
21	505300	505342	505384	505426	505468	505510	38
22	505552	505595	505637	505679	505721	505763	37
23	505805	505847	505890	505932	505974	506016	36
24	506058	506100	506142	506185	506227	506269	35
25	506311	506353	506395	506438	506480	506522	34
26	506564	506606	506648	506691	506733	506775	33
27	506817	506859	506901	506944	506986	507028	32
28	507070	507112	507155	507197	507239	507281	31
29	507323	507365	507408	507450	507492	507534	30
30	507576	507619	507661	507703	507745	507787	29
31	507830	507872	507914	507956	507998	508041	28
32	508083	508125	508167	508210	508252	508294	27
33	508336	508378	508421	508463	508505	508547	26
34	508589	508632	508674	508716	508758	508801	25
35	508843	508885	508927	508970	509012	509054	24
36	509096	509138	509181	509223	509265	509307	23
37	509350	509392	509434	509476	509519	509561	22
38	509603	509645	509688	509730	509772	509814	21
39	509857	509899	509941	509983	510026	510068	20
40	510110	510153	510195	510237	510279	510322	19
41	510364	510406	510448	510491	510533	510575	18
42	510618	510660	510702	510744	510787	510829	17
43	510871	510914	510956	510998	511040	511083	16
44	511125	511167	511210	511252	511294	511337	15
45	511379	511421	511463	511506	511548	511590	14
46	511633	511675	511717	511760	511802	511844	13
47	511886	511929	511971	512013	512056	512098	12
48	512140	512183	512225	512267	512310	512352	11
49	512394	512437	512479	512521	512564	512606	10
50	512648	512691	512733	512775	512818	512860	9
51	512902	512945	512987	513029	513072	513114	8
52	513156	513199	513241	513283	513326	513368	7
53	513410	513453	513495	513538	513580	513622	6
54	513665	513707	513749	513792	513834	513876	5
55	513919	513961	514004	514046	514088	514131	4
56	514173	514215	514258	514300	514343	514385	3
57	514427	514470	514512	514554	514597	514639	2
58	514682	514724	514766	514809	514851	514894	1
59	514936	514978	515021	515063	515106	515148	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 29 degrees, or Versed Sine Supplement of 119 degrees.

Propor.	1″	2″	3″	4″	5″	6″	7″	8″	9″

Natural Versed Sine of 61 degrees, or Co-versed Sine of 151 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	515190	515233	515275	515318	515360	515402	59
1	515445	515487	515530	515572	515614	515657	58
2	515699	515742	515784	515827	515869	515911	57
3	515954	515996	516039	516081	516124	516166	56
4	516208	516251	516293	516336	516378	516421	55
5	516463	516505	516548	516590	516633	516675	54
6	516718	516760	516803	516845	516887	516930	53
7	516972	517015	517057	517100	517142	517185	52
8	517227	517269	517312	517354	517397	517439	51
9	517482	517524	517567	517609	517652	517694	50
10	517737	517779	517822	517864	517906	517949	49
11	517991	518034	518076	518119	518161	518204	48
12	518246	518289	518331	518374	518416	518459	47
13	518501	518544	518586	518629	518671	518714	46
14	518756	518799	518841	518884	518926	518969	45
15	519011	519054	519096	519139	519181	519224	44
16	519266	519309	519351	519394	519436	519479	43
17	519521	519564	519606	519649	519691	519734	42
18	519777	519819	519862	519904	519947	519989	41
19	520032	520074	520117	520159	520202	520244	40
20	520287	520329	520372	520415	520457	520500	39
21	520542	520585	520627	520670	520712	520755	38
22	520797	520840	520883	520925	520968	521010	37
23	521053	521095	521138	521180	521223	521266	36
24	521308	521351	521393	521436	521478	521521	35
25	521564	521606	521649	521691	521734	521776	34
26	521819	521862	521904	521947	521989	522032	33
27	522075	522117	522160	522202	522245	522287	32
28	522330	522373	522415	522458	522500	522543	31
29	522586	522628	522671	522713	522756	522799	30
30	522841	522884	522926	522969	523012	523054	29
31	523097	523140	523182	523225	523267	523310	28
32	523353	523395	523438	523480	523523	523566	27
33	523608	523651	523694	523736	523779	523821	26
34	523864	523907	523949	523992	524035	524077	25
35	524120	524163	524205	524248	524291	524333	24
36	524376	524418	524461	524504	524546	524589	23
37	524632	524674	524717	524760	524802	524845	22
38	524888	524930	524973	525016	525058	525101	21
39	525144	525186	525229	525272	525314	525357	20
40	525400	525442	525485	525528	525570	525613	19
41	525656	525698	525741	525784	525826	525869	18
42	525912	525954	525997	526040	526083	526125	17
43	526168	526211	526253	526296	526339	526381	16
44	526424	526467	526510	526552	526595	526638	15
45	526680	526723	526766	526808	526851	526894	14
46	526937	526979	527022	527065	527107	527150	13
47	527193	527236	527278	527321	527364	527407	12
48	527449	527492	527535	527577	527620	527663	11
49	527706	527748	527791	527834	527877	527919	10
50	527962	528005	528048	528091	528133	528176	9
51	528218	528261	528304	528347	528389	528432	8
52	528475	528518	528561	528603	528646	528689	7
53	528732	528774	528817	528860	528903	528945	6
54	528988	529031	529074	529116	529159	529202	5
55	529245	529288	529330	529373	529416	529459	4
56	529501	529544	529587	529630	529673	529715	3
57	529758	529801	529844	529886	529929	529972	2
58	530015	530058	530100	530143	530186	530229	1
59	530272	530314	530357	530400	530443	530486	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 28 degrees, or Versed Sine Supplement of 118 degrees.

Propor.	1″	2″	3″	4″	5″	6″	7″	8″	9″

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NATURAL VERSED SINES.

Natural Versed Sine of 62 degrees, or Co-versed Sine of 152 degrees.

Minutes	0″	10″	20″	30″	40″	50	Minutes
0	530528	530571	530614	530657	530700	530742	59
1	530785	530828	530871	530914	530957	530999	58
2	531042	531085	531128	531171	531213	531256	57
3	531299	531342	531385	531428	531470	531513	56
4	531556	531599	531642	531685	531727	531770	55
5	531813	531856	531899	531942	531984	532027	54
6	532070	532113	532156	532199	532242	532284	53
7	532327	532370	532413	532456	532499	532542	52
8	532584	532627	532670	532713	532756	532799	51
9	532842	532884	532927	532970	533013	533056	50
10	533099	533142	533185	533227	533270	533313	49
11	533356	533399	533442	533485	533528	533570	48
12	533613	533656	533699	533742	533785	533828	47
13	533871	533914	533956	533999	534042	534085	46
14	534128	534171	534214	534257	534300	534343	45
15	534385	534428	534471	534514	534557	534600	44
16	534643	534686	534729	534772	534815	534858	43
17	534900	534943	534986	535029	535072	535115	42
18	535158	535201	535244	535287	535330	535373	41
19	535416	535458	535501	535544	535587	535630	40
20	535673	535716	535759	535802	535845	535888	39
21	535931	535974	536017	536060	536103	536146	38
22	536188	536231	536274	536317	536360	536403	37
23	536446	536489	536532	536575	536618	536661	36
24	536704	536747	536790	536833	536876	536919	35
25	536962	537005	537048	537091	537134	537177	34
26	537220	537263	537306	537349	537392	537435	33
27	537477	537520	537563	537606	537649	537692	32
28	537735	537778	537821	537864	537907	537950	31
29	537993	538036	538079	538122	538165	538208	30
30	538251	538294	538337	538380	538423	538466	29
31	538509	538552	538595	538638	538681	538724	28
32	538768	538811	538854	538897	538940	538983	27
33	539026	539069	539112	539155	539198	539241	26
34	539284	539327	539370	539413	539456	539499	25
35	539542	539585	539628	539671	539714	539757	24
36	539800	539843	539886	539929	539972	540015	23
37	540058	540102	540145	540188	540231	540274	22
38	540317	540360	540403	540446	540489	540532	21
39	540575	540618	540661	540704	540747	540790	20
40	540834	540877	540920	540963	541006	541049	19
41	541092	541135	541178	541221	541264	541307	18
42	541350	541394	541437	541480	541523	541566	17
43	541609	541652	541695	541738	541781	541824	16
44	541867	541911	541954	541997	542040	542083	15
45	542126	542169	542212	542255	542298	542342	14
46	542385	542428	542471	542514	542557	542600	13
47	542643	542686	542730	542773	542816	542859	12
48	542902	542946	542988	543031	543075	543118	11
49	543161	543204	543247	543290	543333	543376	10
50	543420	543463	543506	543549	543592	543635	9
51	543678	543722	543765	543808	543851	543894	8
52	543937	543980	544024	544067	544110	544153	7
53	544196	544239	544282	544326	544369	544412	6
54	544455	544498	544541	544585	544628	544671	5
55	544714	544757	544800	544844	544887	544930	4
56	544973	545016	545059	545103	545146	545189	3
57	545232	545275	545318	545362	545405	545448	2
58	545491	545534	545578	545621	545664	545707	1
59	545750	545794	545837	545880	545923	545966	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 27 degrees, or Versed Sine Supplement of 117 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	21	26	30	34	39

Natural Versed Sine of 63 degrees, or Co-versed Sine of 153 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	546010	546053	546096	546139	546182	546225	59
1	546269	546312	546355	546398	546442	546485	58
2	546528	546571	546614	546658	546701	546744	57
3	546787	546830	546874	546917	546960	547003	56
4	547047	547090	547133	547176	547219	547263	55
5	547306	547349	547392	547436	547479	547522	54
6	547565	547609	547652	547695	547738	547781	53
7	547825	547868	547911	547954	547998	548041	52
8	548084	548127	548171	548214	548257	548300	51
9	548344	548387	548430	548473	548517	548560	50
10	548603	548647	548690	548733	548776	548820	49
11	548863	548906	548949	548993	549036	549079	48
12	549122	549166	549209	549252	549296	549339	47
13	549382	549425	549469	549512	549555	549599	46
14	549642	549685	549728	549772	549815	549858	45
15	549902	549945	549988	550031	550075	550118	44
16	550161	550205	550248	550291	550335	550378	43
17	550421	550464	550508	550551	550594	550638	42
18	550681	550724	550768	550811	550854	550898	41
19	550941	550984	551028	551071	551114	551157	40
20	551201	551244	551287	551331	551374	551417	39
21	551461	551504	551547	551591	551634	551677	38
22	551721	551764	551807	551851	551894	551937	37
23	551981	552024	552068	552111	552154	552198	36
24	552241	552284	552328	552371	552414	552458	35
25	552501	552544	552588	552631	552674	552718	34
26	552761	552805	552848	552891	552935	552978	33
27	553021	553065	553108	553151	553195	553238	32
28	553282	553325	553368	553412	553455	553498	31
29	553542	553585	553629	553672	553715	553759	30
30	553802	553846	553889	553932	553976	554019	29
31	554063	554106	554149	554193	554236	554280	28
32	554323	554366	554410	554453	554497	554540	27
33	554583	554627	554670	554714	554757	554800	26
34	554844	554887	554931	554974	555017	555061	25
35	555104	555148	555191	555235	555278	555321	24
36	555365	555408	555452	555495	555539	555582	23
37	555625	555669	555712	555756	555799	555843	22
38	555886	555929	555973	556016	556060	556103	21
39	556147	556190	556234	556277	556320	556364	20
40	556407	556451	556494	556538	556581	556625	19
41	556668	556712	556755	556798	556842	556885	18
42	556929	556972	557016	557059	557103	557146	17
43	557190	557233	557277	557320	557363	557407	16
44	557450	557494	557537	557581	557624	557668	15
45	557711	557755	557798	557842	557885	557929	14
46	557972	558016	558059	558103	558146	558190	13
47	558233	558277	558320	558364	558407	558451	12
48	558494	558538	558581	558625	558668	558712	11
49	558755	558799	558842	558886	558929	558973	10
50	559016	559060	559103	559147	559190	559234	9
51	559277	559321	559364	559408	559451	559495	8
52	559538	559582	559626	559669	559713	559756	7
53	559800	559843	559887	559930	559974	560017	6
54	560061	560104	560148	560191	560235	560279	5
55	560322	560366	560409	560453	560496	560540	4
56	560583	560627	560670	560714	560758	560801	3
57	560845	560888	560932	560975	561019	561062	2
58	561106	561150	561193	561237	561280	561324	1
59	561367	561411	561455	561498	561542	561585	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 26 degrees, or Versed Sine Supplement of 116 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	22	26	30	35	39

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 60 degrees, or Co-versed Sine of 150 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	500000	500042	500084	500126	500168	500210	59
1	500252	500294	500336	500378	500420	500462	58
2	500504	500546	500588	500630	500672	500714	57
3	500756	500798	500840	500882	500924	500966	56
4	501008	501050	501092	501134	501176	501218	55
5	501260	501302	501344	501386	501428	501470	54
6	501512	501554	501596	501638	501680	501722	53
7	501764	501806	501849	501891	501933	501975	52
8	502017	502059	502101	502143	502185	502227	51
9	502269	502311	502353	502395	502437	502479	50
10	502521	502563	502605	502647	502690	502732	49
11	502774	502816	502858	502900	502942	502984	48
12	503026	503068	503110	503152	503194	503236	47
13	503278	503321	503363	503405	503447	503489	46
14	503531	503573	503615	503657	503699	503741	45
15	503783	503826	503868	503910	503952	503994	44
16	504036	504078	504120	504162	504204	504247	43
17	504289	504331	504373	504415	504457	504499	42
18	504541	504583	504626	504668	504710	504752	41
19	504794	504836	504878	504920	504963	505005	40
20	505047	505089	505131	505173	505215	505257	39
21	505300	505342	505384	505426	505468	505510	38
22	505552	505595	505637	505679	505721	505763	37
23	505805	505847	505890	505932	505974	506016	36
24	506058	506100	506142	506185	506227	506269	35
25	506311	506353	506395	506438	506480	506522	34
26	506564	506606	506648	506691	506733	506775	33
27	506817	506859	506901	506944	506986	507028	32
28	507070	507112	507155	507197	507239	507281	31
29	507323	507365	507408	507450	507492	507534	30
30	507576	507619	507661	507703	507745	507787	29
31	507830	507872	507914	507956	507998	508041	28
32	508083	508125	508167	508210	508252	508294	27
33	508336	508378	508421	508463	508505	508547	26
34	508589	508632	508674	508716	508758	508801	25
35	508843	508885	508927	508970	509012	509054	24
36	509096	509138	509181	509223	509265	509307	23
37	509350	509392	509434	509476	509519	509561	22
38	509603	509645	509688	509730	509772	509814	21
39	509857	509899	509941	509983	510026	510068	20
40	510110	510153	510195	510237	510279	510322	19
41	510364	510406	510448	510491	510533	510575	18
42	510618	510660	510702	510744	510787	510829	17
43	510871	510914	510956	510998	511040	511083	16
44	511125	511167	511210	511252	511294	511337	15
45	511379	511421	511463	511506	511548	511590	14
46	511633	511675	511717	511760	511802	511844	13
47	511886	511929	511971	512013	512056	512098	12
48	512140	512183	512225	512267	512310	512352	11
49	512394	512437	512479	512521	512564	512606	10
50	512648	512691	512733	512775	512818	512860	9
51	512902	512945	512987	513029	513072	513114	8
52	513156	513199	513241	513283	513326	513368	7
53	513410	513453	513495	513538	513580	513622	6
54	513665	513707	513749	513792	513834	513876	5
55	513919	513961	514004	514046	514088	514131	4
56	514173	514215	514258	514300	514343	514385	3
57	514427	514470	514512	514554	514597	514639	2
58	514682	514724	514766	514809	514851	514894	1
59	514936	514978	515021	515063	515106	515148	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 29 degrees, or Versed Sine Supplement of 119 degrees.						
Propor. parts.	1″ 4	2″ 8	3″ 13	4″ 17	5″ 21	6″ 25	7″ [illegible]

Minutes	Natural Versed Si[illegible] Co-versed Sine 0″	10″	20″
0	515190	515233	51527[illegible]
1	515445	515487	5155[illegible]
2	515699	515742	5157[illegible]
3	515954	515996	5160[illegible]
4	516208	516251	516[illegible]
5	516463	516505	516[illegible]
6	516718	516760	516[illegible]
7	516972	517015	51[illegible]
8	517227	517269	51[illegible]
9	517482	517524	51[illegible]
10	517737	517779	5[illegible]
11	517991	518034	5[illegible]
12	518246	518289	5[illegible]
13	518501	518544	[illegible]
14	518756	518799	[illegible]
15	519011	519054	[illegible]
16	519266	519309	[illegible]
17	519521	519564	[illegible]
18	519777	51981[illegible]	[illegible]
19	520032	5200[illegible]	[illegible]
20	520287	5203[illegible]	[illegible]
21	520542	5205[illegible]	[illegible]
22	520797	5208[illegible]	[illegible]
23	521053	5210[illegible]	[illegible]
24	521308	521[illegible]	[illegible]
25	521564	521[illegible]	[illegible]
26	521819	521[illegible]	[illegible]
27	522075	52[illegible]	[illegible]
28	522330	52[illegible]	[illegible]
29	522586	52[illegible]	[illegible]
30	522841	52[illegible]	[illegible]
31	523097	5[illegible]	[illegible]
32	523353	[illegible]	[illegible]
33	523608	[illegible]	[illegible]
34	523864	[illegible]	[illegible]
35	524120	[illegible]	[illegible]
36	524376	[illegible]	[illegible]
37	524631	[illegible]	[illegible]
38	524887	[illegible]	[illegible]
39	525143	[illegible]	[illegible]
40	525399	[illegible]	[illegible]
41	525[illegible]	[illegible]	[illegible]
42	525[illegible]	[illegible]	[illegible]
43	526[illegible]	[illegible]	[illegible]
44	52[illegible]	[illegible]	[illegible]
45	52[illegible]	[illegible]	[illegible]
46	52[illegible]	[illegible]	[illegible]
47	52[illegible]	[illegible]	[illegible]
48	5[illegible]	[illegible]	[illegible]
49	5[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]
51	[illegible]	[illegible]	[illegible]
52	[illegible]	[illegible]	[illegible]
53	[illegible]	[illegible]	[illegible]
54	[illegible]	[illegible]	[illegible]
55	[illegible]	[illegible]	[illegible]
56	[illegible]	[illegible]	[illegible]
57	[illegible]	[illegible]	[illegible]
58	[illegible]	[illegible]	[illegible]
59	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
Minutes	[illegible]	[illegible]	[illegible]
	[illegible] degrees, or Versed [illegible] of [illegible] degrees.		
Propor. parts.	[illegible]	[illegible]	[illegible]

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				f 67 degrees, or 157 degrees.			Minutes
				0″	40″	50″	
				9403	609447	609492	59
				09671	609715	609760	58
				09938	609983	610028	57
				610206	610251	610296	56
				610474	610519	610563	55
				610742	610787	610831	54
				611010	611055	611099	53
				611278	611323	611367	52
				611546	611591	611635	51
				611814	611859	611903	50
				612082	612127	612172	49
				612350	612395	612440	48
				612618	612663	612708	47
				612887	612931	612976	46
				613155	613200	613244	45
				613423	613468	613513	44
				613691	613736	613781	43
				613960	614005	614049	42
				614228	614273	614318	41
				614497	614541	614586	40
				614765	614810	614854	39
				615033	615078	615123	38
				615302	615347	615391	37
				615570	615615	615660	36
				615839	615884	615928	35
				616108	616152	616197	34
				616376	616421	616466	33
				616645	616690	616734	32
				616913	616958	617003	31
				617182	617227	617272	30
				617451	617496	617541	29
				617720	617765	617809	28
				617989	618033	618078	27
				618257	618302	618347	26
				618526	618571	618616	25
				618795	618840	618885	24
				619064	619109	619154	23
				619333	619378	619423	22
				619602	619647	619692	21
				619871	619916	619961	20
				620140	620185	620230	19
				620409	620454	620499	18
				620678	620723	620768	17
				620948	620992	621037	16
				621217	621262	621307	15
				621486	621531	621576	14
				621755	621800	621845	13
				622025	622069	622114	12
				622294	622339	622384	11
				622563	622608	622653	10
				622833	622878	622922	9
				623102	623147	623192	8
				623371	623416	623461	7
				623641	623686	623731	6
				623910	623955	624000	5
				624180	624225	624270	4
				624450	624495	624539	3
				624719	624764	624809	2
				624989	625034	625079	1
				625259	625304	625348	0
				60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 22 deg

Versed Sine Supplement o

Propor. parts.	1″	2″	3″	4″	5
	4	9	13	18	22

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NATURAL VERSED SINES.

Natural Versed Sine of 64 degrees, or Co-versed sine of 154 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	561629	561672	561716	561760	561803	561847	59
1	561890	561934	561977	562021	562065	562108	58
2	562152	562195	562239	562283	562326	562370	57
3	562413	562457	562501	562544	562588	562631	56
4	562675	562719	562762	562806	562849	562893	55
5	562937	562980	563024	563067	563111	563155	54
6	563198	563242	563285	563329	563373	563416	53
7	563460	563504	563547	563591	563634	563678	52
8	563722	563765	563809	563853	563896	563940	51
9	563983	564027	564071	564114	564158	564202	50
10	564245	564289	564332	564376	564420	564463	49
11	564507	564551	564594	564638	564682	564725	48
12	564769	564813	564856	564900	564943	564987	47
13	565031	565074	565118	565162	565205	565249	46
14	565293	565336	565380	565424	565467	565511	45
15	565555	565598	565642	565686	565729	565773	44
16	565817	565860	565904	565948	565991	566035	43
17	566079	566123	566166	566210	566254	566297	42
18	566341	566385	566428	566472	566516	566559	41
19	566603	566647	566690	566734	566778	566822	40
20	566865	566909	566953	566996	567040	567084	39
21	567127	567171	567215	567259	567302	567346	38
22	567390	567433	567477	567521	567565	567608	37
23	567652	567696	567739	567783	567827	567871	36
24	567914	567958	568002	568045	568089	568133	35
25	568177	568220	568264	568308	568352	568395	34
26	568439	568483	568526	568570	568614	568658	33
27	568701	568745	568789	568833	568876	568920	32
28	568964	569008	569051	569095	569139	569183	31
29	569226	569270	569314	569358	569401	569445	30
30	569489	569533	569576	569620	569664	569708	29
31	569751	569795	569839	569883	569927	569970	28
32	570014	570058	570102	570145	570189	570233	27
33	570277	570320	570364	570408	570452	570496	26
34	570539	570583	570627	570671	570715	570758	25
35	570802	570846	570890	570933	570977	571021	24
36	571065	571109	571152	571196	571240	571284	23
37	571328	571371	571415	571459	571503	571547	22
38	571590	571634	571678	571722	571766	571810	21
39	571853	571897	571941	571985	572029	572072	20
40	572116	572160	572204	572248	572292	572335	19
41	572379	572423	572467	572511	572554	572598	18
42	572642	572686	572730	572774	572817	572861	17
43	572905	572949	572993	573037	573080	573124	16
44	573168	573212	573256	573300	573344	573387	15
45	573431	573475	573519	573563	573607	573651	14
46	573694	573738	573782	573826	573870	573914	13
47	573958	574001	574045	574089	574133	574177	12
48	574221	574265	574308	574352	574396	574440	11
49	574484	574528	574572	574616	574659	574703	10
50	574747	574791	574835	574879	574923	574967	9
51	575010	575054	575098	575142	575186	575230	8
52	575274	575318	575362	575405	575449	575493	7
53	575537	575581	575625	575669	575713	575757	6
54	575801	575844	575888	575932	575976	576020	5
55	576064	576108	576152	576196	576240	576284	4
56	576327	576371	576415	576459	576503	576547	3
57	576591	576635	576679	576723	576767	576811	2
58	576855	576898	576942	576986	577030	577074	1
59	577118	577162	577206	577250	577294	577338	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 25 degrees, or Versed Sine Supplement of 115 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	22	26	31	35	39

Natural Versed Sine of 65 degrees, or Co-versed Sine of 155 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	577382	577426	577470	577514	577558	577601	59
1	577645	577689	577733	577777	577821	577865	58
2	577909	577953	577997	578041	578085	578129	57
3	578173	578217	578261	578305	578349	578393	56
4	578437	578481	578524	578568	578612	578656	55
5	578700	578744	578788	578832	578876	578920	54
6	578964	579008	579052	579096	579140	579184	53
7	579228	579272	579316	579360	579404	579448	52
8	579492	579536	579580	579624	579668	579712	51
9	579756	579800	579844	579888	579932	579976	50
10	580020	580064	580108	580152	580196	580240	49
11	580284	580328	580372	580416	580460	580504	48
12	580548	580592	580636	580680	580724	580768	47
13	580812	580856	580900	580944	580988	581032	46
14	581076	581120	581164	581208	581252	581296	45
15	581340	581384	581428	581472	581516	581560	44
16	581604	581648	581693	581737	581781	581825	43
17	581869	581913	581957	582001	582045	582089	42
18	582133	582177	582221	582265	582309	582353	41
19	582397	582441	582485	582529	582573	582617	40
20	582662	582706	582750	582794	582838	582882	39
21	582926	582970	583014	583058	583102	583146	38
22	583190	583234	583278	583323	583367	583411	37
23	583455	583499	583543	583587	583631	583675	36
24	583719	583763	583807	583851	583896	583940	35
25	583984	584028	584072	584116	584160	584204	34
26	584248	584292	584336	584381	584425	584469	33
27	584513	584557	584601	584645	584689	584733	32
28	584777	584822	584866	584910	584954	584998	31
29	585042	585086	585130	585174	585219	585263	30
30	585307	585351	585395	585439	585483	585527	29
31	585571	585616	585660	585704	585748	585792	28
32	585836	585880	585924	585969	586013	586057	27
33	586101	586145	586189	586233	586278	586322	26
34	586366	586410	586454	586498	586542	586586	25
35	586631	586675	586719	586763	586807	586851	24
36	586896	586940	586984	587028	587072	587116	23
37	587160	587205	587249	587293	587337	587381	22
38	587425	587470	587514	587558	587602	587646	21
39	587690	587735	587779	587823	587867	587911	20
40	587955	588000	588044	588088	588132	588176	19
41	588221	588265	588309	588353	588397	588441	18
42	588486	588530	588574	588618	588662	588707	17
43	588751	588795	588839	588883	588928	588972	16
44	589016	589060	589104	589149	589193	589237	15
45	589281	589325	589370	589414	589458	589502	14
46	589546	589591	589635	589679	589723	589767	13
47	589812	589856	589900	589944	589989	590033	12
48	590077	590121	590165	590210	590254	590298	11
49	590342	590387	590431	590475	590519	590563	10
50	590608	590652	590696	590740	590785	590829	9
51	590873	590917	590962	591006	591050	591094	8
52	591139	591183	591227	591271	591316	591360	7
53	591404	591449	591493	591537	591581	591625	6
54	591670	591714	591758	591802	591847	591891	5
55	591935	591979	592024	592068	592112	592156	4
56	592201	592245	592289	592333	592378	592422	3
57	592466	592511	592555	592599	592643	592688	2
58	592732	592776	592821	592865	592909	592953	1
59	592998	593042	593086	593130	593175	593219	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 24 degrees, or Versed Sine Supplement of 114 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	26	31	35	40

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NATURAL VERSED SINES.

Natural Versed Sine of 66 degrees, or Co-versed Sine of 156 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	593263	593308	593352	593396	593441	593485	59
1	593529	593573	593618	593662	593706	593751	58
2	593795	593839	593884	593928	593972	594016	57
3	594061	594105	594149	594194	594238	594282	56
4	594327	594371	594415	594460	594504	594548	55
5	594592	594637	594681	594725	594770	594814	54
6	594858	594903	594947	594991	595036	595080	53
7	595124	595169	595213	595257	595302	595346	52
8	595390	595435	595479	595523	595568	595612	51
9	595656	595701	595745	595789	595834	595878	50
10	595922	595967	596011	596056	596100	596144	49
11	596189	596233	596277	596322	596366	596410	48
12	596455	596499	596543	596588	596632	596677	47
13	596721	596765	596810	596854	596898	596943	46
14	596987	597031	597076	597121	597165	597209	45
15	597253	597298	597342	597386	597431	597475	44
16	597520	597564	597608	597653	597697	597741	43
17	597786	597830	597875	597919	597963	598008	42
18	598052	598097	598141	598185	598230	598274	41
19	598319	598363	598407	598452	598496	598541	40
20	598585	598629	598674	598718	598763	598807	39
21	598851	598896	598940	598985	599029	599074	38
22	599118	599162	599207	599251	599296	599340	37
23	599384	599429	599473	599518	599562	599607	36
24	599651	599695	599740	599784	599829	599873	35
25	599918	599962	600006	600051	600095	600140	34
26	600184	600229	600273	600317	600362	600406	33
27	600451	600495	600540	600584	600629	600673	32
28	600717	600762	600806	600851	600895	600940	31
29	600984	601029	601073	601118	601162	601206	30
30	601251	601295	601340	601384	601429	601473	29
31	601518	601562	601607	601651	601696	601740	28
32	601785	601829	601873	601918	601962	602007	27
33	602051	602096	602140	602185	602229	602274	26
34	602318	602363	602407	602452	602496	602541	25
35	602585	602630	602674	602719	602763	602808	24
36	602852	602897	602941	602986	603030	603075	23
37	603119	603164	603208	603253	603297	603342	22
38	603386	603431	603475	603520	603564	603609	21
39	603653	603698	603742	603787	603831	603876	20
40	603920	603965	604009	604054	604098	604143	19
41	604187	604232	604276	604321	604365	604410	18
42	604454	604499	604544	604588	604633	604677	17
43	604722	604766	604811	604855	604900	604944	16
44	604989	605033	605078	605123	605167	605212	15
45	605256	605301	605345	605390	605434	605479	14
46	605523	605568	605613	605657	605702	605746	13
47	605791	605835	605880	605924	605969	606014	12
48	606058	606103	606147	606192	606236	606281	11
49	606325	606370	606415	606459	606504	606548	10
50	606593	606637	606682	606727	606771	606816	9
51	606860	606905	606949	606994	607039	607083	8
52	607128	607172	607217	607262	607306	607351	7
53	607395	607440	607485	607529	607574	607618	6
54	607663	607707	607752	607797	607841	607886	5
55	607930	607975	608020	608064	608109	608153	4
56	608198	608243	608287	608332	608377	608421	3
57	608466	608510	608555	608600	608644	608689	2
58	608733	608778	608823	608867	608912	608957	1
59	609001	609046	609090	609135	609180	609224	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 23 degrees, or Versed Sine Supplement of 113 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	27	31	36	40

Natural Versed Sine of 67 degrees, or Co-versed Sine of 157 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	609269	609313	609358	609403	609447	609492	59
1	609537	609581	609626	609671	609715	609760	58
2	609804	609849	609894	609938	609983	610028	57
3	610072	610117	610162	610206	610251	610296	56
4	610340	610385	610429	610474	610519	610563	55
5	610608	610653	610697	610742	610787	610831	54
6	610876	610921	610965	611010	611055	611099	53
7	611144	611189	611233	611278	611323	611367	52
8	611412	611457	611501	611546	611591	611635	51
9	611680	611725	611769	611814	611859	611903	50
10	611948	611993	612038	612082	612127	612172	49
11	612216	612261	612306	612350	612395	612440	48
12	612484	612529	612574	612618	612663	612708	47
13	612753	612797	612842	612887	612931	612976	46
14	613021	613066	613110	613155	613200	613244	45
15	613289	613334	613378	613423	613468	613513	44
16	613557	613602	613647	613691	613736	613781	43
17	613826	613870	613915	613960	614005	614049	42
18	614094	614139	614183	614228	614273	614318	41
19	614362	614407	614452	614497	614541	614586	40
20	614631	614675	614720	614765	614810	614854	39
21	614899	614944	614989	615033	615078	615123	38
22	615168	615212	615257	615302	615347	615391	37
23	615436	615481	615526	615570	615615	615660	36
24	615705	615749	615794	615839	615884	615928	35
25	615973	616018	616063	616108	616152	616197	34
26	616242	616287	616331	616376	616421	616466	33
27	616510	616555	616600	616645	616690	616734	32
28	616779	616824	616869	616913	616958	617003	31
29	617048	617093	617137	617182	617227	617272	30
30	617317	617361	617406	617451	617496	617541	29
31	617585	617630	617675	617720	617765	617809	28
32	617854	617899	617944	617989	618033	618078	27
33	618123	618168	618213	618257	618302	618347	26
34	618392	618437	618481	618526	618571	618616	25
35	618661	618706	618750	618795	618840	618885	24
36	618930	618974	619019	619064	619109	619154	23
37	619199	619243	619288	619333	619378	619423	22
38	619468	619512	619557	619602	619647	619692	21
39	619737	619781	619826	619871	619916	619961	20
40	620006	620050	620095	620140	620185	620230	19
41	620275	620320	620364	620409	620454	620499	18
42	620544	620589	620634	620678	620723	620768	17
43	620813	620858	620903	620948	620992	621037	16
44	621082	621127	621172	621217	621262	621307	15
45	621351	621396	621441	621486	621531	621576	14
46	621621	621666	621710	621755	621800	621845	13
47	621890	621935	621980	622025	622069	622114	12
48	622159	622204	622249	622294	622339	622384	11
49	622429	622473	622518	622563	622608	622653	10
50	622698	622743	622788	622833	622878	622922	9
51	622967	623012	623057	623102	623147	623192	8
52	623237	623282	623327	623371	623416	623461	7
53	623506	623551	623596	623641	623686	623731	6
54	623776	623821	623866	623910	623955	624000	5
55	624045	624090	624135	624180	624225	624270	4
56	624315	624360	624405	624450	624495	624539	3
57	624584	624629	624674	624719	624764	624809	2
58	624854	624899	624944	624989	625034	625079	1
59	625124	625169	625214	625259	625304	625348	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Co-versed Sine of 22 degrees, or Versed Sine Supplement of 112 degrees

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	27	31	36	40

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NATURAL VERSED SINES.

Natural Versed Sine of 68 degrees, or Co-versed Sine of 158 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	625393	625438	625483	625528	625573	625618	59
1	625663	625708	625753	625798	625843	625888	58
2	625933	625978	626023	626068	626113	626158	57
3	626203	626248	626293	626338	626383	626428	56
4	626472	626517	626562	626607	626652	626697	55
5	626742	626787	626832	626877	626922	626967	54
6	627012	627057	627102	627147	627192	627237	53
7	627282	627327	627372	627417	627462	627507	52
8	627552	627597	627642	627687	627732	627777	51
9	627822	627867	627912	627957	628002	628047	50
10	628092	628137	628182	628227	628272	628317	49
11	628362	628407	628452	628497	628542	628587	48
12	628632	628677	628722	628767	628812	628857	47
13	628902	628947	628992	629037	629082	629127	46
14	629172	629217	629262	629307	629353	629398	45
15	629443	629488	629533	629578	629623	629668	44
16	629713	629758	629803	629848	629893	629938	43
17	629983	630028	630073	630118	630163	630208	42
18	630253	630298	630343	630388	630433	630478	41
19	630524	630569	630614	630659	630704	630749	40
20	630794	630839	630884	630929	630974	631019	39
21	631064	631109	631154	631199	631244	631290	38
22	631335	631380	631425	631470	631515	631560	37
23	631605	631650	631695	631740	631785	631830	36
24	631875	631921	631966	632011	632056	632101	35
25	632146	632191	632236	632281	632326	632371	34
26	632416	632462	632507	632552	632597	632642	33
27	632687	632732	632777	632822	632867	632912	32
28	632958	633003	633048	633093	633138	633183	31
29	633228	633273	633318	633363	633409	633454	30
30	633499	633544	633589	633634	633679	633724	29
31	633769	633815	633860	633905	633950	633995	28
32	634040	634085	634130	634175	634221	634266	27
33	634311	634356	634401	634446	634491	634536	26
34	634582	634627	634672	634717	634762	634807	25
35	634852	634898	634943	634988	635033	635078	24
36	635123	635168	635213	635259	635304	635349	23
37	635394	635439	635484	635530	635575	635620	22
38	635665	635710	635755	635800	635846	635891	21
39	635936	635981	636026	636071	636116	636162	20
40	636207	636252	636297	636342	636387	636433	19
41	636478	636523	636568	636613	636658	636704	18
42	636749	636794	636839	636884	636929	636975	17
43	637020	637065	637110	637155	637201	637246	16
44	637291	637336	637381	637426	637472	637517	15
45	637562	637607	637652	637698	637743	637788	14
46	637833	637878	637923	637969	638014	638059	13
47	638104	638149	638195	638240	638285	638330	12
48	638375	638421	638466	638511	638556	638601	11
49	638647	638692	638737	638782	638827	638873	10
50	638918	638963	639008	639054	639099	639144	9
51	639189	639234	639280	639325	639370	639415	8
52	639460	639506	639551	639596	639641	639687	7
53	639732	639777	639822	639868	639913	639958	6
54	640003	640048	640094	640139	640184	640229	5
55	640275	640320	640365	640410	640456	640501	4
56	640546	640591	640637	640682	640727	640772	3
57	640817	640863	640908	640953	640998	641044	2
58	641089	641134	641179	641225	641270	641315	1
59	641360	641406	641451	641496	641542	641587	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 21 degrees, or Versed Sine Supplement of 111 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	27	32	36	41

Natural Versed Sine of 69 degrees, or Co-versed Sine of 159 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	641632	641677	641723	641768	641813	641858	59
1	641904	641949	641994	642039	642085	642130	58
2	642175	642221	642266	642311	642356	642402	57
3	642447	642492	642537	642583	642628	642673	56
4	642719	642764	642809	642854	642900	642945	55
5	642990	643036	643081	643126	643171	643217	54
6	643262	643307	643353	643398	643443	643488	53
7	643534	643579	643624	643670	643715	643760	52
8	643806	643851	643896	643941	643987	644032	51
9	644077	644123	644168	644213	644259	644304	50
10	644349	644395	644440	644485	644530	644576	49
11	644621	644666	644712	644757	644802	644848	48
12	644893	644938	644984	645029	645074	645120	47
13	645165	645210	645256	645301	645346	645392	46
14	645437	645482	645528	645573	645618	645664	45
15	645709	645754	645800	645845	645890	645936	44
16	645981	646026	646072	646117	646162	646208	43
17	646253	646298	646344	646389	646434	646480	42
18	646525	646571	646616	646661	646707	646752	41
19	646797	646843	646888	646933	646979	647024	40
20	647069	647115	647160	647206	647251	647296	39
21	647342	647387	647433	647478	647523	647569	38
22	647614	647659	647705	647750	647795	647841	37
23	647886	647931	647977	648022	648068	648113	36
24	648159	648204	648249	648294	648340	648385	35
25	648431	648476	648522	648567	648612	648658	34
26	648703	648748	648794	648839	648885	648930	33
27	648975	649021	649066	649112	649157	649202	32
28	649248	649293	649339	649384	649429	649475	31
29	649520	649566	649611	649656	649702	649747	30
30	649793	649838	649883	649929	649974	650020	29
31	650065	650111	650156	650201	650247	650292	28
32	650338	650383	650428	650474	650519	650565	27
33	650610	650656	650701	650746	650792	650837	26
34	650883	650929	650974	651019	651064	651110	25
35	651155	651201	651246	651292	651337	651383	24
36	651428	651473	651519	651564	651610	651655	23
37	651701	651746	651792	651837	651882	651928	22
38	651973	652019	652064	652110	652155	652201	21
39	652246	652292	652337	652382	652428	652473	20
40	652519	652564	652610	652655	652701	652746	19
41	652792	652837	652882	652928	652973	653019	18
42	653064	653110	653155	653201	653246	653292	17
43	653337	653383	653428	653474	653519	653565	16
44	653610	653656	653701	653746	653792	653837	15
45	653883	653928	653974	654019	654065	654110	14
46	654156	654201	654247	654292	654338	654383	13
47	654429	654474	654520	654565	654611	654656	12
48	654702	654747	654793	654838	654884	654929	11
49	654975	655020	655066	655111	655157	655202	10
50	655248	655293	655339	655384	655430	655475	9
51	655521	655566	655612	655657	655703	655749	8
52	655794	655840	655885	655931	655976	656022	7
53	656067	656113	656158	656204	656249	656295	6
54	656340	656386	656431	656477	656522	656568	5
55	656613	656659	656705	656750	656796	656841	4
56	656887	656933	656978	657023	657069	657114	3
57	657160	657205	657251	657297	657342	657388	2
58	657433	657479	657524	657570	657615	657661	1
59	657707	657752	657798	657843	657889	657934	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 20 degrees, or Versed Sine Supplement of 110 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	27	32	36	41

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NATURAL VERSED SINES.

Natural Versed Sine of 70 degrees, or Co-versed Sine of 160 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	657980	658025	658071	658117	658162	658208	59
1	658253	658299	658344	658390	658435	658481	58
2	658527	658572	658618	658663	658709	658754	57
3	658800	658846	658891	658937	658982	659028	56
4	659073	659119	659165	659210	659256	659301	55
5	659347	659393	659438	659484	659529	659575	54
6	659620	659666	659712	659757	659803	659848	53
7	659894	659940	659985	660031	660076	660122	52
8	660168	660213	660259	660304	660350	660396	51
9	660441	660487	660532	660578	660624	660669	50
10	660715	660760	660806	660852	660897	660943	49
11	660988	661034	661080	661125	661171	661216	48
12	661262	661308	661353	661399	661445	661490	47
13	661536	661581	661627	661673	661718	661764	46
14	661810	661855	661901	661946	661992	662038	45
15	662083	662129	662175	662220	662266	662311	44
16	662357	662403	662448	662494	662540	662585	43
17	662631	662677	662722	662768	662813	662859	42
18	662905	662950	662996	663042	663087	663133	41
19	663179	663224	663270	663316	663361	663407	40
20	663453	663498	663544	663589	663635	663681	39
21	663726	663772	663818	663863	663909	663955	38
22	664000	664046	664092	664137	664183	664229	37
23	664274	664320	664366	664411	664457	664503	36
24	664548	664594	664640	664685	664731	664777	35
25	664822	664868	664914	664960	665005	665051	34
26	665097	665142	665188	665234	665279	665325	33
27	665371	665416	665462	665508	665553	665599	32
28	665645	665690	665736	665782	665828	665873	31
29	665919	665965	666010	666056	666102	666147	30
30	666193	666239	666285	666330	666376	666422	29
31	666467	666513	666559	666604	666650	666696	28
32	666742	666787	666833	666879	666924	666970	27
33	667016	667062	667107	667153	667199	667244	26
34	667290	667336	667382	667427	667473	667519	25
35	667565	667610	667656	667702	667747	667793	24
36	667839	667885	667930	667976	668022	668068	23
37	668113	668159	668205	668250	668296	668342	22
38	668388	668433	668479	668525	668571	668616	21
39	668662	668708	668754	668799	668845	668891	20
40	668937	668982	669028	669074	669120	669165	19
41	669211	669257	669303	669348	669394	669440	18
42	669486	669531	669577	669623	669669	669714	17
43	669760	669806	669852	669897	669943	669989	16
44	670035	670081	670126	670172	670218	670264	15
45	670309	670355	670401	670447	670492	670538	14
46	670584	670630	670676	670721	670767	670813	13
47	670859	670904	670950	670996	671042	671088	12
48	671133	671179	671225	671271	671317	671362	11
49	671408	671454	671500	671545	671591	671637	10
50	671683	671729	671774	671820	671866	671912	9
51	671958	672003	672049	672095	672141	672187	8
52	672232	672278	672324	672370	672416	672461	7
53	672507	672553	672599	672645	672690	672736	6
54	672782	672828	672874	672920	672965	673011	5
55	673057	673103	673149	673194	673240	673286	4
56	673332	673378	673423	673469	673515	673561	3
57	673607	673653	673698	673744	673790	673836	2
58	673882	673928	673973	674019	674065	674111	1
59	674157	674203	674248	674294	674340	674386	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 19 degrees, or Versed Sine Supplement of 109 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	41

Natural Versed Sine of 71 degrees, or Co-versed Sine of 161 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	674432	674478	674524	674569	674615	674661	59
1	674707	674753	674799	674844	674890	674936	58
2	674982	675028	675074	675120	675165	675211	57
3	675257	675303	675349	675395	675441	675486	56
4	675532	675578	675624	675670	675716	675762	55
5	675807	675853	675899	675945	675991	676037	54
6	676083	676128	676174	676220	676266	676312	53
7	676358	676404	676450	676495	676541	676587	52
8	676633	676679	676725	676771	676817	676862	51
9	676908	676954	677000	677046	677092	677138	50
10	677184	677230	677275	677321	677367	677413	49
11	677459	677505	677551	677597	677643	677688	48
12	677734	677780	677826	677872	677918	677964	47
13	678010	678056	678101	678147	678193	678239	46
14	678285	678331	678377	678423	678469	678515	45
15	678561	678606	678652	678698	678744	678790	44
16	678836	678882	678928	678974	679020	679066	43
17	679111	679157	679203	679249	679295	679341	42
18	679387	679433	679479	679525	679571	679617	41
19	679663	679708	679754	679800	679846	679892	40
20	679938	679984	680030	680076	680122	680168	39
21	680214	680260	680306	680352	680397	680443	38
22	680489	680535	680581	680627	680673	680719	37
23	680765	680811	680857	680903	680949	680995	36
24	681041	681087	681133	681179	681224	681270	35
25	681316	681362	681408	681454	681500	681546	34
26	681592	681638	681684	681730	681776	681822	33
27	681868	681914	681960	682006	682052	682098	32
28	682144	682190	682236	682282	682328	682374	31
29	682420	682465	682511	682557	682603	682649	30
30	682695	682741	682787	682833	682879	682925	29
31	682971	683017	683063	683109	683155	683201	28
32	683247	683293	683339	683385	683431	683477	27
33	683523	683569	683615	683661	683707	683753	26
34	683799	683845	683891	683937	683983	684029	25
35	684075	684121	684167	684213	684259	684305	24
36	684351	684397	684443	684489	684535	684581	23
37	684627	684673	684719	684765	684811	684857	22
38	684903	684949	684995	685041	685087	685133	21
39	685179	685225	685271	685317	685363	685409	20
40	685455	685501	685547	685593	685639	685685	19
41	685731	685777	685823	685869	685915	685962	18
42	686008	686054	686100	686146	686192	686238	17
43	686284	686330	686376	686422	686468	686514	16
44	686560	686606	686652	686698	686744	686790	15
45	686836	686882	686928	686974	687020	687066	14
46	687112	687159	687205	687251	687297	687343	13
47	687389	687435	687481	687527	687573	687619	12
48	687665	687711	687757	687803	687849	687895	11
49	687941	687987	688034	688080	688126	688172	10
50	688218	688264	688310	688356	688402	688448	9
51	688494	688540	688586	688632	688678	688725	8
52	688771	688817	688863	688909	688955	689001	7
53	689047	689093	689139	689185	689231	689277	6
54	689324	689370	689416	689462	689508	689554	5
55	689600	689646	689692	689738	689784	689831	4
56	689877	689923	689969	690015	690061	690107	3
57	690153	690199	690245	690291	690338	690384	2
58	690430	690476	690522	690568	690614	690660	1
59	690706	690752	690799	690845	690891	690937	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 18 degrees, or Versed Sine Supplement of 108 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	41

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NATURAL VERSED SINES.

Natural Versed Sine of 72 degrees, or Co-versed Sine of 162 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	690983	691029	691075	691121	691167	691214	59
1	691260	691306	691352	691398	691444	691490	58
2	691536	691582	691629	691675	691721	691767	57
3	691813	691859	691905	691951	691998	692044	56
4	692090	692136	692182	692228	692274	692320	55
5	692367	692413	692459	692505	692551	692597	54
6	692643	692690	692736	692782	692828	692874	53
7	692920	692966	693012	693059	693105	693151	52
8	693197	693243	693289	693335	693382	693428	51
9	693474	693520	693566	693612	693659	693705	50
10	693751	693797	693843	693889	693935	693982	49
11	694028	694074	694120	694166	694212	694259	48
12	694305	694351	694397	694443	694489	694536	47
13	694582	694628	694674	694720	694766	694813	46
14	694859	694905	694951	694997	695043	695090	45
15	695136	695182	695228	695274	695320	695367	44
16	695413	695459	695505	695551	695597	695644	43
17	695690	695736	695782	695828	695875	695921	42
18	695967	696013	696059	696106	696152	696198	41
19	696244	696290	696336	696383	696429	696475	40
20	696521	696567	696614	696660	696706	696752	39
21	696798	696845	696891	696937	696983	697029	38
22	697076	697122	697168	697214	697260	697307	37
23	697353	697399	697445	697491	697538	697584	36
24	697630	697676	697723	697769	697815	697861	35
25	697907	697954	698000	698046	698092	698138	34
26	698185	698231	698277	698323	698370	698416	33
27	698462	698508	698554	698601	698647	698693	32
28	698739	698786	698832	698878	698924	698971	31
29	699017	699063	699109	699155	699202	699248	30
30	699294	699340	699387	699433	699479	699525	29
31	699572	699618	699664	699710	699757	699803	28
32	699849	699895	699942	699988	700034	700080	27
33	700127	700173	700219	700265	700312	700358	26
34	700404	700450	700497	700543	700589	700635	25
35	700682	700728	700774	700820	700867	700913	24
36	700959	701005	701052	701098	701144	701191	23
37	701237	701283	701329	701376	701422	701468	22
38	701514	701561	701607	701653	701700	701746	21
39	701792	701838	701885	701931	701977	702023	20
40	702070	702116	702162	702209	702255	702301	19
41	702347	702394	702440	702486	702533	702579	18
42	702625	702671	702718	702764	702810	702857	17
43	702903	702949	702995	703042	703088	703134	16
44	703181	703227	703273	703320	703366	703412	15
45	703458	703505	703551	703597	703644	703690	14
46	703736	703783	703829	703875	703921	703968	13
47	704014	704060	704107	704153	704199	704246	12
48	704292	704338	704385	704431	704477	704524	11
49	704570	704616	704662	704709	704755	704801	10
50	704848	704894	704940	704987	705033	705079	9
51	705126	705172	705218	705265	705311	705357	8
52	705404	705450	705496	705543	705589	705635	7
53	705682	705728	705774	705821	705867	705913	6
54	705960	706006	706052	706099	706145	706191	5
55	706238	706284	706330	706377	706423	706469	4
56	706516	706562	706608	706655	706701	706748	3
57	706794	706840	706887	706933	706979	707026	2
58	707072	707118	707165	707211	707257	707304	1
59	707350	707396	707443	707489	707536	707582	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 17 degrees, or Versed Sine Supplement of 107 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	42

Natural Versed Sine of 73 degrees, or Co-versed Sine of 163 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	707628	707675	707721	707767	707814	707860	59
1	707906	707953	707999	708046	708092	708138	58
2	708185	708231	708277	708324	708370	708417	57
3	708463	708509	708556	708602	708648	708695	56
4	708741	708788	708834	708880	708927	708973	55
5	709019	709066	709112	709159	709205	709251	54
6	709298	709344	709390	709437	709483	709530	53
7	709576	709623	709669	709715	709762	709808	52
8	709855	709901	709947	709994	710040	710086	51
9	710133	710179	710226	710272	710318	710365	50
10	710411	710458	710504	710551	710597	710643	49
11	710690	710736	710783	710829	710875	710922	48
12	710968	711015	711061	711107	711154	711200	47
13	711247	711293	711340	711386	711432	711479	46
14	711525	711572	711618	711664	711711	711757	45
15	711804	711850	711897	711943	711989	712036	44
16	712082	712129	712175	712222	712268	712314	43
17	712361	712407	712454	712500	712547	712593	42
18	712639	712686	712732	712778	712825	712872	41
19	712918	712965	713011	713057	713104	713150	40
20	713197	713243	713290	713336	713383	713429	39
21	713475	713522	713568	713615	713661	713708	38
22	713754	713801	713847	713894	713940	713986	37
23	714033	714079	714126	714172	714219	714265	36
24	714312	714358	714405	714451	714497	714544	35
25	714590	714637	714683	714730	714776	714823	34
26	714869	714916	714962	715009	715055	715102	33
27	715148	715195	715241	715287	715334	715380	32
28	715427	715473	715520	715566	715613	715659	31
29	715706	715752	715799	715845	715892	715938	30
30	715985	716031	716078	716124	716171	716217	29
31	716264	716310	716357	716403	716450	716496	28
32	716543	716589	716636	716682	716728	716775	27
33	716821	716868	716914	716961	717007	717054	26
34	717100	717147	717193	717240	717286	717333	25
35	717380	717426	717473	717519	717566	717612	24
36	717659	717705	717752	717798	717845	717891	23
37	717938	717984	718031	718077	718124	718170	22
38	718217	718263	718310	718356	718403	718449	21
39	718496	718542	718589	718635	718682	718728	20
40	718775	718821	718868	718915	718961	719008	19
41	719054	719101	719147	719194	719240	719287	18
42	719333	719380	719426	719473	719519	719566	17
43	719612	719659	719706	719752	719799	719845	16
44	719892	719938	719985	720031	720078	720124	15
45	720171	720218	720264	720311	720357	720404	14
46	720450	720497	720543	720590	720636	720683	13
47	720730	720776	720823	720869	720916	720962	12
48	721009	721055	721102	721149	721195	721242	11
49	721288	721335	721381	721428	721474	721521	10
50	721568	721614	721661	721707	721754	721800	9
51	721847	721894	721940	721987	722033	722080	8
52	722126	722173	722220	722266	722313	722359	7
53	722406	722452	722499	722546	722592	722639	6
54	722685	722732	722779	722825	722872	722918	5
55	722965	723011	723058	723105	723151	723198	4
56	723244	723291	723338	723384	723431	723477	3
57	723524	723570	723617	723664	723710	723757	2
58	723803	723850	723897	723943	723990	724036	1
59	724083	724130	724176	724223	724269	724316	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 16 degrees, or Versed Sine Supplement of 196 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

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NATURAL VERSED SINES.

Natural Versed Sine of 74 degrees, or Co versed Sine of 164 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	724363	724409	724456	724502	724549	724596	59
1	724642	724689	724735	724782	724829	724875	58
2	724922	724969	725015	725062	725108	725155	57
3	725202	725248	725295	725341	725388	725435	56
4	725481	725528	725575	725621	725668	725714	55
5	725761	725808	725854	725901	725948	725994	54
6	726041	726087	726134	726181	726227	726274	53
7	726321	726367	726414	726460	726507	726554	52
8	726600	726647	726694	726740	726787	726834	51
9	726880	726927	726973	727020	727067	727113	50
10	727160	727207	727253	727300	727347	727393	49
11	727440	727487	727533	727580	727626	727673	48
12	727720	727766	727813	727860	727906	727953	47
13	728000	728046	728093	728140	728186	728233	46
14	728280	728326	728373	728420	728466	728513	45
15	728560	728606	728653	728700	728746	728793	44
16	728840	728886	728933	728980	729026	729073	43
17	729120	729166	729213	729260	729306	729353	42
18	729400	729446	729493	729540	729586	729633	41
19	729680	729726	729773	729820	729866	729913	40
20	729960	730006	730053	730100	730146	730193	39
21	730240	730286	730333	730380	730427	730473	38
22	730520	730567	730613	730660	730707	730753	37
23	730800	730847	730893	730940	730987	731033	36
24	731080	731127	731174	731220	731267	731314	35
25	731360	731407	731454	731500	731547	731594	34
26	731641	731687	731734	731781	731827	731874	33
27	731921	731968	732014	732061	732108	732154	32
28	732201	732248	732294	732341	732388	732435	31
29	732481	732528	732575	732621	732668	732715	30
30	732762	732808	732855	732902	732949	732995	29
31	733042	733089	733135	733182	733229	733276	28
32	733322	733369	733416	733462	733509	733556	27
33	733603	733649	733696	733743	733790	733836	26
34	733883	733930	733977	734023	734070	734117	25
35	734163	734210	734257	734304	734350	734397	24
36	734444	734491	734537	734584	734631	734678	23
37	734724	734771	734818	734865	734911	734958	22
38	735005	735052	735098	735145	735192	735239	21
39	735285	735332	735379	735426	735472	735519	20
40	735566	735613	735659	735706	735753	735800	19
41	735846	735893	735940	735987	736033	736080	18
42	736127	736174	736220	736267	736314	736361	17
43	736408	736454	736501	736548	736595	736641	16
44	736688	736735	736782	736828	736875	736922	15
45	736969	737016	737062	737109	737156	737203	14
46	737249	737296	737343	737390	737437	737483	13
47	737530	737577	737624	737670	737717	737764	12
48	737811	737858	737904	737951	737998	738045	11
49	738092	738138	738185	738232	738279	738325	10
50	738372	738419	738466	738513	738559	738606	9
51	738653	738700	738747	738793	738840	738887	8
52	738934	738981	739027	739074	739121	739168	7
53	739215	739261	739308	739355	739402	739449	6
54	739495	739542	739589	739636	739683	739730	5
55	739776	739823	739870	739917	739964	740010	4
56	740057	740104	740151	740198	740244	740291	3
57	740338	740385	740432	740479	740525	740572	2
58	740619	740666	740713	740760	740806	740853	1
59	740900	740947	740994	741040	741087	741134	0
Minutes	60′	50′	40′	30″	20″	10″	Minutes

Co-versed Sine of 15 degrees, or Versed Sine Supplement of 105 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

Natural Versed Sine of 75 degrees, or Co-versed Sine of 165 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	741181	741228	741275	741321	741368	741415	59
1	741462	741509	741556	741602	741649	741696	58
2	741743	741790	741837	741883	741930	741977	57
3	742024	742071	742118	742165	742211	742258	56
4	742305	742352	742399	742446	742492	742539	55
5	742586	742633	742680	742727	742774	742820	54
6	742867	742914	742961	743008	743055	743101	53
7	743148	743195	743242	743289	743336	743383	52
8	743429	743476	743523	743570	743617	743664	51
9	743711	743757	743804	743851	743898	743945	50
10	743992	744039	744086	744132	744179	744226	49
11	744273	744320	744367	744414	744460	744507	48
12	744554	744601	744648	744695	744742	744789	47
13	744835	744882	744929	744976	745023	745070	46
14	745117	745164	745211	745257	745304	745351	45
15	745398	745445	745492	745539	745586	745632	44
16	745679	745726	745773	745820	745867	745914	43
17	745961	746008	746054	746101	746148	746195	42
18	746242	746289	746336	746383	746430	746477	41
19	746523	746570	746617	746664	746711	746758	40
20	746805	746852	746899	746946	746992	747039	39
21	747086	747133	747180	747227	747274	747321	38
22	747368	747414	747461	747508	747555	747602	37
23	747649	747696	747743	747790	747837	747884	36
24	747931	747978	748024	748071	748118	748165	35
25	748212	748259	748306	748353	748400	748447	34
26	748494	748541	748588	748634	748681	748728	33
27	748775	748822	748869	748916	748963	749010	32
28	749057	749104	749151	749198	749245	749291	31
29	749338	749385	749432	749479	749526	749573	30
30	749620	749667	749714	749761	749808	749855	29
31	749902	749949	749996	750042	750089	750136	28
32	750183	750230	750277	750324	750371	750418	27
33	750466	750512	750559	750606	750653	750700	26
34	750747	750794	750841	750888	750934	750981	25
35	751028	751075	751122	751169	751216	751263	24
36	751310	751357	751404	751451	751498	751545	23
37	751592	751639	751686	751733	751780	751827	22
38	751874	751921	751968	752015	752062	752108	21
39	752155	752202	752249	752296	752343	752390	20
40	752437	752484	752531	752578	752625	752672	19
41	752719	752766	752813	752860	752907	752954	18
42	753001	753048	753095	753142	753189	753236	17
43	753283	753330	753377	753424	753471	753518	16
44	753565	753612	753659	753706	753753	753800	15
45	753847	753894	753941	753988	754035	754082	14
46	754129	754176	754223	754270	754317	754364	13
47	754411	754458	754505	754552	754599	754646	12
48	754693	754740	754787	754834	754881	754928	11
49	754975	755022	755069	755116	755163	755210	10
50	755257	755304	755351	755398	755445	755492	9
51	755539	755586	755633	755680	755727	755774	8
52	755821	755868	755915	755962	756009	756056	7
53	756103	756150	756197	756244	756291	756338	6
54	756385	756432	756479	756526	756573	756620	5
55	756667	756714	756761	756808	756855	756902	4
56	756949	756996	757043	757090	757137	757184	3
57	757231	757278	757326	757373	757420	757467	2
58	757514	757561	757608	757655	757702	757749	1
59	757796	757843	757890	757937	757984	758031	0
Minutes	60′	50′	40′	30″	20″	10″	Minutes

Co-versed Sine of 14 degrees, or Versed Sine Supplement of 104 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	38	42

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NATURAL VERSED SINES.

Natural Versed Sine of 56 degrees, or Co-versed sine of 146 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	440807	440847	440887	440928	440968	441008	59
1	441048	441088	441129	441169	441209	441249	58
2	441290	441330	441370	441410	441450	441491	57
3	441531	441571	441611	441651	441692	441732	56
4	441772	441812	441853	441893	441933	441973	55
5	442013	442054	442094	442134	442174	442215	54
6	442255	442295	442335	442376	442416	442456	53
7	442496	442537	442577	442617	442657	442698	52
8	442738	442778	442818	442859	442899	442939	51
9	442979	443020	443060	443100	443140	443181	50
10	443221	443261	443302	443342	443382	443422	49
11	443463	443503	443543	443584	443624	443664	48
12	443704	443745	443785	443825	443866	443906	47
13	443946	443986	444027	444067	444107	444148	46
14	444188	444228	444269	444309	444349	444389	45
15	444430	444470	444510	444551	444591	444631	44
16	444672	444712	444752	444793	444833	444873	43
17	444914	444954	444994	445035	445075	445115	42
18	445156	445196	445236	445277	445317	445357	41
19	445398	445438	445478	445519	445559	445599	40
20	445640	445680	445720	445761	445801	445841	39
21	445882	445922	445963	446003	446043	446084	38
22	446124	446164	446205	446245	446285	446326	37
23	446366	446407	446447	446487	446528	446568	36
24	446608	446649	446689	446730	446770	446810	35
25	446851	446891	446932	446972	447012	447053	34
26	447093	447134	447174	447214	447255	447295	33
27	447336	447376	447416	447457	447497	447538	32
28	447578	447618	447659	447699	447740	447780	31
29	447820	447861	447901	447942	447982	448023	30
30	448063	448103	448144	448184	448225	448265	29
31	448306	448346	448386	448427	448467	448508	28
32	448548	448589	448629	448670	448710	448750	27
33	448791	448831	448872	448912	448953	448993	26
34	449034	449074	449115	449155	449196	449236	25
35	449276	449317	449357	449398	449438	449479	24
36	449519	449560	449600	449641	449681	449722	23
37	449762	449803	449843	449884	449924	449965	22
38	450005	450046	450086	450127	450167	450208	21
39	450248	450289	450329	450370	450410	450451	20
40	450491	450532	450572	450613	450653	450694	19
41	450734	450775	450815	450856	450896	450937	18
42	450977	451018	451058	451099	451139	451180	17
43	451220	451261	451301	451342	451382	451423	16
44	451464	451504	451545	451585	451626	451666	15
45	451707	451747	451788	451828	451869	451910	14
46	451950	451991	452031	452072	452112	452153	13
47	452193	452234	452275	452315	452356	452396	12
48	452437	452477	452518	452558	452599	452640	11
49	452680	452721	452761	452802	452843	452883	10
50	452924	452964	453005	453045	453086	453127	9
51	453167	453208	453248	453289	453330	453370	8
52	453411	453451	453492	453533	453573	453614	7
53	453654	453695	453736	453776	453817	453857	6
54	453898	453939	453979	454020	454061	454101	5
55	454142	454182	454223	454264	454304	454345	4
56	454385	454426	454467	454507	454548	454589	3
57	454629	454670	454711	454751	454792	454832	2
58	454873	454914	454954	454995	455036	455076	1
59	455117	455158	455198	455239	455280	455320	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 33 degrees, or Versed Sine Supplement of 123 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	24	28	32	36

Natural Versed Sine of 57 degrees, or Co-versed Sine of 147 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	455361	455402	455442	455483	455524	455564	59
1	455605	455646	455686	455727	455768	455808	58
2	455849	455890	455930	455971	456012	456052	57
3	456093	456134	456174	456215	456256	456296	56
4	456337	456378	456419	456459	456500	456541	55
5	456581	456622	456663	456703	456744	456785	54
6	456826	456866	456907	456948	456988	457029	53
7	457070	457111	457151	457192	457233	457273	52
8	457314	457355	457396	457436	457477	457518	51
9	457558	457599	457640	457681	457721	457762	50
10	457803	457844	457884	457925	457966	458007	49
11	458047	458088	458129	458170	458210	458251	48
12	458292	458333	458373	458414	458455	458496	47
13	458536	458577	458618	458659	458699	458740	46
14	458781	458822	458862	458903	458944	458985	45
15	459026	459066	459107	459148	459189	459229	44
16	459270	459311	459352	459393	459433	459474	43
17	459515	459556	459596	459637	459678	459719	42
18	459760	459800	459841	459882	459923	459964	41
19	460004	460045	460086	460127	460168	460209	40
20	460249	460290	460331	460372	460413	460453	39
21	460494	460535	460576	460617	460658	460698	38
22	460739	460780	460821	460862	460903	460943	37
23	460984	461025	461066	461107	461148	461188	36
24	461229	461270	461311	461352	461393	461433	35
25	461474	461515	461556	461597	461638	461679	34
26	461719	461760	461801	461842	461883	461924	33
27	461965	462005	462046	462087	462128	462169	32
28	462210	462251	462292	462332	462373	462414	31
29	462455	462496	462537	462578	462619	462660	30
30	462700	462741	462782	462823	462864	462905	29
31	462946	462987	463028	463068	463109	463150	28
32	463191	463232	463273	463314	463355	463396	27
33	463437	463478	463518	463559	463600	463641	26
34	463682	463723	463764	463805	463846	463887	25
35	463928	463969	464009	464050	464091	464132	24
36	464173	464214	464255	464296	464337	464378	23
37	464419	464460	464501	464542	464583	464624	22
38	464665	464705	464746	464787	464828	464869	21
39	464910	464951	464992	465033	465074	465115	20
40	465156	465197	465238	465279	465320	465361	19
41	465402	465443	465484	465525	465566	465607	18
42	465648	465689	465730	465771	465812	465853	17
43	465894	465935	465976	466017	466058	466099	16
44	466140	466181	466222	466263	466304	466345	15
45	466386	466427	466468	466509	466550	466591	14
46	466632	466673	466714	466755	466796	466837	13
47	466878	466919	466960	467001	467042	467083	12
48	467124	467165	467206	467247	467288	467329	11
49	467370	467411	467452	467493	467534	467575	10
50	467616	467657	467698	467739	467780	467821	9
51	467862	467903	467944	467986	468027	468068	8
52	468109	468150	468191	468232	468273	468314	7
53	468355	468396	468437	468478	468519	468560	6
54	468601	468642	468684	468725	468766	468807	5
55	468848	468889	468930	468971	469012	469053	4
56	469094	469135	469177	469218	469259	469300	3
57	469341	469382	469423	469464	469505	469546	2
58	469587	469629	469670	469711	469752	469793	1
59	469834	469875	469916	469957	469999	470040	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 32 degrees, or Versed Sine Supplement of 122 degrees

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	25	29	33	37

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NATURAL VERSED SINES.

Natural Versed Sine of 58 degrees, or Co-versed sine of 148 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	470081	470122	470163	470204	470245	470286	59
1	470327	470369	470410	470451	470492	470533	58
2	470574	470615	470656	470698	470739	470780	57
3	470821	470862	470903	470944	470986	471027	56
4	471068	471109	471150	471191	471232	471274	55
5	471315	471356	471397	471438	471479	471521	54
6	471562	471603	471644	471685	471726	471767	53
7	471809	471850	471891	471932	471973	472014	52
8	472056	472097	472138	472179	472220	472262	51
9	472303	472344	472385	472426	472467	472509	50
10	472550	472591	472632	472673	472715	472756	49
11	472797	472838	472879	472921	472962	473003	48
12	473044	473085	473127	473168	473209	473250	47
13	473291	473333	473374	473415	473456	473498	46
14	473539	473580	473621	473662	473704	473745	45
15	473786	473827	473869	473910	473951	473992	44
16	474033	474075	474116	474157	474198	474240	43
17	474281	474322	474363	474405	474446	474487	42
18	474528	474570	474611	474652	474693	474735	41
19	474776	474817	474858	474900	474941	474982	40
20	475023	475065	475106	475147	475188	475230	39
21	475271	475312	475354	475395	475436	475477	38
22	475519	475560	475601	475643	475684	475725	37
23	475766	475808	475849	475890	475932	475973	36
24	476014	476055	476097	476138	476179	476221	35
25	476262	476303	476344	476386	476427	476468	34
26	476510	476551	476592	476634	476675	476716	33
27	476758	476799	476840	476882	476923	476964	32
28	477005	477047	477088	477129	477171	477212	31
29	477253	477295	477336	477377	477419	477460	30
30	477501	477543	477584	477625	477667	477708	29
31	477749	477791	477832	477874	477915	477956	28
32	477998	478039	478080	478122	478163	478204	27
33	478246	478287	478328	478370	478411	478453	26
34	478494	478535	478577	478618	478659	478701	25
35	478742	478783	478825	478866	478908	478949	24
36	478990	479032	479073	479115	479156	479197	23
37	479239	479280	479321	479363	479404	479446	22
38	479487	479528	479570	479611	479653	479694	21
39	479735	479777	479818	479860	479901	479942	20
40	479984	480025	480067	480108	480150	480191	19
41	480232	480274	480315	480357	480398	480439	18
42	480481	480522	480564	480605	480647	480688	17
43	480729	480771	480812	480854	480895	480937	16
44	480978	481020	481061	481102	481144	481185	15
45	481227	481268	481310	481351	481393	481434	14
46	481475	481517	481558	481600	481641	481683	13
47	481724	481766	481807	481849	481890	481932	12
48	481973	482014	482056	482097	482139	482180	11
49	482222	482263	482305	482346	482388	482429	10
50	482471	482512	482554	482595	482637	482678	9
51	482720	482761	482803	482844	482886	482927	8
52	482969	483010	483052	483093	483135	483176	7
53	483218	483259	483301	483342	483384	483425	6
54	483467	483508	483550	483591	483633	483674	5
55	483716	483757	483799	483840	483882	483923	4
56	483965	484006	484048	484090	484131	484173	3
57	484214	484256	484297	484339	484380	484422	2
58	484463	484505	484546	484588	484630	484671	1
59	484713	484754	484796	484837	484879	484920	0
	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 31 degrees, or Versed Sine Supplement of 121 degrees.

Propor. parts	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	17	21	25	29	33	37

Natural Versed Sine of 59 degrees, or Co-versed Sine of 149 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	484962	485003	485045	485087	485128	485170	59
1	485211	485253	485294	485336	485378	485419	58
2	485461	485502	485544	485585	485627	485669	57
3	485710	485752	485793	485835	485876	485918	56
4	485960	486001	486043	486084	486126	486168	55
5	486209	486251	486292	486334	486376	486417	54
6	486459	486500	486542	486584	486625	486667	53
7	486708	486750	486792	486833	486875	486916	52
8	486958	487000	487042	487083	487125	487166	51
9	487208	487249	487291	487333	487374	487416	50
10	487457	487499	487541	487582	487624	487666	49
11	487707	487749	487791	487832	487874	487915	48
12	487957	487999	488040	488082	488124	488165	47
13	488207	488249	488290	488332	488374	488415	46
14	488457	488499	488540	488582	488624	488665	45
15	488707	488749	488790	488832	488874	488915	44
16	488957	488999	489040	489082	489124	489165	43
17	489207	489249	489290	489332	489374	489415	42
18	489457	489499	489540	489582	489624	489666	41
19	489707	489749	489791	489832	489874	489916	40
20	489957	489999	490041	490083	490124	490166	39
21	490208	490249	490291	490333	490374	490416	38
22	490458	490500	490541	490583	490625	490667	37
23	490708	490750	490792	490833	490875	490917	36
24	490959	491000	491042	491084	491126	491167	35
25	491209	491251	491292	491334	491376	491418	34
26	491459	491501	491543	491585	491626	491668	33
27	491710	491752	491793	491835	491877	491919	32
28	491960	492002	492044	492086	492127	492169	31
29	492211	492253	492295	492336	492378	492420	30
30	492462	492503	492545	492587	492629	492671	29
31	492712	492754	492796	492838	492879	492921	28
32	492963	493005	493047	493088	493130	493172	27
33	493214	493256	493297	493339	493381	493423	26
34	493465	493506	493548	493590	493632	493674	25
35	493715	493757	493799	493841	493883	493924	24
36	493966	494008	494050	494092	494134	494175	23
37	494217	494259	494301	494343	494384	494426	22
38	494468	494510	494552	494594	494635	494677	21
39	494719	494761	494803	494845	494886	494928	20
40	494970	495012	495054	495096	495138	495179	19
41	495221	495263	495305	495347	495389	495431	18
42	495472	495514	495556	495598	495640	495682	17
43	495724	495765	495807	495849	495891	495933	16
44	495975	496017	496059	496100	496142	496184	15
45	496226	496268	496310	496352	496394	496435	14
46	496477	496519	496561	496603	496645	496687	13
47	496729	496771	496812	496854	496896	496938	12
48	496980	497022	497064	497106	497148	497190	11
49	497231	497273	497315	497357	497399	497441	10
50	497483	497525	497567	497609	497651	497693	9
51	497734	497776	497818	497860	497902	497944	8
52	497986	498028	498070	498112	498154	498196	7
53	498238	498280	498321	498363	498405	498447	6
54	498489	498531	498573	498615	498657	498699	5
55	498741	498783	498825	498867	498909	498951	4
56	498993	499035	499077	499119	499161	499202	3
57	499244	499286	499328	499370	499412	499454	2
58	499496	499538	499580	499622	499664	499706	1
59	499748	499790	499832	499874	499916	499958	0
	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 30 degrees, or Versed Sine Supplement of 120 degrees.

Propor. parts	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	13	17	21	25	29	33	38

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NATURAL VERSED SINES.

Natural Versed Sine of 60 degrees, or Co-versed Sine of 150 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	500000	500042	500084	500126	500168	500210	59
1	500252	500294	500336	500378	500420	500462	58
2	500504	500546	500588	500630	500672	500714	57
3	500756	500798	500840	500882	500924	500966	56
4	501008	501050	501092	501134	501176	501218	55
5	501260	501302	501344	501386	501428	501470	54
6	501512	501554	501596	501638	501680	501722	53
7	501764	501806	501849	501891	501933	501975	52
8	502017	502059	502101	502143	502185	502227	51
9	502269	502311	502353	502395	502437	502479	50
10	502521	502563	502605	502647	502690	502732	49
11	502774	502816	502858	502900	502942	502984	48
12	503026	503068	503110	503152	503194	503236	47
13	503278	503321	503363	503405	503447	503489	46
14	503531	503573	503615	503657	503699	503741	45
15	503783	503826	503868	503910	503952	503994	44
16	504036	504078	504120	504162	504204	504247	43
17	504289	504331	504373	504415	504457	504499	42
18	504541	504583	504626	504668	504710	504752	41
19	504794	504836	504878	504920	504963	505005	40
20	505047	505089	505131	505173	505215	505257	39
21	505300	505342	505384	505426	505468	505510	38
22	505552	505595	505637	505679	505721	505763	37
23	505805	505847	505890	505932	505974	506016	36
24	506058	506100	506142	506185	506227	506269	35
25	506311	506353	506395	506438	506480	506522	34
26	506564	506606	506648	506691	506733	506775	33
27	506817	506859	506901	506944	506986	507028	32
28	507070	507112	507155	507197	507239	507281	31
29	507323	507365	507408	507450	507492	507534	30
30	507576	507619	507661	507703	507745	507787	29
31	507830	507872	507914	507956	507998	508041	28
32	508083	508125	508167	508210	508252	508294	27
33	508336	508378	508421	508463	508505	508547	26
34	508589	508632	508674	508716	508758	508801	25
35	508843	508885	508927	508970	509012	509054	24
36	509096	509138	509181	509223	509265	509307	23
37	509350	509392	509434	509476	509519	509561	22
38	509603	509645	509688	509730	509772	509814	21
39	509857	509899	509941	509983	510026	510068	20
40	510110	510153	510195	510237	510279	510322	19
41	510364	510406	510448	510491	510533	510575	18
42	510618	510660	510702	510744	510787	510829	17
43	510871	510914	510956	510998	511040	511083	16
44	511125	511167	511210	511252	511294	511337	15
45	511379	511421	511463	511506	511548	511590	14
46	511633	511675	511717	511760	511802	511844	13
47	511886	511929	511971	512013	512056	512098	12
48	512140	512183	512225	512267	512310	512352	11
49	512394	512437	512479	512521	512564	512606	10
50	512648	512691	512733	512775	512818	512860	9
51	512902	512945	512987	513029	513072	513114	8
52	513156	513199	513241	513283	513326	513368	7
53	513410	513453	513495	513538	513580	513622	6
54	513665	513707	513749	513792	513834	513876	5
55	513919	513961	514004	514046	514088	514131	4
56	514173	514215	514258	514300	514343	514385	3
57	514427	514470	514512	514554	514597	514639	2
58	514682	514724	514766	514809	514851	514894	1
59	514936	514978	515021	515063	515106	515148	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 29 degrees, or Versed Sine Supplement of 119 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	13	17	21	25	30	34	38

Natural Versed Sine of 61 degrees, or Co-versed Sine of 151 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	515190	515233	515275	515318	515360	515402	59
1	515445	515487	515530	515572	515614	515657	58
2	515699	515742	515784	515827	515869	515911	57
3	515954	515996	516039	516081	516124	516166	56
4	516208	516251	516293	516336	516378	516421	55
5	516463	516505	516548	516590	516633	516675	54
6	516718	516760	516803	516845	516887	516930	53
7	516972	517015	517057	517100	517142	517185	52
8	517227	517269	517312	517354	517397	517439	51
9	517482	517524	517567	517609	517652	517694	50
10	517737	517779	517822	517864	517906	517949	49
11	517991	518034	518076	518119	518161	518204	48
12	518246	518289	518331	518374	518416	518459	47
13	518501	518544	518586	518629	518671	518714	46
14	518756	518799	518841	518884	518926	518969	45
15	519011	519054	519096	519139	519181	519224	44
16	519266	519309	519351	519394	519436	519479	43
17	519521	519564	519606	519649	519691	519734	42
18	519777	519819	519862	519904	519947	519989	41
19	520032	520074	520117	520159	520202	520244	40
20	520287	520329	520372	520415	520457	520500	39
21	520542	520585	520627	520670	520712	520755	38
22	520797	520840	520883	520925	520968	521010	37
23	521053	521095	521138	521180	521223	521266	36
24	521308	521351	521393	521436	521478	521521	35
25	521564	521606	521649	521691	521734	521776	34
26	521819	521862	521904	521947	521989	522032	33
27	522075	522117	522160	522202	522245	522287	32
28	522330	522373	522415	522458	522500	522543	31
29	522586	522628	522671	522713	522756	522799	30
30	522841	522884	522926	522969	523012	523054	29
31	523097	523140	523182	523225	523267	523310	28
32	523353	523395	523438	523480	523523	523566	27
33	523608	523651	523694	523736	523779	523821	26
34	523864	523907	523949	523992	524035	524077	25
35	524120	524163	524205	524248	524291	524333	24
36	524376	524418	524461	524504	524546	524589	23
37	524632	524674	524717	524760	524802	524845	22
38	524888	524930	524973	525016	525058	525101	21
39	525144	525186	525229	525272	525314	525357	20
40	525400	525442	525485	525528	525570	525613	19
41	525656	525698	525741	525784	525826	525869	18
42	525912	525954	525997	526040	526083	526125	17
43	526168	526211	526253	526296	526339	526381	16
44	526424	526467	526510	526552	526595	526638	15
45	526680	526723	526766	526808	526851	526894	14
46	526937	526979	527022	527065	527107	527150	13
47	527193	527236	527278	527321	527364	527407	12
48	527449	527492	527535	527577	527620	527663	11
49	527706	527748	527791	527834	527877	527919	10
50	527962	528005	528048	528091	528133	528176	9
51	528218	528261	528304	528347	528389	528432	8
52	528475	528518	528561	528603	528646	528689	7
53	528732	528774	528817	528860	528903	528945	6
54	528988	529031	529074	529116	529159	529202	5
55	529245	529288	529330	529373	529416	529459	4
56	529501	529544	529587	529630	529673	529715	3
57	529758	529801	529844	529886	529929	529972	2
58	530015	530058	530100	530143	530186	530229	1
59	530272	530314	530357	530400	530443	530486	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 28 degrees, or Versed Sine Supplement of 118 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	21	26	30	34	38

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NATURAL VERSED SINES.

Natural Versed Sine of 62 degrees, or Co-versed Sine of 152 degrees.

Minutes	0″	10″	20″	30″	40″	50	Minutes
0	530528	530571	530614	530657	530700	530742	59
1	530785	530828	530871	530914	530957	530999	58
2	531042	531085	531128	531171	531213	531256	57
3	531299	531342	531385	531428	531470	531513	56
4	531556	531599	531642	531685	531727	531770	55
5	531813	531856	531899	531942	531984	532027	54
6	532070	532113	532156	532199	532242	532284	53
7	532327	532370	532413	532456	532499	532542	52
8	532584	532627	532670	532713	532756	532799	51
9	532842	532884	532927	532970	533013	533056	50
10	533099	533142	533185	533227	533270	533313	49
11	533356	533399	533442	533485	533528	533570	48
12	533613	533656	533699	533742	533785	533828	47
13	533871	533914	533956	533999	534042	534085	46
14	534128	534171	534214	534257	534300	534343	45
15	534385	534428	534471	534514	534557	534600	44
16	534643	534686	534729	534772	534815	534858	43
17	534900	534943	534986	535029	535072	535115	42
18	535158	535201	535244	535287	535330	535373	41
19	535416	535458	535501	535544	535587	535630	40
20	535673	535716	535759	535802	535845	535888	39
21	535931	535974	536017	536060	536103	536146	38
22	536188	536231	536274	536317	536360	536403	37
23	536446	536489	536532	536575	536618	536661	36
24	536704	536747	536790	536833	536876	536919	35
25	536962	537005	537048	537091	537134	537177	34
26	537220	537263	537306	537349	537392	537435	33
27	537477	537520	537563	537606	537649	537692	32
28	537735	537778	537821	537864	537907	537950	31
29	537993	538036	538079	538122	538165	538208	30
30	538251	538294	538337	538380	538423	538466	29
31	538509	538552	538595	538638	538681	538724	28
32	538768	538811	538854	538897	538940	538983	27
33	539026	539069	539112	539155	539198	539241	26
34	539284	539327	539370	539413	539456	539499	25
35	539542	539585	539628	539671	539714	539757	24
36	539800	539843	539886	539929	539972	540015	23
37	540058	540102	540145	540188	540231	540274	22
38	540317	540360	540403	540446	540489	540532	21
39	540575	540618	540661	540704	540747	540790	20
40	540834	540877	540920	540963	541006	541049	19
41	541092	541135	541178	541221	541264	541307	18
42	541350	541394	541437	541480	541523	541566	17
43	541609	541652	541695	541738	541781	541824	16
44	541867	541911	541954	541997	542040	542083	15
45	542126	542169	542212	542255	542298	542342	14
46	542385	542428	542471	542514	542557	542600	13
47	542643	542686	542730	542773	542816	542859	12
48	542902	542945	542988	543031	543075	543118	11
49	543161	543204	543247	543290	543333	543376	10
50	543420	543463	543506	543549	543592	543635	9
51	543678	543722	543765	543808	543851	543894	8
52	543937	543980	544024	544067	544110	544153	7
53	544196	544239	544282	544326	544369	544412	6
54	544455	544498	544541	544585	544628	544671	5
55	544714	544757	544800	544844	544887	544930	4
56	544973	545016	545059	545103	545146	545189	3
57	545232	545275	545318	545362	545405	545448	2
58	545491	545534	545578	545621	545664	545707	1
59	545750	545794	545837	545880	545923	545966	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 27 degrees, or Versed Sine Supplement of 117 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	21	26	30	34	39

Natural Versed Sine of 63 degrees, or Co-versed Sine of 153 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	546010	546053	546096	546139	546182	546225	59
1	546269	546312	546355	546398	546442	546485	58
2	546528	546571	546614	546658	546701	546744	57
3	546787	546830	546874	546917	546960	547003	56
4	547047	547090	547133	547176	547219	547263	55
5	547306	547349	547392	547436	547479	547522	54
6	547565	547609	547652	547695	547738	547781	53
7	547825	547868	547911	547954	547998	548041	52
8	548084	548127	548171	548214	548257	548300	51
9	548344	548387	548430	548473	548517	548560	50
10	548603	548647	548690	548733	548776	548820	49
11	548863	548906	548949	548993	549036	549079	48
12	549122	549166	549209	549252	549296	549339	47
13	549382	549425	549469	549512	549555	549599	46
14	549642	549685	549728	549772	549815	549858	45
15	549902	549945	549988	550031	550075	550118	44
16	550161	550205	550248	550291	550335	550378	43
17	550421	550464	550508	550551	550594	550638	42
18	550681	550724	550768	550811	550854	550898	41
19	550941	550984	551028	551071	551114	551157	40
20	551201	551244	551287	551331	551374	551417	39
21	551461	551504	551547	551591	551634	551677	38
22	551721	551764	551807	551851	551894	551937	37
23	551981	552024	552068	552111	552154	552198	36
24	552241	552284	552328	552371	552414	552458	35
25	552501	552544	552588	552631	552674	552718	34
26	552761	552805	552848	552891	552935	552978	33
27	553021	553065	553108	553151	553195	553238	32
28	553282	553325	553368	553412	553455	553498	31
29	553542	553585	553629	553672	553715	553759	30
30	553802	553846	553889	553932	553976	554019	29
31	554063	554106	554149	554193	554236	554280	28
32	554323	554366	554410	554453	554497	554540	27
33	554583	554627	554670	554714	554757	554800	26
34	554844	554887	554931	554974	555017	555061	25
35	555104	555148	555191	555235	555278	555321	24
36	555365	555408	555452	555495	555539	555582	23
37	555625	555669	555712	555756	555799	555843	22
38	555886	555929	555973	556016	556060	556103	21
39	556147	556190	556234	556277	556320	556364	20
40	556407	556451	556494	556538	556581	556625	19
41	556668	556712	556755	556798	556842	556885	18
42	556929	556972	557016	557059	557103	557146	17
43	557190	557233	557277	557320	557363	557407	16
44	557450	557494	557537	557581	557624	557668	15
45	557711	557755	557798	557842	557885	557929	14
46	557972	558016	558059	558103	558146	558190	13
47	558233	558277	558320	558364	558407	558451	12
48	558494	558538	558581	558625	558668	558712	11
49	558755	558799	558842	558886	558929	558973	10
50	559016	559060	559103	559147	559190	559234	9
51	559277	559321	559364	559408	559451	559495	8
52	559538	559582	559626	559669	559713	559756	7
53	559800	559843	559887	559930	559974	560017	6
54	560061	560104	560148	560191	560235	560279	5
55	560322	560366	560409	560453	560496	560540	4
56	560583	560627	560670	560714	560758	560801	3
57	560845	560888	560932	560975	561019	561062	2
58	561106	561150	561193	561237	561280	561324	1
59	561367	561411	561455	561498	561542	561585	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 26 degrees, or Versed Sine Supplement of 116 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	22	26	30	35	39

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NATURAL VERSED SINES.

Natural Versed Sine of 64 degrees, or Co-versed sine of 154 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	561629	561672	561716	561760	561803	561847	59
1	561890	561934	561977	562021	562065	562108	58
2	562152	562195	562239	562283	562326	562370	57
3	562413	562457	562501	562544	562588	562631	56
4	562675	562719	562762	562806	562849	562893	55
5	562937	562980	563024	563067	563111	563155	54
6	563198	563242	563285	563329	563373	563416	53
7	563460	563504	563547	563591	563634	563678	52
8	563722	563765	563809	563853	563896	563940	51
9	563983	564027	564071	564114	564158	564202	50
10	564245	564289	564332	564376	564420	564463	49
11	564507	564551	564594	564638	564682	564725	48
12	564769	564813	564856	564900	564943	564987	47
13	565031	565074	565118	565162	565205	565249	46
14	565293	565336	565380	565424	565467	565511	45
15	565555	565598	565642	565686	565729	565773	44
16	565817	565860	565904	565948	565991	566035	43
17	566079	566123	566166	566210	566254	566297	42
18	566341	566385	566428	566472	566516	566559	41
19	566603	566647	566690	566734	566778	566822	40
20	566865	566909	566953	566996	567040	567084	39
21	567127	567171	567215	567259	567302	567346	38
22	567390	567433	567477	567521	567565	567608	37
23	567652	567696	567739	567783	567827	567871	36
24	567914	567958	568002	568045	568089	568133	35
25	568177	568220	568264	568308	568352	568395	34
26	568439	568483	568526	568570	568614	568658	33
27	568701	568745	568789	568833	568876	568920	32
28	568964	569008	569051	569095	569139	569183	31
29	569226	569270	569314	569358	569401	569445	30
30	569489	569533	569576	569620	569664	569708	29
31	569751	569795	569839	569883	569927	569970	28
32	570014	570058	570102	570145	570189	570233	27
33	570277	570320	570364	570408	570452	570496	26
34	570539	570583	570627	570671	570715	570758	25
35	570802	570846	570890	570933	570977	571021	24
36	571065	571109	571152	571196	571240	571284	23
37	571328	571371	571415	571459	571503	571547	22
38	571590	571634	571678	571722	571766	571810	21
39	571853	571897	571941	571985	572029	572072	20
40	572116	572160	572204	572248	572292	572335	19
41	572379	572423	572467	572511	572554	572598	18
42	572642	572686	572730	572774	572817	572861	17
43	572905	572949	572993	573037	573080	573124	16
44	573168	573212	573256	573300	573344	573387	15
45	573431	573475	573519	573563	573607	573651	14
46	573694	573738	573782	573826	573870	573914	13
47	573958	574001	574045	574089	574133	574177	12
48	574221	574265	574308	574352	574396	574440	11
49	574484	574528	574572	574616	574659	574703	10
50	574747	574791	574835	574879	574923	574967	9
51	575010	575054	575098	575142	575186	575230	8
52	575274	575318	575362	575405	575449	575493	7
53	575537	575581	575625	575669	575713	575757	6
54	575801	575844	575888	575932	575976	576020	5
55	576064	576108	576152	576196	576240	576284	4
56	576327	576371	576415	576459	576503	576547	3
57	576591	576635	576679	576723	576767	576811	2
58	576855	576898	576942	576986	577030	577074	1
59	577118	577162	577206	577250	577294	577338	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 25 degrees, or Versed Sine Supplement of 115 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	22	26	31	35	39

Natural Versed Sine of 65 degrees, or Co-versed Sine of 155 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	577382	577426	577470	577514	577558	577601	59
1	577645	577689	577733	577777	577821	577865	58
2	577909	577953	577997	578041	578085	578129	57
3	578173	578217	578261	578305	578349	578393	56
4	578437	578481	578524	578568	578612	578656	55
5	578700	578744	578788	578832	578876	578920	54
6	578964	579008	579052	579096	579140	579184	53
7	579228	579272	579316	579360	579404	579448	52
8	579492	579536	579580	579624	579668	579712	51
9	579756	579800	579844	579888	579932	579976	50
10	580020	580064	580108	580152	580196	580240	49
11	580284	580328	580372	580416	580460	580504	48
12	580548	580592	580636	580680	580724	580768	47
13	580812	580856	580900	580944	580988	581032	46
14	581076	581120	581164	581208	581252	581296	45
15	581340	581384	581428	581472	581516	581560	44
16	581604	581648	581693	581737	581781	581825	43
17	581869	581913	581957	582001	582045	582089	42
18	582133	582177	582221	582265	582309	582353	41
19	582397	582441	582485	582529	582573	582617	40
20	582662	582706	582750	582794	582838	582882	39
21	582926	582970	583014	583058	583102	583146	38
22	583190	583234	583278	583323	583367	583411	37
23	583455	583499	583543	583587	583631	583675	36
24	583719	583763	583807	583851	583896	583940	35
25	583984	584028	584072	584116	584160	584204	34
26	584248	584292	584336	584381	584425	584469	33
27	584513	584557	584601	584645	584689	584733	32
28	584777	584822	584866	584910	584954	584998	31
29	585042	585086	585130	585174	585219	585263	30
30	585307	585351	585395	585439	585483	585527	29
31	585571	585616	585660	585704	585748	585792	28
32	585836	585880	585924	585969	586013	586057	27
33	586101	586145	586189	586233	586278	586322	26
34	586366	586410	586454	586498	586542	586586	25
35	586631	586675	586719	586763	586807	586851	24
36	586896	586940	586984	587028	587072	587116	23
37	587160	587205	587249	587293	587337	587381	22
38	587425	587470	587514	587558	587602	587646	21
39	587690	587735	587779	587823	587867	587911	20
40	587955	588000	588044	588088	588132	588176	19
41	588221	588265	588309	588353	588397	588441	18
42	588486	588530	588574	588618	588662	588707	17
43	588751	588795	588839	588883	588928	588972	16
44	589016	589060	589104	589149	589193	589237	15
45	589281	589325	589370	589414	589458	589502	14
46	589546	589591	589635	589679	589723	589767	13
47	589812	589856	589900	589944	589989	590033	12
48	590077	590121	590165	590210	590254	590298	11
49	590342	590387	590431	590475	590519	590563	10
50	590608	590652	590696	590740	590785	590829	9
51	590873	590917	590962	591006	591050	591094	8
52	591139	591183	591227	591271	591316	591360	7
53	591404	591449	591493	591537	591581	591625	6
54	591670	591714	591758	591802	591847	591891	5
55	591935	591979	592024	592068	592112	592156	4
56	592201	592245	592289	592333	592378	592422	3
57	592466	592511	592555	592599	592643	592688	2
58	592732	592776	592821	592865	592909	592953	1
59	592998	593042	593086	593130	593175	593219	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 24 degrees, or Versed Sine Supplement of 114 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	26	31	35	40

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 66 degrees, or Co-versed Sine of 156 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	593263	593308	593352	593396	593441	593485	59
1	593529	593573	593618	593662	593706	593751	58
2	593795	593839	593884	593928	593972	594016	57
3	594061	594105	594149	594194	594238	594282	56
4	594327	594371	594415	594460	594504	594548	55
5	594592	594637	594681	594725	594770	594814	54
6	594858	594903	594947	594991	595036	595080	53
7	595124	595169	595213	595257	595302	595346	52
8	595390	595435	595479	595523	595568	595612	51
9	595656	595701	595745	595789	595834	595878	50
10	595922	595967	596011	596056	596100	596144	49
11	596189	596233	596277	596322	596366	596410	48
12	596455	596499	596543	596588	596632	596677	47
13	596721	596765	596810	596854	596898	596943	46
14	596987	597031	597076	597121	597165	597209	45
15	597253	597298	597342	597386	597431	597475	44
16	597520	597564	597608	597653	597697	597741	43
17	597786	597830	597875	597919	597963	598008	42
18	598052	598097	598141	598185	598230	598274	41
19	598319	598363	598407	598452	598496	598541	40
20	598585	598629	598674	598718	598763	598807	39
21	598851	598896	598940	598985	599029	599074	38
22	599118	599162	599207	599251	599296	599340	37
23	599384	599429	599473	599518	599562	599607	36
24	599651	599695	599740	599784	599829	599873	35
25	599918	599962	600006	600051	600095	600140	34
26	600184	600229	600273	600317	600362	600406	33
27	600451	600495	600540	600584	600629	600673	32
28	600717	600762	600806	600851	600895	600940	31
29	600984	601029	601073	601118	601162	601206	30
30	601251	601295	601340	601384	601429	601473	29
31	601518	601562	601607	601651	601696	601740	28
32	601785	601829	601873	601918	601962	602007	27
33	602051	602096	602140	602185	602229	602274	26
34	602318	602363	602407	602452	602496	602541	25
35	602585	602630	602674	602719	602763	602808	24
36	602852	602897	602941	602986	603030	603075	23
37	603119	603164	603208	603253	603297	603342	22
38	603386	603431	603475	603520	603564	603609	21
39	603653	603698	603742	603787	603831	603876	20
40	603920	603965	604009	604054	604098	604143	19
41	604187	604232	604276	604321	604365	604410	18
42	604454	604499	604544	604588	604633	604677	17
43	604722	604766	604811	604855	604900	604944	16
44	604989	605033	605078	605123	605167	605212	15
45	605256	605301	605345	605390	605434	605479	14
46	605523	605568	605613	605657	605702	605746	13
47	605791	605835	605880	605924	605969	606014	12
48	606058	606103	606147	606192	606236	606281	11
49	606325	606370	606415	606459	606504	606548	10
50	606593	606637	606682	606727	606771	606816	9
51	606860	606905	606949	606994	607039	607083	8
52	607128	607172	607217	607262	607306	607351	7
53	607395	607440	607485	607529	607574	607618	6
54	607663	607707	607752	607797	607841	607886	5
55	607930	607975	608020	608064	608109	608153	4
56	608198	608243	608287	608332	608377	608421	3
57	608466	608510	608555	608600	608644	608689	2
58	608733	608778	608823	608867	608912	608957	1
59	609001	609046	609090	609135	609180	609224	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 23 degrees, or Versed Sine Supplement of 113 degrees.						
Propor. parts.	1″ 4	2″ 9	3″ 13	4″ 18	5″ 22	6″ 27	7″ 31	8″ 36	9″ 40

Minutes	Natural Versed Sine of 67 degrees, or Co-versed Sine of 157 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	609269	609313	609358	609403	609447	609492	59
1	609537	609581	609626	609671	609715	609760	58
2	609804	609849	609894	609938	609983	610028	57
3	610072	610117	610162	610206	610251	610296	56
4	610340	610385	610429	610474	610519	610563	55
5	610608	610653	610697	610742	610787	610831	54
6	610876	610921	610965	611010	611055	611099	53
7	611144	611189	611233	611278	611323	611367	52
8	611412	611457	611501	611546	611591	611635	51
9	611680	611725	611769	611814	611859	611903	50
10	611948	611993	612038	612082	612127	612172	49
11	612216	612261	612306	612350	612395	612440	48
12	612484	612529	612574	612618	612663	612708	47
13	612753	612797	612842	612887	612931	612976	46
14	613021	613066	613110	613155	613200	613244	45
15	613289	613334	613378	613423	613468	613513	44
16	613557	613602	613647	613691	613736	613781	43
17	613826	613870	613915	613960	614005	614049	42
18	614094	614139	614183	614228	614273	614318	41
19	614362	614407	614452	614497	614541	614586	40
20	614631	614675	614720	614765	614810	614854	39
21	614899	614944	614989	615033	615078	615123	38
22	615168	615212	615257	615302	615347	615391	37
23	615436	615481	615526	615570	615615	615660	36
24	615705	615749	615794	615839	615884	615928	35
25	615973	616018	616063	616108	616152	616197	34
26	616242	616287	616331	616376	616421	616466	33
27	616510	616555	616600	616645	616690	616734	32
28	616779	616824	616869	616913	616958	617003	31
29	617048	617093	617137	617182	617227	617272	30
30	617317	617361	617406	617451	617496	617541	29
31	617585	617630	617675	617720	617765	617809	28
32	617854	617899	617944	617989	618033	618078	27
33	618123	618168	618213	618257	618302	618347	26
34	618392	618437	618481	618526	618571	618616	25
35	618661	618706	618750	618795	618840	618885	24
36	618930	618974	619019	619064	619109	619154	23
37	619199	619243	619288	619333	619378	619423	22
38	619468	619512	619557	619602	619647	619692	21
39	619737	619781	619826	619871	619916	619961	20
40	620006	620050	620095	620140	620185	620230	19
41	620275	620320	620364	620409	620454	620499	18
42	620544	620589	620634	620678	620723	620768	17
43	620813	620858	620903	620948	620992	621037	16
44	621082	621127	621172	621217	621262	621307	15
45	621351	621396	621441	621486	621531	621576	14
46	621621	621666	621710	621755	621800	621845	13
47	621890	621935	621980	622025	622069	622114	12
48	622159	622204	622249	622294	622339	622384	11
49	622429	622473	622518	622563	622608	622653	10
50	622698	622743	622788	622833	622878	622922	9
51	622967	623012	623057	623102	623147	623192	8
52	623237	623282	623327	623371	623416	623461	7
53	623506	623551	623596	623641	623686	623731	6
54	623776	623821	623866	623910	623955	624000	5
55	624045	624090	624135	624180	624225	624270	4
56	624315	624360	624405	624450	624495	624539	3
57	624584	624629	624674	624719	624764	624809	2
58	624854	624899	624944	624989	625034	625079	1
59	625124	625169	625214	625259	625304	625348	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Co-versed Sine of 22 degrees, or Versed Sine Supplement of 112 degrees						
Propor. parts.	1″ 4	2″ 9	3″ 13	4″ 18	5″ 22	6″ 27	7″ 31	8″ 36	9″ 40

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NATURAL VERSED SINES.

Natural Versed Sine of 68 degrees, or Co-versed Sine of 158 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	625393	625438	625483	625528	625573	625618	59
1	625663	625708	625753	625798	625843	625888	58
2	625933	625978	626023	626068	626113	626158	57
3	626203	626248	626293	626338	626383	626428	56
4	626472	626517	626562	626607	626652	626697	55
5	626742	626787	626832	626877	626922	626967	54
6	627012	627057	627102	627147	627192	627237	53
7	627282	627327	627372	627417	627462	627507	52
8	627552	627597	627642	627687	627732	627777	51
9	627822	627867	627912	627957	628002	628047	50
10	628092	628137	628182	628227	628272	628317	49
11	628362	628407	628452	628497	628542	628587	48
12	628632	628677	628722	628767	628812	628857	47
13	628902	628947	628992	629037	629082	629127	46
14	629172	629217	629262	629307	629353	629398	45
15	629443	629488	629533	629578	629623	629668	44
16	629713	629758	629803	629848	629893	629938	43
17	629983	630028	630073	630118	630163	630208	42
18	630253	630298	630343	630388	630433	630478	41
19	630524	630569	630614	630659	630704	630749	40
20	630794	630839	630884	630929	630974	631019	39
21	631064	631109	631154	631199	631244	631290	38
22	631335	631380	631425	631470	631515	631560	37
23	631605	631650	631695	631740	631785	631830	36
24	631875	631921	631966	632011	632056	632101	35
25	632146	632191	632236	632281	632326	632371	34
26	632416	632462	632507	632552	632597	632642	33
27	632687	632732	632777	632822	632867	632912	32
28	632958	633003	633048	633093	633138	633183	31
29	633228	633273	633318	633363	633409	633454	30
30	633499	633544	633589	633634	633679	633724	29
31	633769	633815	633860	633905	633950	633995	28
32	634040	634085	634130	634175	634221	634266	27
33	634311	634356	634401	634446	634491	634536	26
34	634582	634627	634672	634717	634762	634807	25
35	634852	634898	634943	634988	635033	635078	24
36	635123	635168	635213	635259	635304	635349	23
37	635394	635439	635484	635530	635575	635620	22
38	635665	635710	635755	635800	635846	635891	21
39	635936	635981	636026	636071	636116	636162	20
40	636207	636252	636297	636342	636387	636433	19
41	636478	636523	636568	636613	636658	636704	18
42	636749	636794	636839	636884	636929	636975	17
43	637020	637065	637110	637155	637201	637246	16
44	637291	637336	637381	637426	637472	637517	15
45	637562	637607	637652	637698	637743	637788	14
46	637833	637878	637923	637969	638014	638059	13
47	638104	638149	638195	638240	638285	638330	12
48	638375	638421	638466	638511	638556	638601	11
49	638647	638692	638737	638782	638827	638873	10
50	638918	638963	639008	639054	639099	639144	9
51	639189	639234	639280	639325	639370	639415	8
52	639460	639506	639551	639596	639641	639687	7
53	639732	639777	639822	639868	639913	639958	6
54	640003	640048	640094	640139	640184	640229	5
55	640275	640320	640365	640410	640456	640501	4
56	640546	640591	640637	640682	640727	640772	3
57	640817	640863	640908	640953	640998	641044	2
58	641089	641134	641179	641225	641270	641315	1
59	641360	641406	641451	641496	641542	641587	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 21 degrees, or Versed Sine Supplement of 111 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	27	32	36	41

Natural Versed Sine of 69 degrees, or Co-versed Sine of 159 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	641632	641677	641723	641768	641813	641858	59
1	641904	641949	641994	642039	642085	642130	58
2	642175	642221	642266	642311	642356	642402	57
3	642447	642492	642537	642583	642628	642673	56
4	642719	642764	642809	642854	642900	642945	55
5	642990	643036	643081	643126	643171	643217	54
6	643262	643307	643353	643398	643443	643488	53
7	643534	643579	643624	643670	643715	643760	52
8	643806	643851	643896	643941	643987	644032	51
9	644077	644123	644168	644213	644259	644304	50
10	644349	644395	644440	644485	644530	644576	49
11	644621	644666	644712	644757	644802	644848	48
12	644893	644938	644984	645029	645074	645120	47
13	645165	645210	645256	645301	645346	645392	46
14	645437	645482	645528	645573	645618	645664	45
15	645709	645754	645800	645845	645890	645936	44
16	645981	646026	646072	646117	646162	646208	43
17	646253	646298	646344	646389	646434	646480	42
18	646525	646571	646616	646661	646707	646752	41
19	646797	646843	646888	646933	646979	647024	40
20	647069	647115	647160	647206	647251	647296	39
21	647342	647387	647433	647478	647523	647569	38
22	647614	647659	647705	647750	647795	647841	37
23	647886	647931	647977	648022	648068	648113	36
24	648159	648204	648249	648294	648340	648385	35
25	648431	648476	648522	648567	648612	648658	34
26	648703	648748	648794	648839	648885	648930	33
27	648975	649021	649066	649112	649157	649202	32
28	649248	649293	649339	649384	649429	649475	31
29	649520	649566	649611	649656	649702	649747	30
30	649793	649838	649883	649929	649974	650020	29
31	650065	650111	650156	650201	650247	650292	28
32	650338	650383	650428	650474	650519	650565	27
33	650610	650656	650701	650746	650792	650837	26
34	650883	650929	650974	651019	651064	651110	25
35	651155	651201	651246	651292	651337	651383	24
36	651428	651473	651519	651564	651610	651655	23
37	651701	651746	651792	651837	651882	651928	22
38	651973	652019	652064	652110	652155	652201	21
39	652246	652292	652337	652382	652428	652473	20
40	652519	652564	652610	652655	652701	652746	19
41	652792	652837	652882	652928	652973	653019	18
42	653064	653110	653155	653201	653246	653292	17
43	653337	653383	653428	653474	653519	653565	16
44	653610	653656	653701	653746	653792	653837	15
45	653883	653928	653974	654019	654065	654110	14
46	654156	654201	654247	654292	654338	654383	13
47	654429	654474	654520	654565	654611	654656	12
48	654702	654747	654793	654838	654884	654929	11
49	654975	655020	655066	655111	655157	655202	10
50	655248	655293	655339	655384	655430	655475	9
51	655521	655566	655612	655657	655703	655749	8
52	655794	655840	655885	655931	655976	656022	7
53	656067	656113	656158	656204	656249	656295	6
54	656340	656386	656431	656477	656522	656568	5
55	656613	656659	656705	656750	656796	656841	4
56	656887	656933	656978	657023	657069	657114	3
57	657160	657205	657251	657297	657342	657388	2
58	657433	657479	657524	657570	657615	657661	1
59	657707	657752	657798	657843	657889	657934	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 20 degrees, or Versed Sine Supplement of 110 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	27	32	36	41

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NATURAL VERSED SINES.

Natural Versed Sine of 70 degrees, or Co-versed Sine of 160 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	657980	658025	658071	658117	658162	658208	59
1	658253	658299	658344	658390	658435	658481	58
2	658527	658572	658618	658663	658709	658754	57
3	658800	658846	658891	658937	658982	659028	56
4	659073	659119	659165	659210	659256	659301	55
5	659347	659393	659438	659484	659529	659575	54
6	659620	659666	659712	659757	659803	659848	53
7	659894	659940	659985	660031	660076	660122	52
8	660168	660213	660259	660304	660350	660396	51
9	660441	660487	660532	660578	660624	660669	50
10	660715	660760	660806	660852	660897	660943	49
11	660988	661034	661080	661125	661171	661216	48
12	661262	661308	661353	661399	661445	661490	47
13	661536	661581	661627	661673	661718	661764	46
14	661810	661855	661901	661946	661992	662038	45
15	662083	662129	662175	662220	662266	662311	44
16	662357	662403	662448	662494	662540	662585	43
17	662631	662677	662722	662768	662813	662859	42
18	662905	662950	662996	663042	663087	663133	41
19	663179	663224	663270	663316	663361	663407	40
20	663453	663498	663544	663589	663635	663681	39
21	663726	663772	663818	663863	663909	663955	38
22	664000	664046	664092	664137	664183	664229	37
23	664274	664320	664366	664411	664457	664503	36
24	664548	664594	664640	664685	664731	664777	35
25	664822	664868	664914	664960	665005	665051	34
26	665097	665142	665188	665234	665279	665325	33
27	665371	665416	665462	665508	665553	665599	32
28	665645	665690	665736	665782	665828	665873	31
29	665919	665965	666010	666056	666102	666147	30
30	666193	666239	666285	666330	666376	666422	29
31	666467	666513	666559	666604	666650	666696	28
32	666742	666787	666833	666879	666924	666970	27
33	667016	667062	667107	667153	667199	667244	26
34	667290	667336	667382	667427	667473	667519	25
35	667565	667610	667656	667702	667747	667793	24
36	667839	667885	667930	667976	668022	668068	23
37	668113	668159	668205	668250	668296	668342	22
38	668388	668433	668479	668525	668571	668616	21
39	668662	668708	668754	668799	668845	668891	20
40	668937	668982	669028	669074	669120	669165	19
41	669211	669257	669303	669348	669394	669440	18
42	669486	669531	669577	669623	669669	669714	17
43	669760	669806	669852	669897	669943	669989	16
44	670035	670081	670126	670172	670218	670264	15
45	670309	670355	670401	670447	670492	670538	14
46	670584	670630	670676	670721	670767	670813	13
47	670859	670904	670950	670996	671042	671088	12
48	671133	671179	671225	671271	671317	671362	11
49	671408	671454	671500	671545	671591	671637	10
50	671683	671729	671774	671820	671866	671912	9
51	671958	672003	672049	672095	672141	672187	8
52	672232	672278	672324	672370	672416	672461	7
53	672507	672558	672599	672645	672690	672736	6
54	672782	672828	672874	672920	672965	673011	5
55	673057	673103	673149	673194	673240	673286	4
56	673332	673378	673424	673469	673515	673561	3
57	673607	673653	673698	673744	673790	673836	2
58	673882	673928	673973	674019	674065	674111	1
59	674157	674203	674248	674294	674340	674386	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 19 degrees, or Versid Sine Supplement of 109 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	41

Natural Versed Sine of 71 degrees, or Co-versed Sine of 161 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	674432	674478	674524	674569	674615	674661	59
1	674707	674753	674799	674844	674890	674936	58
2	674982	675028	675074	675120	675165	675211	57
3	675257	675303	675349	675395	675441	675486	56
4	675532	675578	675624	675670	675716	675762	55
5	675807	675853	675899	675945	675991	676037	54
6	676083	676128	676174	676220	676266	676312	53
7	676358	676404	676450	676495	676541	676587	52
8	676633	676679	676725	676771	676817	676862	51
9	676908	676954	677000	677046	677092	677138	50
10	677184	677230	677275	677321	677367	677413	49
11	677459	677505	677551	677597	677643	677688	48
12	677734	677780	677826	677872	677918	677964	47
13	678010	678056	678101	678147	678193	678239	46
14	678285	678331	678377	678423	678469	678515	45
15	678561	678606	678652	678698	678744	678790	44
16	678836	678882	678928	678974	679020	679066	43
17	679111	679157	679203	679249	679295	679341	42
18	679387	679433	679479	679525	679571	679617	41
19	679663	679708	679754	679800	679846	679892	40
20	679938	679984	680030	680076	680122	680168	39
21	680214	680260	680306	680352	680397	680443	38
22	680489	680535	680581	680627	680673	680719	37
23	680765	680811	680857	680903	680949	680995	36
24	681041	681087	681133	681179	681224	681270	35
25	681316	681362	681408	681454	681500	681546	34
26	681592	681638	681684	681730	681776	681822	33
27	681868	681914	681960	682006	682052	682098	32
28	682144	682190	682236	682282	682328	682374	31
29	682420	682465	682511	682557	682603	682649	30
30	682695	682741	682787	682833	682879	682925	29
31	682971	683017	683063	683109	683155	683201	28
32	683247	683293	683339	683385	683431	683477	27
33	683523	683569	683615	683661	683707	683753	26
34	683799	683845	683891	683937	683983	684029	25
35	684075	684121	684167	684213	684259	684305	24
36	684351	684397	684443	684489	684535	684581	23
37	684627	684673	684719	684765	684811	684857	22
38	684903	684949	684995	685041	685087	685133	21
39	685179	685225	685271	685317	685363	685409	20
40	685455	685501	685547	685593	685639	685685	19
41	685731	685777	685823	685869	685915	685962	18
42	686008	686054	686100	686146	686192	686238	17
43	686284	686330	686376	686422	686468	686514	16
44	686560	686606	686652	686698	686744	686790	15
45	686836	686882	686928	686974	687020	687066	14
46	687112	687159	687205	687251	687297	687343	13
47	687389	687435	687481	687527	687573	687619	12
48	687665	687711	687757	687803	687849	687895	11
49	687941	687987	688034	688080	688126	688172	10
50	688218	688264	688310	688356	688402	688448	9
51	688494	688540	688586	688632	688678	688725	8
52	688771	688817	688863	688909	688955	689001	7
53	689047	689093	689139	689185	689231	689277	6
54	689324	689370	689416	689462	689508	689554	5
55	689600	689646	689692	689738	689784	689831	4
56	689877	689923	689969	690015	690061	690107	3
57	690153	690199	690245	690291	690338	690384	2
58	690430	690476	690522	690568	690614	690660	1
59	690706	690752	690799	690845	690891	690937	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 18 degrees, or Versed Sine Supplement of 108 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	41

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NATURAL VERSED SINES.

Natural Versed Sine of 72 degrees, or Co-versed Sine of 162 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	690983	691029	691075	691121	691167	691214	59
1	691260	691306	691352	691398	691444	691490	58
2	691536	691582	691629	691675	691721	691767	57
3	691813	691859	691905	691951	691998	692044	56
4	692090	692136	692182	692228	692274	692320	55
5	692367	692413	692459	692505	692551	692597	54
6	692643	692690	692736	692782	692828	692874	53
7	692920	692966	693012	693059	693105	693151	52
8	693197	693243	693289	693335	693382	693428	51
9	693474	693520	693566	693612	693659	693705	50
10	693751	693797	693843	693889	693935	693982	49
11	694028	694074	694120	694166	694212	694259	48
12	694305	694351	694397	694443	694489	694536	47
13	694582	694628	694674	694720	694766	694813	46
14	694859	694905	694951	694997	695043	695090	45
15	695136	695182	695228	695274	695320	695367	44
16	695413	695459	695505	695551	695597	695644	43
17	695690	695736	695782	695828	695875	695921	42
18	695967	696013	696059	696106	696152	696198	41
19	696244	696290	696336	696383	696429	696475	40
20	696521	696567	696614	696660	696706	696752	39
21	696798	696845	696891	696937	696983	697029	38
22	697076	697122	697168	697214	697260	697307	37
23	697353	697399	697445	697491	697538	697584	36
24	697630	697676	697723	697769	697815	697861	35
25	697907	697954	698000	698046	698092	698138	34
26	698185	698231	698277	698323	698370	698416	33
27	698462	698508	698554	698601	698647	698693	32
28	698739	698786	698832	698878	698924	698971	31
29	699017	699063	699109	699155	699202	699248	30
30	699294	699340	699387	699433	699479	699525	29
31	699572	699618	699664	699710	699757	699803	28
32	699849	699895	699942	699988	700034	700080	27
33	700127	700173	700219	700265	700312	700358	26
34	700404	700450	700497	700543	700589	700635	25
35	700682	700728	700774	700820	700867	700913	24
36	700959	701005	701052	701098	701144	701191	23
37	701237	701283	701329	701376	701422	701468	22
38	701514	701561	701607	701653	701700	701746	21
39	701792	701838	701885	701931	701977	702023	20
40	702070	702116	702162	702209	702255	702301	19
41	702347	702394	702440	702486	702533	702579	18
42	702625	702671	702718	702764	702810	702857	17
43	702903	702949	702995	703042	703088	703134	16
44	703181	703227	703273	703320	703366	703412	15
45	703458	703505	703551	703597	703644	703690	14
46	703736	703783	703829	703875	703921	703968	13
47	704014	704060	704107	704153	704199	704246	12
48	704292	704338	704385	704431	704477	704524	11
49	704570	704616	704662	704709	704755	704801	10
50	704848	704894	704940	704987	705033	705079	9
51	705126	705172	705218	705265	705311	705357	8
52	705404	705450	705496	705543	705589	705635	7
53	705682	705728	705774	705821	705867	705913	6
54	705960	706006	706052	706099	706145	706191	5
55	706238	706284	706330	706377	706423	706469	4
56	706516	706562	706608	706655	706701	706748	3
57	706794	706840	706887	706933	706979	707026	2
58	707072	707118	707165	707211	707257	707304	1
59	707350	707396	707443	707489	707536	707582	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 17 degrees, or Versed Sine Supplement of 107 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	42

Natural Versed Sine of 73 degrees, or Co-versed Sine of 163 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	707628	707675	707721	707767	707814	707860	59
1	707906	707953	707999	708046	708092	708138	58
2	708185	708231	708277	708324	708370	708417	57
3	708463	708509	708556	708602	708648	708695	56
4	708741	708788	708834	708880	708927	708973	55
5	709019	709066	709112	709159	709205	709251	54
6	709298	709344	709390	709437	709483	709530	53
7	709576	709623	709669	709715	709762	709808	52
8	709855	709901	709947	709994	710040	710086	51
9	710133	710179	710226	710272	710318	710365	50
10	710411	710458	710504	710551	710597	710643	49
11	710690	710736	710783	710829	710875	710922	48
12	710968	711015	711061	711107	711154	711200	47
13	711247	711293	711340	711386	711432	711479	46
14	711525	711572	711618	711664	711711	711757	45
15	711804	711850	711897	711943	711989	712036	44
16	712082	712129	712175	712222	712268	712314	43
17	712361	712407	712454	712500	712547	712593	42
18	712639	712686	712732	712778	712825	712872	41
19	712918	712965	713011	713057	713104	713150	40
20	713197	713243	713290	713336	713383	713429	39
21	713475	713522	713568	713615	713661	713708	38
22	713754	713801	713847	713894	713940	713986	37
23	714033	714079	714126	714172	714219	714265	36
24	714312	714358	714405	714451	714497	714544	35
25	714590	714637	714683	714730	714776	714823	34
26	714869	714916	714962	715009	715055	715102	33
27	715148	715195	715241	715287	715334	715380	32
28	715427	715473	715520	715566	715613	715659	31
29	715706	715752	715799	715845	715892	715938	30
30	715985	716031	716078	716124	716171	716217	29
31	716264	716310	716357	716403	716450	716496	28
32	716543	716589	716636	716682	716728	716775	27
33	716821	716868	716914	716961	717007	717054	26
34	717100	717147	717193	717240	717286	717333	25
35	717380	717426	717473	717519	717566	717612	24
36	717659	717705	717752	717798	717845	717891	23
37	717938	717984	718031	718077	718124	718170	22
38	718217	718263	718310	718356	718403	718449	21
39	718496	718542	718589	718635	718682	718728	20
40	718775	718821	718868	718915	718961	719008	19
41	719054	719101	719147	719194	719240	719287	18
42	719333	719380	719426	719473	719519	719566	17
43	719612	719659	719706	719752	719799	719845	16
44	719892	719938	719985	720031	720078	720124	15
45	720171	720218	720264	720311	720357	720404	14
46	720450	720497	720543	720590	720636	720683	13
47	720730	720776	720823	720869	720916	720962	12
48	721009	721055	721102	721149	721195	721242	11
49	721288	721335	721381	721428	721474	721521	10
50	721568	721614	721661	721707	721754	721800	9
51	721847	721894	721940	721987	722033	722080	8
52	722126	722173	722220	722266	722313	722359	7
53	722406	722452	722499	722546	722592	722639	6
54	722685	722732	722779	722825	722872	722918	5
55	722965	723011	723058	723105	723151	723198	4
56	723244	723291	723338	723384	723431	723477	3
57	723524	723570	723617	723664	723710	723757	2
58	723803	723850	723897	723943	723990	724036	1
59	724083	724130	724176	724223	724269	724316	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 16 degrees, or Versed Sine Supplement of 106 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

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NATURAL VERSED SINES.

Natural Versed Sine of 74 degrees, or Co-versed Sine of 164 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	724363	724409	724456	724502	724549	724596	59
1	724642	724689	724735	724782	724829	724875	58
2	724922	724969	725015	725062	725108	725155	57
3	725202	725248	725295	725341	725388	725435	56
4	725481	725528	725575	725621	725668	725714	55
5	725761	725808	725854	725901	725948	725994	54
6	726041	726087	726134	726181	726227	726274	53
7	726321	726367	726414	726460	726507	726554	52
8	726600	726647	726694	726740	726787	726834	51
9	726880	726927	726973	727020	727067	727113	50
10	727160	727207	727253	727300	727347	727393	49
11	727440	727487	727533	727580	727626	727673	48
12	727720	727766	727813	727860	727906	727953	47
13	728000	728046	728093	728140	728186	728233	46
14	728280	728326	728373	728420	728466	728513	45
15	728560	728606	728653	728700	728746	728793	44
16	728840	728886	728933	728980	729026	729073	43
17	729120	729166	729213	729260	729306	729353	42
18	729400	729446	729493	729540	729586	729633	41
19	729680	729726	729773	729820	729866	729913	40
20	729960	730006	730053	730100	730146	730193	39
21	730240	730286	730333	730380	730427	730473	38
22	730520	730567	730613	730660	730707	730753	37
23	730800	730847	730893	730940	730987	731033	36
24	731080	731127	731174	731220	731267	731314	35
25	731360	731407	731454	731500	731547	731594	34
26	731641	731687	731734	731781	731827	731874	33
27	731921	731968	732014	732061	732108	732154	32
28	732201	732248	732294	732341	732388	732435	31
29	732481	732528	732575	732621	732668	732715	30
30	732762	732808	732855	732902	732949	732995	29
31	733042	733089	733135	733182	733229	733276	28
32	733322	733369	733416	733462	733509	733556	27
33	733603	733649	733696	733743	733790	733836	26
34	733883	733930	733977	734023	734070	734117	25
35	734163	734210	734257	734304	734350	734397	24
36	734444	734491	734537	734584	734631	734678	23
37	734724	734771	734818	734865	734911	734958	22
38	735005	735052	735098	735145	735192	735239	21
39	735285	735332	735379	735426	735472	735519	20
40	735566	735613	735659	735706	735753	735800	19
41	735846	735893	735940	735987	736033	736080	18
42	736127	736174	736220	736267	736314	736361	17
43	736408	736454	736501	736548	736595	736641	16
44	736688	736735	736782	736828	736875	736922	15
45	736969	737016	737062	737109	737156	737203	14
46	737249	737296	737343	737390	737437	737483	13
47	737530	737577	737624	737670	737717	737764	12
48	737811	737858	737904	737951	737998	738045	11
49	738092	738138	738185	738232	738279	738325	10
50	738372	738419	738466	738513	738559	738606	9
51	738653	738700	738747	738793	738840	738887	8
52	738934	738981	739027	739074	739121	739168	7
53	739215	739261	739308	739355	739402	739449	6
54	739495	739542	739589	739636	739683	739730	5
55	739776	739823	739870	739917	739964	740010	4
56	740057	740104	740151	740198	740244	740291	3
57	740338	740385	740432	740479	740525	740572	2
58	740619	740666	740713	740760	740806	740853	1
59	740900	740947	740994	741040	741087	741134	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 15 degrees, or Versed Sine Supplement of 105 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

Natural Versed Sine of 75 degrees, or Co-versed Sine of 165 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	741181	741228	741275	741321	741368	741415	59
1	741462	741509	741556	741602	741649	741696	58
2	741743	741790	741837	741883	741930	741977	57
3	742024	742071	742118	742165	742211	742258	56
4	742305	742352	742399	742446	742492	742539	55
5	742586	742633	742680	742727	742774	742820	54
6	742867	742914	742961	743008	743055	743101	53
7	743148	743195	743242	743289	743336	743383	52
8	743429	743476	743523	743570	743617	743664	51
9	743711	743757	743804	743851	743898	743945	50
10	743992	744039	744086	744132	744179	744226	49
11	744273	744320	744367	744414	744460	744507	48
12	744554	744601	744648	744695	744742	744789	47
13	744835	744882	744929	744976	745023	745070	46
14	745117	745164	745211	745257	745304	745351	45
15	745398	745445	745492	745539	745586	745632	44
16	745679	745726	745773	745820	745867	745914	43
17	745961	746008	746054	746101	746148	746195	42
18	746242	746289	746336	746383	746430	746477	41
19	746523	746570	746617	746664	746711	746758	40
20	746805	746852	746899	746946	746992	747039	39
21	747086	747133	747180	747227	747274	747321	38
22	747368	747414	747461	747508	747555	747602	37
23	747649	747696	747743	747790	747837	747884	36
24	747931	747978	748024	748071	748118	748165	35
25	748212	748259	748306	748353	748400	748447	34
26	748494	748541	748588	748634	748681	748728	33
27	748775	748822	748869	748916	748963	749010	32
28	749057	749104	749151	749198	749245	749291	31
29	749338	749385	749432	749479	749526	749573	30
30	749620	749667	749714	749761	749808	749855	29
31	749902	749949	749996	750042	750089	750136	28
32	750183	750230	750277	750324	750371	750418	27
33	750466	750512	750559	750606	750653	750700	26
34	750747	750794	750841	750888	750934	750981	25
35	751028	751075	751122	751169	751216	751263	24
36	751310	751357	751404	751451	751498	751545	23
37	751592	751639	751686	751733	751780	751827	22
38	751874	751921	751968	752015	752062	752108	21
39	752155	752202	752249	752296	752343	752390	20
40	752437	752484	752531	752578	752625	752672	19
41	752719	752766	752813	752860	752907	752954	18
42	753001	753048	753095	753142	753189	753236	17
43	753283	753330	753377	753424	753471	753518	16
44	753565	753612	753659	753706	753753	753800	15
45	753847	753894	753941	753988	754035	754082	14
46	754129	754176	754223	754270	754317	754364	13
47	754411	754458	754505	754552	754599	754646	12
48	754693	754740	754787	754834	754881	754928	11
49	754975	755022	755069	755116	755163	755210	10
50	755257	755304	755351	755398	755445	755492	9
51	755539	755586	755633	755680	755727	755774	8
52	755821	755868	755915	755962	756009	756056	7
53	756103	756150	756197	756244	756291	756338	6
54	756385	756432	756479	756526	756573	756620	5
55	756667	756714	756761	756808	756855	756902	4
56	756949	756996	757043	757090	757137	757184	3
57	757231	757278	757326	757373	757420	757467	2
58	757514	757561	757608	757655	757702	757749	1
59	757796	757843	757890	757937	757984	758031	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 14 degrees, or Versed Sine Supplement of 104 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	38	42

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NATURAL VERSED SINES.

Natural Versed Sine of 76 degrees, or Co-versed Sine of 166 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	758078	758125	758172	758219	758266	758313	59
1	758360	758407	758454	758501	758549	758596	58
2	758643	758690	758737	758784	758831	758878	57
3	758925	758972	759019	759066	759113	759160	56
4	759207	759254	759301	759348	759395	759443	55
5	759490	759537	759584	759631	759678	759725	54
6	759772	759819	759866	759913	759960	760007	53
7	760054	760101	760148	760196	760243	760290	52
8	760337	760384	760431	760478	760525	760572	51
9	760619	760666	760713	760760	760807	760855	50
10	760902	760949	760996	761043	761090	761137	49
11	761184	761231	761278	761325	761372	761419	48
12	761467	761514	761561	761608	761655	761702	47
13	761749	761796	761843	761890	761937	761984	46
14	762032	762079	762126	762173	762220	762267	45
15	762314	762361	762408	762455	762502	762550	44
16	762597	762644	762691	762738	762785	762832	43
17	762879	762926	762973	763021	763068	763115	42
18	763162	763209	763256	763303	763350	763397	41
19	763444	763492	763539	763586	763633	763680	40
20	763727	763774	763821	763868	763916	763963	39
21	764010	764057	764104	764151	764198	764245	38
22	764292	764340	764387	764434	764481	764528	37
23	764575	764622	764669	764717	764764	764811	36
24	764858	764905	764952	764999	765046	765094	35
25	765141	765188	765235	765282	765329	765376	34
26	765423	765471	765518	765565	765612	765659	33
27	765706	765753	765800	765848	765895	765942	32
28	765989	766036	766083	766130	766178	766225	31
29	766272	766319	766366	766413	766460	766507	30
30	766555	766602	766649	766696	766743	766790	29
31	766837	766885	766932	766979	767026	767073	28
32	767120	767168	767215	767262	767309	767356	27
33	767403	767450	767498	767545	767592	767639	26
34	767686	767733	767781	767828	767875	767922	25
35	767969	768016	768063	768111	768158	768205	24
36	768252	768299	768346	768394	768441	768488	23
37	768535	768582	768629	768677	768724	768771	22
38	768818	768865	768912	768960	769007	769054	21
39	769101	769148	769195	769243	769290	769337	20
40	769384	769431	769478	769526	769573	769620	19
41	769667	769714	769762	769809	769856	769903	18
42	769950	769997	770045	770092	770139	770186	17
43	770233	770281	770328	770375	770422	770469	16
44	770516	770564	770611	770658	770705	770752	15
45	770800	770847	770894	770941	770988	771036	14
46	771083	771130	771177	771224	771272	771319	13
47	771366	771413	771460	771508	771555	771602	12
48	771649	771696	771744	771791	771838	771885	11
49	771932	771980	772027	772074	772121	772168	10
50	772216	772263	772310	772357	772404	772452	9
51	772499	772546	772593	772640	772688	772735	8
52	772782	772829	772877	772924	772971	773018	7
53	773065	773113	773160	773207	773254	773301	6
54	773349	773396	773443	773490	773538	773585	5
55	773632	773679	773726	773774	773821	773868	4
56	773915	773963	774010	774057	774104	774152	3
57	774199	774246	774293	774340	774388	774435	2
58	774482	774529	774577	774624	774671	774718	1
59	774766	774813	774860	774907	774954	775002	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 13 degrees, or Versed Sine Supplement of 103 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	42

Natural Versed Sine of 77 degrees, or Co-versed Sine of 167 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	775049	775096	775143	775191	775238	775285	59
1	775332	775380	775427	775474	775521	775568	58
2	775616	775663	775710	775758	775805	775852	57
3	775899	775947	775994	776041	776088	776136	56
4	776183	776230	776277	776325	776372	776419	55
5	776466	776514	776561	776608	776655	776703	54
6	776750	776797	776844	776892	776939	776986	53
7	777033	777081	777128	777175	777222	777270	52
8	777317	777364	777412	777459	777506	777553	51
9	777601	777648	777695	777742	777790	777837	50
10	777884	777931	777979	778026	778073	778121	49
11	778168	778215	778262	778310	778357	778404	48
12	778452	778499	778546	778593	778641	778688	47
13	778735	778782	778830	778877	778924	778972	46
14	779019	779066	779113	779161	779208	779255	45
15	779303	779350	779397	779444	779492	779539	44
16	779587	779634	779681	779728	779775	779823	43
17	779870	779917	779965	780012	780059	780107	42
18	780154	780201	780248	780296	780343	780390	41
19	780438	780485	780532	780579	780627	780674	40
20	780721	780769	780816	780863	780911	780958	39
21	781005	781052	781100	781147	781194	781242	38
22	781289	781336	781384	781431	781478	781526	37
23	781573	781620	781668	781715	781762	781809	36
24	781857	781904	781951	781999	782046	782093	35
25	782141	782188	782235	782283	782330	782377	34
26	782425	782472	782519	782567	782614	782661	33
27	782708	782756	782803	782850	782898	782945	32
28	782992	783040	783087	783134	783182	783229	31
29	783276	783324	783371	783418	783466	783513	30
30	783560	783608	783655	783702	783749	783797	29
31	783844	783892	783939	783986	784034	784081	28
32	784128	784176	784223	784270	784318	784365	27
33	784412	784460	784507	784554	784602	784649	26
34	784697	784744	784791	784839	784886	784933	25
35	784981	785028	785075	785123	785170	785217	24
36	785265	785312	785359	785407	785454	785501	23
37	785549	785596	785643	785691	785738	785786	22
38	785833	785880	785928	785975	786022	786070	21
39	786117	786164	786212	786259	786307	786354	20
40	786401	786449	786496	786543	786591	786638	19
41	786685	786733	786780	786828	786875	786922	18
42	786970	787017	787064	787112	787159	787206	17
43	787254	787301	787349	787396	787443	787491	16
44	787538	787585	787633	787680	787728	787775	15
45	787822	787870	787917	787964	788012	788059	14
46	788107	788154	788201	788249	788296	788344	13
47	788391	788438	788486	788533	788580	788628	12
48	788675	788723	788770	788817	788865	788912	11
49	788960	789007	789054	789102	789149	789196	10
50	789244	789291	789339	789386	789433	789481	9
51	789528	789576	789623	789670	789718	789765	8
52	789813	789860	789907	789955	790002	790050	7
53	790097	790144	790192	790239	790287	790334	6
54	790381	790429	790476	790524	790571	790618	5
55	790666	790713	790761	790808	790856	790903	4
56	790950	790998	791045	791093	791140	791187	3
57	791235	791282	791330	791377	791424	791471	2
58	791518	791566	791614	791662	791709	791756	1
59	791804	791851	791899	791946	791993	792041	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 12 degrees, or Versed Sine Supplement of 102 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	43

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NATURAL VERSED SINES.

Natural Versed Sine of 78 degrees, or Co-versed sine of 168 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	792088	792136	792183	792231	792278	792325	59
1	792373	792420	792468	792515	792563	792610	58
2	792657	792705	792752	792800	792847	792895	57
3	792942	792989	793037	793084	793132	793179	56
4	793227	793274	793321	793369	793416	793464	55
5	793511	793559	793606	793653	793701	793748	54
6	793796	793843	793891	793938	793986	794033	53
7	794080	794128	794175	794223	794270	794318	52
8	794365	794413	794460	794507	794555	794602	51
9	794650	794697	794745	794792	794840	794887	50
10	794935	794982	795029	795077	795124	795172	49
11	795219	795267	795314	795362	795409	795456	48
12	795504	795551	795599	795646	795694	795741	47
13	795789	795836	795884	795931	795979	796026	46
14	796073	796121	796168	796216	796263	796311	45
15	796358	796406	796453	796501	796548	796596	44
16	796643	796691	796738	796785	796833	796880	43
17	796928	796975	797023	797070	797118	797165	42
18	797213	797260	797308	797355	797403	797450	41
19	797498	797545	797593	797640	797687	797735	40
20	797782	797830	797877	797925	797972	798020	39
21	798067	798115	798162	798210	798257	798305	38
22	798352	798400	798447	798495	798542	798590	37
23	798637	798685	798732	798780	798827	798875	36
24	798922	798970	799017	799065	799112	799160	35
25	799207	799255	799302	799350	799397	799445	34
26	799492	799540	799587	799634	799682	799730	33
27	799777	799824	799872	799919	799967	800015	32
28	800062	800110	800157	800205	800252	800300	31
29	800347	800395	800442	800490	800537	800585	30
30	800632	800680	800727	800775	800822	800870	29
31	800917	800965	801012	801060	801107	801155	28
32	801202	801250	801297	801345	801392	801440	27
33	801487	801535	801582	801630	801677	801725	26
34	801772	801820	801867	801915	801962	802010	25
35	802058	802105	802153	802200	802248	802295	24
36	802343	802390	802438	802485	802533	802580	23
37	802628	802675	802723	802770	802818	802865	22
38	802913	802961	803008	803056	803103	803151	21
39	803198	803246	803293	803341	803388	803436	20
40	803483	803531	803578	803626	803674	803721	19
41	803769	803816	803864	803911	803959	804006	18
42	804054	804101	804149	804196	804244	804292	17
43	804339	804387	804434	804482	804529	804577	16
44	804624	804672	804719	804767	804815	804862	15
45	804910	804957	805005	805052	805100	805147	14
46	805195	805243	805290	805338	805385	805433	13
47	805480	805528	805575	805623	805671	805718	12
48	805766	805813	805861	805908	805956	806003	11
49	806051	806099	806146	806194	806241	806289	10
50	806336	806384	806432	806479	806527	806574	9
51	806622	806669	806717	806764	806812	806860	8
52	806907	806955	807002	807050	807097	807145	7
53	807193	807240	807288	807335	807383	807430	6
54	807478	807526	807573	807621	807668	807716	5
55	807763	807811	807859	807906	807954	808001	4
56	808049	808097	808144	808192	808239	808287	3
57	808334	808382	808430	808477	808525	808572	2
58	808620	808668	808715	808763	808810	808858	1
59	808905	808953	809001	809048	809096	809143	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 11 degrees, or Versed Sine Supplement of 101 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	43

Natural Versed Sine of 79 degrees, or Co-versed Sine of 169 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	809191	809239	809286	809334	809381	809429	59
1	809477	809524	809572	809619	809667	809715	58
2	809762	809810	809857	809905	809953	810000	57
3	810048	810095	810143	810191	810238	810286	56
4	810333	810381	810429	810476	810524	810571	55
5	810619	810667	810714	810762	810809	810857	54
6	810905	810952	811000	811047	811095	811143	53
7	811190	811238	811285	811333	811381	811428	52
8	811476	811523	811571	811619	811666	811714	51
9	811762	811809	811857	811904	811952	812000	50
10	812047	812095	812142	812190	812238	812285	49
11	812333	812381	812428	812476	812523	812571	48
12	812619	812666	812714	812762	812809	812857	47
13	812904	812952	813000	813047	813095	813143	46
14	813190	813238	813285	813333	813381	813428	45
15	813476	813524	813571	813619	813666	813714	44
16	813762	813809	813857	813905	813952	814000	43
17	814048	814095	814143	814190	814238	814286	42
18	814333	814381	814429	814476	814524	814572	41
19	814619	814667	814715	814762	814810	814857	40
20	814905	814953	815000	815048	815096	815143	39
21	815191	815239	815286	815334	815382	815429	38
22	815477	815524	815572	815620	815667	815715	37
23	815763	815810	815858	815906	815953	816001	36
24	816049	816096	816144	816192	816239	816287	35
25	816335	816382	816430	816478	816525	816573	34
26	816621	816668	816716	816764	816811	816859	33
27	816906	816954	817002	817049	817097	817145	32
28	817192	817240	817288	817335	817383	817431	31
29	817478	817526	817574	817621	817669	817717	30
30	817764	817812	817860	817907	817955	818003	29
31	818050	818098	818146	818194	818241	818289	28
32	818337	818384	818432	818480	818527	818575	27
33	818623	818670	818718	818766	818813	818861	26
34	818909	818956	819004	819052	819099	819147	25
35	819195	819242	819290	819338	819385	819433	24
36	819481	819529	819576	819624	819672	819719	23
37	819767	819815	819862	819910	819958	820005	22
38	820053	820101	820148	820196	820244	820292	21
39	820339	820387	820435	820482	820530	820578	20
40	820625	820673	820721	820769	820816	820864	19
41	820912	820959	821007	821055	821102	821150	18
42	821198	821245	821293	821341	821389	821436	17
43	821484	821532	821579	821627	821675	821723	16
44	821770	821818	821866	821913	821961	822009	15
45	822056	822104	822152	822200	822247	822295	14
46	822343	822390	822438	822486	822534	822581	13
47	822629	822677	822724	822772	822820	822868	12
48	822915	822963	823011	823058	823106	823154	11
49	823202	823249	823297	823345	823392	823440	10
50	823488	823536	823583	823631	823679	823726	9
51	823774	823822	823870	823917	823965	824013	8
52	824061	824108	824156	824204	824251	824299	7
53	824347	824395	824442	824490	824538	824586	6
54	824633	824681	824729	824776	824824	824872	5
55	824920	824967	825015	825063	825111	825158	4
56	825206	825254	825302	825349	825397	825445	3
57	825492	825540	825588	825636	825683	825731	2
58	825779	825827	825874	825922	825970	826018	1
59	826065	826113	826161	826209	826256	826304	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 10 degrees, or Versed Sine Supplement of 100 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	33	38	43

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NATURAL VERSED SINES.

Natural Versed Sine of 80 degrees, or Co-versed Sine of 170 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	826352	826400	826447	826495	826543	826591	59
1	826638	826686	826734	826782	826829	826877	58
2	826925	826973	827020	827068	827116	827164	57
3	827211	827259	827307	827355	827402	827450	56
4	827498	827546	827593	827641	827689	827737	55
5	827784	827832	827880	827928	827975	828023	54
6	828071	828119	828166	828214	828262	828310	53
7	828357	828405	828453	828501	828549	828596	52
8	828644	828692	828740	828787	828835	828883	51
9	828931	828978	829026	829074	829122	829169	50
10	829217	829265	829313	829361	829408	829456	49
11	829504	829552	829599	829647	829695	829743	48
12	829791	829838	829886	829934	829982	830029	47
13	830077	830125	830173	830220	830268	830316	46
14	830364	830412	830459	830507	830555	830603	45
15	830650	830698	830746	830794	830842	830889	44
16	830937	830985	831033	831081	831128	831176	43
17	831224	831272	831319	831367	831415	831463	42
18	831511	831558	831606	831654	831702	831750	41
19	831797	831845	831893	831941	831989	832036	40
20	832084	832132	832180	832227	832275	832323	39
21	832371	832419	832466	832514	832562	832610	38
22	832658	832705	832753	832801	832849	832897	37
23	832944	832992	833040	833088	833136	833183	36
24	833231	833279	833327	833375	833423	833470	35
25	833518	833566	833614	833661	833709	833757	34
26	833805	833853	833901	833948	833996	834044	33
27	834092	834140	834187	834235	834283	834331	32
28	834379	834426	834474	834522	834570	834618	31
29	834666	834713	834761	834809	834857	834905	30
30	834952	835000	835048	835096	835144	835191	29
31	835239	835287	835335	835383	835431	835478	28
32	835526	835574	835622	835670	835718	835765	27
33	835813	835861	835909	835957	836004	836052	26
34	836100	836148	836196	836244	836291	836339	25
35	836387	836435	836483	836531	836578	836626	24
36	836674	836722	836770	836818	836865	836913	23
37	836961	837009	837057	837105	837152	837200	22
38	837248	837296	837344	837392	837439	837487	21
39	837535	837583	837631	837679	837726	837774	20
40	837822	837870	837918	837966	838013	838061	19
41	838109	838157	838205	838253	838300	838348	18
42	838396	838444	838492	838540	838588	838635	17
43	838683	838731	838779	838827	838875	838922	16
44	838970	839018	839066	839114	839162	839210	15
45	839257	839305	839353	839401	839449	839497	14
46	839545	839592	839640	839688	839736	839784	13
47	839832	839880	839927	839975	840023	840071	12
48	840119	840167	840215	840262	840310	840358	11
49	840406	840454	840502	840550	840597	840645	10
50	840693	840741	840789	840837	840885	840932	9
51	840980	841028	841076	841124	841172	841220	8
52	841268	841315	841363	841411	841459	841507	7
53	841555	841603	841650	841698	841746	841794	6
54	841842	841890	841938	841986	842033	842081	5
55	842129	842177	842225	842273	842321	842369	4
56	842416	842464	842512	842560	842608	842656	3
57	842704	842752	842799	842847	842895	842943	2
58	842991	843039	843087	843135	843182	843230	1
59	843278	843326	843374	843422	843470	843518	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 9 degrees, or Versed Sine Supplement of 99 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	33	38	43

Natural Versed Sine of 81 degrees, or Co-versed Sine of 171 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	843566	843613	843661	843709	843757	843805	59
1	843853	843901	843949	843997	844044	844092	58
2	844140	844188	844236	844284	844332	844380	57
3	844428	844475	844523	844571	844619	844667	56
4	844715	844763	844811	844859	844906	844954	55
5	845002	845050	845098	845146	845194	845242	54
6	845290	845338	845385	845433	845481	845529	53
7	845577	845625	845673	845721	845769	845817	52
8	845864	845912	845960	846008	846056	846104	51
9	846152	846200	846248	846296	846343	846391	50
10	846439	846487	846535	846583	846631	846679	49
11	846727	846775	846823	846870	846918	846966	48
12	847014	847062	847110	847158	847206	847254	47
13	847302	847350	847397	847445	847493	847541	46
14	847589	847637	847685	847733	847781	847829	45
15	847877	847925	847972	848020	848068	848116	44
16	848164	848212	848260	848308	848356	848404	43
17	848452	848500	848547	848595	848643	848691	42
18	848739	848787	848835	848883	848931	848979	41
19	849027	849075	849123	849171	849218	849266	40
20	849314	849362	849410	849458	849506	849554	39
21	849602	849650	849698	849746	849794	849842	38
22	849889	849937	849985	850033	850081	850129	37
23	850177	850225	850273	850321	850369	850417	36
24	850465	850513	850561	850608	850656	850704	35
25	850752	850800	850848	850896	850944	850992	34
26	851040	851088	851136	851184	851232	851280	33
27	851328	851376	851423	851471	851519	851567	32
28	851615	851663	851711	851759	851807	851855	31
29	851903	851951	851999	852047	852095	852143	30
30	852191	852239	852286	852334	852382	852430	29
31	852478	852526	852574	852622	852670	852718	28
32	852766	852814	852862	852910	852958	853006	27
33	853054	853102	853150	853198	853246	853294	26
34	853341	853389	853437	853485	853533	853581	25
35	853629	853677	853725	853773	853821	853869	24
36	853917	853965	854013	854061	854109	854157	23
37	854205	854253	854301	854349	854397	854445	22
38	854493	854540	854588	854636	854684	854732	21
39	854780	854828	854876	854924	854972	855020	20
40	855068	855116	855164	855212	855260	855308	19
41	855356	855404	855452	855500	855548	855596	18
42	855644	855692	855740	855788	855836	855884	17
43	855932	855980	856028	856076	856124	856172	16
44	856220	856267	856315	856363	856411	856459	15
45	856507	856555	856603	856651	856699	856747	14
46	856795	856843	856891	856939	856987	857035	13
47	857083	857131	857179	857227	857275	857323	12
48	857371	857419	857467	857515	857563	857611	11
49	857659	857707	857755	857803	857851	857899	10
50	857947	857995	858043	858091	858139	858187	9
51	858235	858283	858331	858379	858427	858475	8
52	858523	858571	858619	858667	858715	858763	7
53	858811	858859	858907	858955	859003	859051	6
54	859099	859147	859195	859243	859291	859339	5
55	859387	859435	859483	859531	859579	859627	4
56	859675	859723	859771	859819	859867	859915	3
57	859963	860011	860059	860107	860155	860203	2
58	860251	860299	860347	860395	860443	860491	1
59	860539	860587	860635	860683	860731	860779	0
Minutes	60″	50″	40″	30	20″	10″	Minutes

Co-versed Sine of 8 degrees, or Versed Sine Supplement of 98 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

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NATURAL VERSED SINES.

Natural Versed Sine of 82 degrees, or Co-versed Sine of 172 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	860827	860875	860923	860971	861019	861067	59
1	861115	861163	861211	861259	861307	861355	58
2	861403	861451	861499	861547	861595	861643	57
3	861691	861739	861787	861835	861883	861931	56
4	861979	862027	862075	862123	862171	862219	55
5	862267	862315	862363	862411	862459	862507	54
6	862555	862603	862651	862700	862748	862796	53
7	862844	862892	862940	862988	863036	863084	52
8	863132	863180	863228	863276	863324	863372	51
9	863420	863468	863516	863564	863612	863660	50
10	863708	863756	863804	863852	863900	863948	49
11	863996	864044	864092	864140	864188	864236	48
12	864284	864332	864380	864429	864477	864525	47
13	864573	864621	864669	864717	864765	864813	46
14	864861	864909	864957	865005	865053	865101	45
15	865149	865197	865245	865293	865341	865389	44
16	865437	865485	865533	865581	865629	865678	43
17	865726	865774	865822	865870	865918	865966	42
18	866014	866062	866110	866158	866206	866254	41
19	866302	866350	866398	866446	866494	866542	40
20	866590	866638	866686	866735	866783	866831	39
21	866879	866927	866975	867023	867071	867119	38
22	867167	867215	867263	867311	867359	867407	37
23	867455	867503	867551	867599	867647	867696	36
24	867744	867792	867840	867888	867936	867984	35
25	868032	868080	868128	868176	868224	868272	34
26	868320	868368	868416	868464	868513	868561	33
27	868609	868657	868705	868753	868801	868849	32
28	868897	868945	868993	869041	869089	869137	31
29	869185	869233	869282	869330	869378	869426	30
30	869474	869522	869570	869618	869666	869714	29
31	869762	869810	869858	869906	869954	870003	28
32	870051	870099	870147	870195	870243	870291	27
33	870339	870387	870435	870483	870531	870579	26
34	870627	870676	870724	870772	870820	870868	25
35	870916	870964	871012	871060	871108	871156	24
36	871204	871252	871301	871349	871397	871445	23
37	871493	871541	871589	871637	871685	871733	22
38	871781	871829	871878	871926	871974	872022	21
39	872070	872118	872166	872214	872262	872310	20
40	872358	872406	872455	872503	872551	872599	19
41	872647	872695	872743	872791	872839	872887	18
42	872935	872983	873032	873080	873128	873176	17
43	873224	873272	873320	873368	873416	873464	16
44	873512	873561	873609	873657	873705	873753	15
45	873801	873849	873897	873945	873993	874042	14
46	874090	874138	874186	874234	874282	874330	13
47	874378	874426	874474	874522	874571	874619	12
48	874667	874715	874763	874811	874859	874907	11
49	874955	875003	875052	875100	875148	875196	10
50	875244	875292	875340	875388	875436	875484	9
51	875533	875581	875629	875677	875725	875773	8
52	875821	875869	875917	875966	876014	876062	7
53	876110	876158	876206	876254	876302	876350	6
54	876399	876447	876495	876543	876591	876639	5
55	876687	876735	876783	876832	876880	876928	4
56	876976	877024	877072	877120	877168	877216	3
57	877265	877313	877361	877409	877457	877505	2
58	877553	877601	877649	877698	877746	877794	1
59	877842	877890	877938	877986	878034	878083	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 7 degrees, or Versed Sine Supplement of 97 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

Natural Versed Sine of 83 degrees, or Co-versed Sine of 173 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	878131	878179	878227	878275	878323	878371	5
1	878419	878468	878516	878564	878612	878660	5
2	878708	878756	878804	878852	878901	878949	5
3	878997	879045	879093	879141	879189	879237	5
4	879286	879334	879382	879430	879478	879526	5
5	879574	879623	879671	879719	879767	879815	5
6	879863	879911	879959	880008	880056	880104	5
7	880152	880200	880248	880296	880344	880393	5
8	880441	880489	880537	880585	880633	880682	5
9	880730	880778	880826	880874	880922	880970	5
10	881018	881067	881115	881163	881211	881259	4
11	881307	881355	881403	881452	881500	881548	4
12	881596	881644	881692	881740	881789	881837	4
13	881885	881933	881981	882029	882077	882126	4
14	882174	882222	882270	882318	882366	882414	4
15	882463	882511	882559	882607	882655	882703	4
16	882751	882800	882848	882896	882944	882992	4
17	883040	883089	883137	883185	883233	883281	4
18	883329	883377	883426	883474	883522	883570	4
19	883618	883666	883714	883763	883811	883859	4
20	883907	883955	884003	884052	884100	884148	3
21	884196	884244	884292	884340	884389	884437	3
22	884485	884533	884581	884629	884678	884726	3
23	884774	884822	884870	884918	884967	885015	3
24	885063	885111	885159	885207	885255	885304	3
25	885352	885400	885448	885496	885544	885593	3
26	885641	885689	885737	885785	885833	885882	3
27	885930	885978	886026	886074	886122	886171	3
28	886219	886267	886315	886363	886411	886460	3
29	886508	886556	886604	886652	886700	886749	3
30	886797	886845	886893	886941	886989	887038	2
31	887086	887134	887182	887230	887278	887327	2
32	887375	887423	887471	887519	887568	887616	2
33	887664	887712	887760	887808	887857	887905	2
34	887953	888001	888049	888097	888146	888194	2
35	888242	888290	888338	888387	888435	888483	2
36	888531	888579	888627	888676	888724	888772	2
37	888820	888868	888917	888965	889013	889061	2
38	889109	889157	889206	889254	889302	889350	2
39	889398	889447	889495	889543	889591	889639	2
40	889687	889736	889784	889832	889880	889928	1
41	889977	890025	890073	890121	890169	890218	1
42	890266	890314	890362	890410	890458	890507	1
43	890555	890603	890651	890699	890748	890796	1
44	890844	890892	890940	890989	891037	891085	1
45	891133	891181	891230	891278	891326	891374	1
46	891422	891470	891519	891567	891615	891663	1
47	891711	891760	891808	891856	891904	891952	1
48	892000	892049	892097	892145	892193	892242	1
49	892290	892338	892386	892434	892483	892531	1
50	892579	892627	892675	892724	892772	892820	9
51	892868	892916	892965	893013	893061	893109	8
52	893157	893206	893254	893302	893350	893398	7
53	893447	893495	893543	893591	893640	893688	6
54	893736	893784	893832	893881	893929	893977	5
55	894025	894073	894122	894170	894218	894266	4
56	894314	894363	894411	894459	894507	894555	3
57	894604	894652	894700	894748	894797	894845	2
58	894893	894941	894989	895038	895086	895134	1
59	895182	895230	895279	895327	895375	895423	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 6 degrees, or Versed Sine Supplement of 96 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	39	43

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NATURAL VERSED SINES.

Natural Versed Sine of 84 degrees, or Co-versed Sine of 174 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	895472	895520	895568	895616	895664	895713	59
1	895761	895809	895857	895905	895954	896002	58
2	896050	896098	896147	896195	896243	896291	57
3	896339	896388	896436	896484	896532	896581	56
4	896629	896677	896725	896773	896822	896870	55
5	896918	896966	897015	897063	897111	897159	54
6	897207	897256	897304	897352	897400	897449	53
7	897497	897545	897593	897641	897690	897738	52
8	897786	897834	897883	897931	897979	898027	51
9	898076	898124	898172	898220	898268	898317	50
10	898365	898413	898461	898510	898558	898606	49
11	898654	898703	898751	898799	898847	898895	48
12	898944	898992	899040	899088	899137	899185	47
13	899233	899281	899330	899378	899426	899474	46
14	899523	899571	899619	899667	899715	899764	45
15	899812	899860	899908	899957	900005	900053	44
16	900101	900150	900198	900246	900294	900343	43
17	900391	900439	900487	900536	900584	900632	42
18	900680	900728	900777	900825	900873	900921	41
19	900970	901018	901066	901114	901163	901211	40
20	901259	901307	901356	901404	901452	901500	39
21	901549	901597	901645	901693	901742	901790	38
22	901838	901886	901935	901983	902031	902079	37
23	902128	902176	902224	902272	902321	902369	36
24	902417	902465	902514	902562	902610	902658	35
25	902707	902755	902803	902851	902900	902948	34
26	902996	903044	903093	903141	903189	903237	33
27	903286	903334	903382	903430	903479	903527	32
28	903575	903623	903672	903720	903768	903816	31
29	903865	903913	903961	904009	904058	904106	30
30	904154	904202	904251	904299	904347	904396	29
31	904444	904492	904540	904589	904637	904685	28
32	904733	904782	904830	904878	904926	904975	27
33	905023	905071	905119	905168	905216	905264	26
34	905313	905361	905409	905457	905506	905554	25
35	905602	905650	905698	905747	905795	905843	24
36	905892	905940	905988	906036	906085	906133	23
37	906181	906230	906278	906326	906374	906423	22
38	906471	906519	906567	906616	906664	906712	21
39	906761	906800	906857	906905	906954	907002	20
40	907050	907098	907147	907195	907243	907291	19
41	907340	907388	907436	907485	907533	907581	18
42	907629	907678	907726	907774	907823	907871	17
43	907919	907967	908016	908064	908112	908160	16
44	908209	908257	908305	908354	908402	908450	15
45	908498	908547	908595	908643	908692	908740	14
46	908788	908836	908885	908933	908981	909029	13
47	909078	909126	909174	909223	909271	909319	12
48	909367	909416	909464	909512	909561	909609	11
49	909657	909705	909754	909802	909850	909899	10
50	909947	909995	910043	910092	910140	910188	9
51	910237	910285	910333	910381	910430	910478	8
52	910526	910575	910623	910671	910719	910768	7
53	910816	910864	910913	910961	911009	911057	6
54	911106	911154	911202	911251	911299	911347	5
55	911395	911444	911492	911540	911589	911637	4
56	911685	911733	911782	911830	911878	911927	3
57	911975	912023	912072	912120	912168	912216	2
58	912265	912313	912361	912410	912458	912506	1
59	912554	912603	912651	912699	912748	912796	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 5 degrees, or Versed Sine Supplement of 95 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	39	43

Natural Versed Sine of 85 degrees, or Co-versed Sine of 175 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	912844	912893	912941	912989	913037	913086	59
1	913134	913182	913231	913279	913327	913376	58
2	913424	913472	913520	913569	913617	913665	57
3	913714	913762	913810	913859	913907	913955	56
4	914003	914052	914100	914148	914197	914245	55
5	914293	914342	914390	914438	914486	914535	54
6	914583	914631	914680	914728	914776	914825	53
7	914873	914921	914970	915018	915066	915114	52
8	915163	915211	915259	915308	915356	915404	51
9	915453	915501	915549	915598	915646	915694	50
10	915742	915791	915839	915887	915936	915984	49
11	916032	916081	916129	916177	916226	916274	48
12	916322	916370	916419	916467	916515	916564	47
13	916612	916660	916709	916757	916805	916854	46
14	916902	916950	916999	917047	917095	917143	45
15	917192	917240	917288	917337	917385	917433	44
16	917482	917530	917578	917627	917675	917723	43
17	917772	917820	917868	917917	917965	918013	42
18	918061	918110	918158	918206	918255	918303	41
19	918351	918400	918448	918496	918545	918593	40
20	918641	918690	918738	918786	918835	918883	39
21	918931	918980	919028	919076	919125	919173	38
22	919221	919270	919318	919366	919415	919463	37
23	919511	919559	919608	919656	919704	919753	36
24	919801	919849	919898	919946	919994	920043	35
25	920091	920139	920188	920236	920284	920333	34
26	920381	920429	920478	920526	920574	920623	33
27	920671	920719	920768	920816	920864	920913	32
28	920961	921009	921058	921106	921154	921203	31
29	921251	921299	921348	921396	921444	921493	30
30	921541	921589	921638	921686	921734	921783	29
31	921831	921879	921928	921976	922024	922073	28
32	922121	922169	922218	922266	922314	922363	27
33	922411	922459	922508	922556	922604	922653	26
34	922701	922749	922798	922846	922894	922943	25
35	922991	923039	923088	923136	923184	923233	24
36	923281	923329	923378	923426	923474	923523	23
37	923571	923619	923668	923716	923764	923813	22
38	923861	923909	923958	924006	924054	924103	21
39	924151	924199	924248	924296	924344	924393	20
40	924441	924489	924538	924586	924635	924683	19
41	924731	924780	924828	924876	924925	924973	18
42	925021	925070	925118	925166	925215	925263	17
43	925311	925360	925408	925456	925505	925553	16
44	925601	925650	925698	925746	925795	925843	15
45	925892	925940	925988	926037	926085	926133	14
46	926182	926230	926278	926327	926375	926423	13
47	926472	926520	926568	926617	926665	926713	12
48	926762	926810	926859	926907	926955	927004	11
49	927052	927100	927149	927197	927245	927294	10
50	927342	927390	927439	927487	927535	927584	9
51	927632	927681	927729	927777	927826	927874	8
52	927922	927971	928019	928067	928116	928164	7
53	928212	928261	928309	928357	928406	928454	6
54	928503	928551	928599	928648	928696	928744	5
55	928793	928841	928889	928938	928986	929034	4
56	929083	929131	929180	929228	929276	929325	3
57	929373	929421	929470	929518	929566	929615	2
58	929663	929712	929760	929808	929857	929905	1
59	929953	930002	930050	930098	930147	930195	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 4 degrees, or Versed Sine Supplement of 94 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	43

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NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 86 degrees, or Co-versed Sine of 176 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	930244	930292	930340	930389	930437	930485	59
1	930534	930582	930630	930679	930727	930776	58
2	930824	930872	930921	930969	931017	931066	57
3	931114	931162	931211	931259	931308	931356	56
4	931404	931453	931501	931549	931598	931646	55
5	931694	931743	931791	931840	931888	931936	54
6	931985	932033	932081	932130	932178	932227	53
7	932275	932323	932372	932420	932468	932517	52
8	932565	932614	932662	932710	932759	932807	51
9	932855	932904	932952	933000	933049	933097	50
10	933146	933194	933242	933291	933339	933387	49
11	933436	933484	933533	933581	933629	933678	48
12	933726	933774	933823	933871	933920	933968	47
13	934016	934065	934113	934161	934210	934258	46
14	934307	934355	934403	934452	934500	934548	45
15	934597	934645	934694	934742	934790	934839	44
16	934887	934936	934984	935032	935081	935129	43
17	935177	935226	935274	935323	935371	935419	42
18	935468	935516	935564	935613	935661	935710	41
19	935758	935806	935855	935903	935952	936000	40
20	936048	936097	936145	936193	936242	936290	39
21	936339	936387	936435	936484	936532	936580	38
22	936629	936677	936726	936774	936822	936871	37
23	936919	936968	937016	937064	937113	937161	36
24	937209	937258	937306	937355	937403	937451	35
25	937500	937548	937597	937645	937693	937742	34
26	937790	937839	937887	937935	937984	938032	33
27	938080	938129	938177	938226	938274	938322	32
28	938371	938419	938468	938516	938564	938613	31
29	938661	938710	938758	938806	938855	938903	30
30	938951	939000	939048	939097	939145	939193	29
31	939242	939290	939339	939387	939435	939484	28
32	939532	939581	939629	939677	939726	939774	27
33	939823	939871	939919	939968	940016	940064	26
34	940113	940161	940210	940258	940306	940355	25
35	940403	940452	940500	940548	940597	940645	24
36	940694	940742	940790	940839	940887	940936	23
37	940984	941032	941081	941129	941178	941226	22
38	941274	941323	941371	941420	941468	941516	21
39	941565	941613	941662	941710	941758	941807	20
40	941855	941904	941952	942000	942049	942097	19
41	942146	942194	942242	942291	942339	942388	18
42	942436	942484	942533	942581	942630	942678	17
43	942726	942775	942823	942872	942920	942968	16
44	943017	943065	943114	943162	943210	943259	15
45	943307	943356	943404	943452	943501	943549	14
46	943598	943646	943694	943743	943791	943840	13
47	943888	943936	943985	944033	944082	944130	12
48	944178	944227	944275	944324	944372	944421	11
49	944469	944517	944566	944614	944663	944711	10
50	944759	944808	944856	944905	944953	945001	9
51	945050	945098	945147	945195	945243	945292	8
52	945340	945389	945437	945485	945534	945582	7
53	945631	945679	945728	945776	945824	945873	6
54	945921	945970	946018	946066	946115	946163	5
55	946212	946260	946308	946357	946405	946454	4
56	946502	946551	946599	946647	946696	946744	3
57	946793	946841	946889	946938	946986	947035	2
58	947083	947131	947180	947228	947277	947325	1
59	947374	947422	947470	947519	947567	947616	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 3 degrees, or Versed Sine Supplement of 93 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

Minutes	Natural Versed Sine of 87 degrees, or Co-versed Sine of 177 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	947664	947712	947761	947809	947858	947906	59
1	947955	948003	948051	948100	948148	948197	58
2	948245	948293	948342	948390	948439	948487	57
3	948536	948584	948632	948681	948729	948778	56
4	948826	948874	948923	948971	949020	949068	55
5	949117	949165	949213	949262	949310	949359	54
6	949407	949455	949504	949552	949601	949649	53
7	949698	949746	949794	949843	949891	949940	52
8	949988	950037	950085	950133	950182	950230	51
9	950279	950327	950375	950424	950472	950521	50
10	950569	950618	950666	950714	950763	950811	49
11	950860	950908	950957	951005	951053	951102	48
12	951150	951199	951247	951296	951344	951392	47
13	951441	951489	951538	951586	951634	951683	46
14	951731	951780	951828	951877	951925	951973	45
15	952022	952070	952119	952167	952216	952264	44
16	952312	952361	952409	952458	952506	952555	43
17	952603	952651	952700	952748	952797	952845	42
18	952894	952942	952990	953039	953087	953136	41
19	953184	953233	953281	953329	953378	953426	40
20	953475	953523	953572	953620	953668	953717	39
21	953765	953814	953862	953911	953959	954007	38
22	954056	954104	954153	954201	954250	954298	37
23	954346	954395	954443	954492	954540	954589	36
24	954637	954685	954734	954782	954831	954879	35
25	954928	954976	955024	955073	955121	955170	34
26	955218	955267	955315	955363	955412	955460	33
27	955509	955557	955606	955654	955703	955751	32
28	955799	955848	955896	955945	955993	956042	31
29	956090	956138	956187	956235	956284	956332	30
30	956381	956429	956477	956526	956574	956623	29
31	956671	956720	956768	956817	956865	956913	28
32	956962	957010	957059	957107	957156	957204	27
33	957252	957301	957349	957398	957446	957495	26
34	957543	957592	957640	957688	957737	957785	25
35	957834	957882	957931	957979	958027	958076	24
36	958124	958173	958221	958270	958318	958367	23
37	958415	958463	958512	958560	958609	958657	22
38	958706	958754	958802	958851	958899	958948	21
39	958996	959045	959093	959142	959190	959238	20
40	959287	959335	959384	959432	959481	959529	19
41	959578	959626	959674	959723	959771	959820	18
42	959868	959917	959965	960014	960062	960110	17
43	960159	960207	960256	960304	960353	960401	16
44	960450	960498	960546	960595	960643	960692	15
45	960740	960789	960837	960886	960934	960982	14
46	961031	961079	961128	961176	961225	961273	13
47	961322	961370	961418	961467	961515	961564	12
48	961612	961661	961709	961758	961806	961854	11
49	961903	961951	962000	962048	962097	962145	10
50	962194	962242	962290	962339	962387	962436	9
51	962484	962533	962581	962630	962678	962726	8
52	962775	962823	962872	962920	962969	963017	7
53	963066	963114	963162	963211	963259	963308	6
54	963356	963405	963453	963502	963550	963599	5
55	963647	963695	963744	963792	963841	963889	4
56	963938	963986	964035	964083	964131	964180	3
57	964228	964277	964325	964374	964422	964471	2
58	964519	964568	964616	964664	964713	964761	1
59	964810	964858	964907	964955	965004	965052	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 2 degrees, or Versed Sine Supplement of 92 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

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NATURAL VERSED SINES.

Natural Versed Sine of 88 degrees, or Co-versed sine of 178 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	965101	965149	965197	965246	965294	965343	59
1	965391	965440	965488	965537	965585	965633	58
2	965682	965730	965779	965827	965876	965924	57
3	965973	966021	966070	966118	966166	966215	56
4	966263	966312	966360	966409	966457	966506	55
5	966554	966603	966651	966699	966748	966796	54
6	966845	966893	966942	966990	967039	967087	53
7	967136	967184	967232	967281	967329	967378	52
8	967426	967475	967523	967572	967620	967669	51
9	967717	967765	967814	967862	967911	967959	50
10	968008	968056	968105	968153	968202	968250	49
11	968298	968347	968395	968444	968492	968541	48
12	968589	968638	968686	968735	968783	968832	47
13	968880	968928	968977	969025	969074	969122	46
14	969171	969219	969268	969316	969365	969413	45
15	969461	969510	969558	969607	969655	969704	44
16	969752	969801	969849	969898	969946	969995	43
17	970043	970091	970140	970188	970237	970285	42
18	970334	970382	970431	970479	970528	970576	41
19	970625	970673	970721	970770	970818	970867	40
20	970915	970964	971012	971061	971109	971158	39
21	971206	971255	971303	971351	971400	971448	38
22	971497	971545	971594	971642	971691	971739	37
23	971788	971836	971885	971933	971981	972030	36
24	972078	972127	972175	972224	972272	972321	35
25	972369	972418	972466	972515	972563	972611	34
26	972660	972708	972757	972805	972854	972902	33
27	972951	972999	973048	973096	973145	973193	32
28	973241	973290	973338	973387	973435	973482	31
29	973532	973581	973629	973678	973726	973775	30
30	973823	973872	973920	973968	974017	974065	29
31	974114	974162	974211	974259	974308	974356	28
32	974405	974453	974502	974550	974598	974647	27
33	974695	974744	974792	974841	974889	974938	26
34	974986	975035	975083	975132	975180	975229	25
35	975277	975325	975374	975422	975471	975519	24
36	975568	975616	975665	975713	975762	975810	23
37	975859	975907	975956	976004	976053	976101	22
38	976149	976198	976246	976295	976343	976392	21
39	976440	976489	976537	976586	976634	976683	20
40	976731	976780	976828	976876	976925	976973	19
41	977022	977070	977119	977167	977216	977264	18
42	977313	977361	977410	977458	977507	977555	17
43	977603	977652	977700	977749	977797	977846	16
44	977894	977943	977991	978040	978088	978137	15
45	978185	978234	978282	978331	978379	978427	14
46	978476	978524	978573	978621	978670	978718	13
47	978767	978815	978864	978912	978961	979009	12
48	979058	979106	979155	979203	979251	979300	11
49	979348	979397	979445	979494	979542	979591	10
50	979639	979688	979736	979785	979833	979882	9
51	979930	979979	980027	980075	980124	980172	8
52	980221	980269	980318	980366	980415	980463	7
53	980512	980560	980609	980657	980706	980754	6
54	980803	980851	980900	980948	980996	981045	5
55	981093	981142	981190	981239	981287	981336	4
56	981384	981433	981481	981530	981578	981627	3
57	981675	981724	981772	981820	981869	981917	2
58	981966	982014	982063	982111	982160	982208	1
59	982257	982305	982354	982402	982451	982499	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 1 degree, or Versed Sine Supplement of 91 degrees.

Propor.	1″	2″	3″	4″	5″	6″	7″	8″	9″
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Natural Versed Sine of 89 degrees, or Co-versed Sine of 179 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	982548	982596	982645	982693	982741	982790	59
1	982838	982887	982935	982984	983032	983081	58
2	983129	983178	983226	983275	983323	983372	57
3	983420	983469	983517	983566	983614	983663	56
4	983711	983759	983808	983857	983905	983953	55
5	984002	984050	984099	984147	984196	984244	54
6	984293	984341	984390	984438	984487	984535	53
7	984584	984632	984680	984729	984777	984826	52
8	984874	984923	984971	985020	985068	985117	51
9	985165	985214	985262	985311	985359	985408	50
10	985456	985505	985553	985602	985650	985698	49
11	985747	985795	985844	985892	985941	985989	48
12	986038	986086	986135	986183	986232	986280	47
13	986329	986377	986426	986474	986523	986571	46
14	986620	986668	986716	986765	986813	986862	45
15	986910	986959	987007	987056	987104	987153	44
16	987201	987250	987298	987347	987395	987444	43
17	987492	987541	987589	987638	987686	987735	42
18	987783	987831	987880	987928	987977	988025	41
19	988074	988122	988171	988219	988268	988316	40
20	988365	988413	988462	988510	988559	988607	39
21	988656	988704	988753	988801	988850	988898	38
22	988946	988995	989043	989092	989140	989189	37
23	989237	989286	989334	989383	989431	989480	36
24	989528	989577	989625	989674	989722	989771	35
25	989819	989868	989916	989965	990013	990061	34
26	990110	990158	990207	990255	990304	990352	33
27	990401	990449	990498	990546	990595	990643	32
28	990692	990740	990789	990837	990886	990934	31
29	990983	991031	991080	991128	991177	991225	30
30	991273	991322	991370	991419	991467	991516	29
31	991564	991613	991661	991710	991758	991807	28
32	991855	991904	991952	992001	992049	992098	27
33	992146	992195	992243	992292	992340	992388	26
34	992437	992485	992534	992582	992631	992679	25
35	992728	992776	992825	992873	992922	992970	24
36	993019	993067	993116	993164	993213	993261	23
37	993310	993358	993407	993455	993504	993552	22
38	993601	993649	993697	993746	993794	993843	21
39	993891	993940	993988	994037	994085	994134	20
40	994182	994231	994279	994328	994376	994425	19
41	994473	994522	994570	994619	994667	994716	18
42	994764	994813	994861	994909	994958	995006	17
43	995055	995103	995152	995200	995249	995297	16
44	995346	995394	995443	995491	995540	995588	15
45	995637	995685	995734	995782	995831	995879	14
46	995928	995976	996025	996073	996122	996170	13
47	996218	996267	996315	996364	996412	996461	12
48	996509	996558	996606	996655	996703	996752	11
49	996800	996849	996897	996946	996994	997043	10
50	997091	997140	997188	997237	997285	997334	9
51	997382	997430	997479	997527	997576	997624	8
52	997673	997721	997770	997818	997867	997915	7
53	997964	998012	998061	998109	998158	998206	6
54	998255	998303	998352	998400	998449	998497	5
55	998546	998594	998643	998691	998739	998788	4
56	998836	998885	998933	998982	999030	999079	3
57	999127	999176	999224	999273	999321	999370	2
58	999418	999467	999515	999564	999612	999661	1
59	999709	999758	999806	999855	999903	999952	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Co-versed Sine of 0 degrees, or Versed Sine Supplement of 90 degrees.

Propor.	1″	2″	3″	4″	5″	6″	7″	8″	9″
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 90 degrees, or Natural Sine (rejecting radius) of 0 degree.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.000000	000048	000097	000145	000194	000242	59
1	000291	000339	000388	000436	000485	000533	58
2	000582	000630	000679	000727	000776	000824	57
3	000873	000921	000970	001018	001067	001115	56
4	001164	001212	001261	001309	001357	001406	55
5	001454	001503	001551	001600	001648	001697	54
6	001745	001794	001842	001891	001939	001988	53
7	002036	002085	002133	002182	002230	002279	52
8	002327	002376	002424	002473	002521	002570	51
9	002618	002666	002715	002763	002812	002860	50
10	1.002909	002957	003006	003054	003103	003151	49
11	003200	003248	003297	003345	003394	003442	48
12	003491	003539	003588	003636	003685	003733	47
13	003782	003830	003878	003927	003975	004024	46
14	004072	004121	004169	004218	004266	004315	45
15	004363	004412	004460	004509	004557	004606	44
16	004654	004703	004751	004800	004848	004897	43
17	004945	004994	005042	005091	005139	005187	42
18	005236	005284	005333	005381	005430	005478	41
19	005527	005575	005624	005672	005721	005769	40
20	1.005818	005866	005915	005963	006012	006060	39
21	006109	006157	006206	006254	006303	006351	38
22	006399	006448	006496	006545	006593	006642	37
23	006690	006739	006787	006836	006884	006933	36
24	006981	007030	007078	007127	007175	007224	35
25	007272	007321	007369	007418	007466	007515	34
26	007563	007612	007660	007708	007757	007805	33
27	007854	007902	007951	007999	008048	008096	32
28	008145	008193	008242	008290	008339	008387	31
29	008436	008484	008533	008581	008630	008678	30
30	1.008727	008775	008823	008872	008920	008969	29
31	009017	009066	009114	009163	009211	009260	28
32	009308	009357	009405	009454	009502	009551	27
33	009599	009648	009696	009745	009793	009842	26
34	009890	009939	009987	010035	010084	010132	25
35	010181	010229	010278	010326	010375	010423	24
36	010472	010520	010569	010617	010666	010714	23
37	010763	010811	010860	010908	010957	011005	22
38	011054	011102	011150	011199	011247	011296	21
39	011344	011393	011441	011490	011538	011587	20
40	1.011635	011684	011732	011781	011829	011878	19
41	011926	011975	012023	012072	012120	012169	18
42	012217	012265	012314	012362	012411	012459	17
43	012508	012556	012605	012653	012702	012750	16
44	012799	012847	012896	012944	012993	013041	15
45	013090	013138	013187	013235	013284	013332	14
46	013380	013429	013477	013526	013574	013623	13
47	013671	013720	013768	013817	013865	013914	12
48	013962	014011	014059	014108	014156	014205	11
49	014253	014302	014350	014398	014447	014495	10
50	1.014544	014592	014641	014689	014738	014786	9
51	014835	014883	014932	014980	015029	015077	8
52	015126	015174	015223	015271	015320	015368	7
53	015416	015465	015513	015562	015610	015659	6
54	015707	015756	015804	015853	015901	015950	5
55	015998	016047	016095	016143	016192	016241	4
56	016289	016337	016386	016434	016483	016531	3
57	016580	016628	016677	016725	016774	016822	2
58	016871	016919	016968	017016	017065	017113	1
59	017162	017210	017259	017307	017355	017404	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 89 degrees, or Natural Co-sine (rejecting radius) of 89 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

Versed Sine of 91 degrees, or Natural Sine (rejecting radius) of 1 degree.

Minutes	0″	10″	20″	30″	40″	50	Minutes
0	1.017452	017501	017549	017598	017646	017695	59
1	017743	017792	017840	017889	017937	017986	58
2	018034	018083	018131	018180	018228	018276	57
3	018325	018373	018422	018470	018519	018567	56
4	018616	018664	018713	018761	018810	018858	55
5	018907	018955	019004	019052	019100	019149	54
6	019197	019246	019294	019343	019391	019440	53
7	019488	019537	019585	019634	019682	019731	52
8	019779	019828	019876	019925	019973	020021	51
9	020070	020118	020167	020215	020264	020312	50
10	1.020361	020409	020458	020506	020555	020603	49
11	020652	020700	020749	020797	020845	020894	48
12	020942	020991	021039	021088	021136	021185	47
13	021233	021282	021330	021379	021427	021476	46
14	021524	021573	021621	021669	021718	021766	45
15	021815	021863	021912	021960	022009	022057	44
16	022106	022154	022203	022251	022300	022348	43
17	022397	022445	022493	022542	022590	022639	42
18	022687	022736	022784	022833	022881	022930	41
19	022978	023027	023075	023124	023172	023220	40
20	1.023269	023317	023366	023414	023463	023511	39
21	023560	023608	023657	023705	023754	023802	38
22	023851	023899	023948	023996	024044	024093	37
23	024141	024190	024238	024287	024335	024384	36
24	024432	024481	024529	024578	024626	024675	35
25	024723	024771	024820	024868	024917	024965	34
26	025014	025062	025111	025159	025208	025256	33
27	025305	025353	025402	025450	025498	025547	32
28	025595	025644	025692	025741	025789	025838	31
29	025886	025935	025983	026032	026080	026128	30
30	1.026177	026225	026274	026322	026371	026419	29
31	026468	026516	026565	026613	026662	026710	28
32	026759	026807	026855	026904	026952	027001	27
33	027049	027098	027146	027195	027243	027292	26
34	027340	027389	027437	027485	027534	027582	25
35	027631	027679	027728	027776	027825	027873	24
36	027922	027970	028019	028067	028115	028164	23
37	028212	028261	028309	028358	028406	028455	22
38	028503	028552	028600	028649	028697	028746	21
39	028794	028842	028891	028939	028988	029036	20
40	1.029085	029133	029182	029230	029279	029327	19
41	029375	029424	029472	029521	029569	029618	18
42	029666	029715	029763	029812	029860	029909	17
43	029957	030005	030054	030102	030151	030199	16
44	030248	030296	030345	030393	030442	030490	15
45	030539	030587	030635	030684	030732	030781	14
46	030829	030878	030926	030975	031023	031072	13
47	031120	031168	031217	031265	031314	031362	12
48	031411	031459	031508	031556	031605	031653	11
49	031702	031750	031798	031847	031895	031944	10
50	1.031992	032041	032089	032138	032186	032235	9
51	032283	032331	032380	032428	032477	032525	8
52	032574	032622	032671	032719	032768	032816	7
53	032864	032913	032961	033010	033058	033107	6
54	033155	033204	033252	033301	033349	033397	5
55	033446	033494	033543	033591	033640	033688	4
56	033737	033785	033834	033882	033930	033979	3
57	034027	034076	034124	034173	034221	034270	2
58	034318	034367	034415	034463	034512	034560	1
59	034609	034657	034706	034754	034803	034851	0
Minutes	60	50′	40	30′	20″	10′	Minutes

Versed Sine Supplement of 88 degrees, or Natural Co-sine (rejecting radius) of 88 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

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Table XXVII.

NATURAL VERSED SINES.

Natural Versed Sine of 88 degrees, or Co-versed sine of 178 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	965101	965149	965197	965246	965294	965343	59
1	965391	965440	965488	965537	965585	965633	58
2	965682	965730	965779	965827	965876	965924	57
3	965973	966021	966070	966118	966166	966215	56
4	966263	966312	966360	966409	966457	966506	55
5	966554	966603	966651	966699	966748	966796	54
6	966845	966893	966942	966990	967039	967087	53
7	967136	967184	967232	967281	967329	967378	52
8	967426	967475	967523	967572	967620	967669	51
9	967717	967765	967814	967862	967911	967959	50
0	968008	968056	968105	968153	968202	968250	49
1	968298	968347	968395	968444	968492	968541	48
2	968589	968638	968686	968735	968783	968832	47
3	968880	968928	968977	969025	969074	969122	46
4	969171	969219	969268	969316	969365	969413	45
5	969461	969510	969558	969607	969655	969704	44
6	969752	969801	969849	969898	969946	969995	43
7	970043	970091	970140	970188	970237	970285	42
8	970334	970382	970431	970479	970528	970576	41
9	970625	970673	970721	970770	970818	970867	40
10	970915	970964	971012	971061	971109	971158	39
11	971206	971255	971303	971351	971400	971448	38
12	971497	971545	971594	971642	971691	971739	37
13	971788	971836	971885	971933	971981	972030	36
14	972078	972127	972175	972224	972272	972321	35
15	972369	972418	972466	972515	972563	972611	34
16	972660	972708	972757	972805	972854	972902	33
17	972951	972999	973048	973096	973145	973193	32
18	973241	973290	973338	973387	973435	973484	31
19	973532	973581	973629	973678	973726	973775	30
20	973823	973872	973920	973968	974017	974065	29
21	974114	974162	974211	974259	974308	974356	28
22	974405	974453	974502	974550	974598	974647	27
23	974695	974744	974792	974841	974889	974938	26
24	974986	975035	975083	975132	975180	975229	25
25	975277	975325	975374	975422	975471	975519	24
26	975568	975616	975665	975713	975762	975810	23
27	975859	975907	975956	976004	976053	976101	22
28	976149	976198	976246	976295	976343	976392	21
29	976440	976489	976537	976586	976634	976683	20
40	976731	976780	976828	976876	976925	976973	[illegible]
41	977022	977070	977119	977167	977216	977264	[illegible]
42	977313	977361	977410	977458	977507	977555	[illegible]
43	977603	977652	977700	977749	977797	977846	[illegible]
44	977894	977943	977991	978040	978088	978137	[illegible]
45	978185	978234	978282	978331	978379	978428	[illegible]
46	978476	978524	978573	978621	978670	978718	[illegible]
47	978767	978815	978864	978912	978961	979009	[illegible]
48	979058	979106	979155	979203	979251	979300	[illegible]
49	979348	979397	979445	979494	979542	979591	[illegible]
50	979639	979688	979736	979785	979833	[illegible]	[illegible]
51	979930	979979	980027	980075	980124	[illegible]	[illegible]
52	980221	980269	980318	980366	980415	[illegible]	[illegible]
53	980512	980560	980609	980657	980706	[illegible]	[illegible]
54	980803	980851	980900	980948	980997	[illegible]	[illegible]
55	981093	981142	981190	981239	981287	[illegible]	[illegible]
56	981384	981433	981481	981530	981578	[illegible]	[illegible]
57	981675	981724	981772	981820	981869	[illegible]	[illegible]
58	981966	982014	982063	982111	982160	[illegible]	[illegible]
59	982257	982305	982354	982402	982451	[illegible]	[illegible]
	60″	50″	40″	30″			

Co-versed Sine of 1 deg[illegible]
Sine Supplement of [illegible]

Propor. parts.	1″	2″	3″	4″
	5	10	15	[illegible]

Natural Versed Sine of [illegible]
Co-versed Sine of [illegible]

Minutes	0″	10″	20″						Minutes
0	982548	982596	982645	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	982838	982887	98293[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	983129	983178	98322[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	983420	983469	9835[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	983711	983759	983[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	984002	984050	98[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	984293	984341	98[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	984584	984632	9[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	984874	984923	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	985165	985214	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	985456	98550[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	985747	98570[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	986038	9860[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	986329	986[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	986620	986[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	986910	98[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	987201	98[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	987492	9[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	987783	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	988074	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	98836[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	98865[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	9889[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	9893[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	989[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	98[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	9[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	9[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	60″	50″	40″	30″	20″	10″			

Versed Sine Supplement of 86 degrees, or Natural Cosine of 86 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

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SINES IF RADIUS BE REJECTED.

…d Sine of 95 degrees, or
… Sine of 5 degrees.

Minutes	[illegible]	[illegible]	[illegible]	30″	40″	50″	Minutes
				[illegible]	087349	087397	59
				[illegible]	087639	087687	58
				087880	087928	087977	57
			[illegible]	088170	088218	088267	56
			[illegible]	088460	088508	088556	55
			[illegible]	088749	088798	088846	54
			[illegible]	089039	089087	089136	53
			[illegible]	089329	089377	089425	52
			089570	089619	089667	089715	51
		[illegible]	089860	089908	089957	090005	50
		[illegible]	090150	090198	090246	090295	49
		[illegible]	090439	090488	090536	090584	48
		[illegible]	090729	090777	090826	090874	47
		[illegible]	091019	091067	091115	091164	46
		091260	091308	091357	091405	091453	45
	[illegible]	091550	091598	091646	091695	091743	44
	[illegible]	091840	091888	091936	091984	092033	43
	[illegible]	092129	092177	092226	092274	092322	42
	[illegible]	092419	092467	092515	092564	092612	41
	[illegible]	092709	092757	092805	092853	092902	40
	092950	092998	093046	093095	093143	093191	39
	093239	093288	093336	093384	093433	093481	38
	093529	093577	093626	093674	093722	093770	37
	093819	093867	093915	093964	094012	094060	36
[illegible]	094108	094157	094205	094253	094302	094350	35
25	094398	094446	094494	094543	094591	094639	34
26	094687	094736	094784	094832	094881	094929	33
27	094977	095025	095074	095122	095170	095218	32
28	095267	095315	095363	095411	095460	095508	31
29	095556	095604	095653	095701	095749	095797	30
30	1.095846	095894	095942	095991	096039	096087	29
31	096135	096184	096232	096280	096328	096377	28
32	096425	096473	096521	096570	096618	096666	27
33	096714	096763	096811	096859	096907	096956	26
34	097004	097052	097100	097149	097197	097245	25
35	097293	097342	097390	097438	097486	097535	24
36	097583	097631	097679	097728	097776	097824	23
37	097872	097921	097969	098017	098065	098114	22
38	098162	098210	098258	098307	098355	098403	21
39	098451	098500	098548	098596	098644	098693	20
40	1.098741	098789	098837	098886	098934	098982	19
41	099030	099079	099127	099175	099223	099272	18
42	099320	099368	099416	099464	099513	099561	17
43	099609	099657	099706	099754	099802	099850	16
44	099899	099947	099995	100043	100092	100140	15
45	100188	100236	100285	100333	100381	100429	14
46	100477	100526	100574	100622	100670	100719	13
47	100767	100815	100863	100912	100960	101008	12
48	101056	101105	101153	101201	101249	101297	11
49	101346	101394	101442	101490	101539	101587	10
50	1.101635	101683	101732	101780	101828	101876	9
51	101924	101973	102021	102069	102117	102166	8
52	102214	102262	102310	102359	102407	102455	7
53	102503	102551	102600	102648	102696	102744	6
54	102793	102841	102889	102937	102985	103034	5
55	103082	103130	103178	103227	103275	103323	4
56	103371	103419	103468	103516	103564	103612	3
57	103661	103709	103757	103805	103853	103902	2
58	103950	103998	104046	104095	104143	104191	1
59	104239	104287	104336	104384	104432	104480	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 84 degrees, or
Natural Cosine of 84 degr…

Propor. parts.	1″	2″	3″	4″	5″	6″
	5	10	14	19	24	29

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Minutes
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22
[illegible]	[illegible]	[illegible]	[illegible]	081020	21
[illegible]	[illegible]	[illegible]	[illegible]	081310	20
[illegible]	[illegible]	[illegible]	[illegible]	081600	19
[illegible]	[illegible]	[illegible]	[illegible]	081890	18
[illegible]	[illegible]	[illegible]	[illegible]	082180	17
[illegible]	[illegible]	[illegible]	082422	082470	16
[illegible]	[illegible]	[illegible]	082712	082760	15
[illegible]	[illegible]	[illegible]	083001	083050	14
[illegible]	[illegible]	[illegible]	083291	083340	13
[illegible]	[illegible]	[illegible]	083581	083630	12
[illegible]	[illegible]	[illegible]	083871	083919	11
[illegible]	[illegible]	[illegible]	084161	084209	10
[illegible]	[illegible]	084402	084451	084499	9
[illegible]	[illegible]	084692	084741	084789	8
[illegible]	[illegible]	084982	085030	085079	7
[illegible]	[illegible]	085272	085320	085369	6
[illegible]	[illegible]	085562	085610	085658	5
[illegible]	085803	085852	085900	085948	4
[illegible]	086093	086141	086190	086238	3
[illegible]	086383	086431	086480	086528	2
[illegible]	086673	086721	086769	086818	1
[illegible]	086963	087011	087059	087107	0
50″	40″	30″	20″	10″	Minutes

… Supplement of 85 degrees, or
…ural Cosine of 85 degrees.

1″	2″	3″	4″	5″	6″	7″	8″	9″
5	10	15	19	24	29	34	39	44

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 92 degrees, or Natural Sine of 2 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.034899	034948	034996	035045	035093	035142	59
1	035190	035239	035287	035336	035384	035432	58
2	035481	035529	035578	035626	035675	035723	57
3	035772	035820	035869	035917	035965	036014	56
4	036062	036111	036159	036208	036256	036305	55
5	036353	036401	036450	036498	036547	036595	54
6	036644	036692	036741	036789	036838	036886	53
7	036934	036983	037031	037080	037128	037177	52
8	037225	037274	037322	037370	037419	037467	51
9	037516	037564	037613	037661	037710	037758	50
10	1.037806	037855	037903	037952	038000	038049	49
11	038097	038146	038194	038242	038291	038339	48
12	038388	038436	038485	038533	038582	038630	47
13	038678	038727	038775	038824	038872	038921	46
14	038969	039018	039066	039114	039163	039211	45
15	039260	039308	039357	039405	039454	039502	44
16	039550	039599	039647	039696	039744	039793	43
17	039841	039890	039938	039986	040035	040083	42
18	040132	040180	040229	040277	040326	040374	41
19	040422	040471	040519	040568	040616	040665	40
20	1.040713	040762	040810	040858	040907	040955	39
21	041004	041052	041101	041149	041198	041246	38
22	041294	041343	041391	041440	041488	041537	37
23	041585	041633	041682	041730	041779	041827	36
24	041876	041924	041973	042021	042069	042118	35
25	042166	042215	042263	042312	042360	042408	34
26	042457	042505	042554	042602	042651	042699	33
27	042748	042796	042844	042893	042941	042990	32
28	043038	043087	043135	043183	043232	043280	31
29	043329	043377	043426	043474	043523	043571	30
30	1.043619	043668	043716	043765	043813	043862	29
31	043910	043958	044007	044055	044104	044152	28
32	044201	044249	044297	044346	044394	044443	27
33	044491	044540	044588	044637	044685	044733	26
34	044782	044830	044879	044927	044976	045024	25
35	045072	045121	045169	045218	045266	045315	24
36	045363	045411	045460	045508	045557	045605	23
37	045654	045702	045750	045799	045847	045896	22
38	045944	045993	046041	046089	046138	046186	21
39	046235	046283	046332	046380	046428	046477	20
40	1.046525	046574	046622	046671	046719	046767	19
41	046816	046864	046913	046961	047010	047058	18
42	047106	047155	047203	047252	047300	047349	17
43	047397	047445	047494	047542	047591	047639	16
44	047688	047736	047784	047833	047881	047930	15
45	047978	048027	048075	048123	048172	048220	14
46	048269	048317	048366	048414	048462	048511	13
47	048559	048608	048656	048704	048753	048801	12
48	048850	048898	048947	048995	049043	049092	11
49	049140	049189	049237	049286	049334	049382	10
50	1.049431	049479	049528	049576	049625	049673	9
51	049721	049770	049818	049867	049915	049963	8
52	050012	050060	050109	050157	050206	050254	7
53	050302	050351	050399	050448	050496	050545	6
54	050593	050641	050690	050738	050787	050835	5
55	050883	050932	050980	051029	051077	051126	4
56	051174	051222	051271	051319	051368	051416	3
57	051464	051513	051561	051610	051658	051707	2
58	051755	051803	051852	051900	051949	051997	1
59	052045	052094	052142	052191	052239	052288	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 87 degrees, or Natural Cosine of 87 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

Versed Sine of 93 degrees, or Natural Sine of 3 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.052336	052384	052433	052481	052530	052578	59
1	052626	052675	052723	052772	052820	052869	58
2	052917	052965	053014	053062	053111	053159	57
3	053207	053256	053304	053353	053401	053449	56
4	053498	053546	053595	053643	053692	053740	55
5	053788	053837	053885	053934	053982	054030	54
6	054079	054127	054176	054224	054272	054321	53
7	054369	054418	054466	054515	054563	054611	52
8	054660	054708	054757	054805	054853	054902	51
9	054950	054999	055047	055095	055144	055192	50
10	1.055241	055289	055337	055386	055434	055483	49
11	055531	055579	055628	055676	055725	055773	48
12	055822	055870	055918	055967	056015	056064	47
13	056112	056160	056209	056257	056306	056354	46
14	056402	056451	056499	056548	056596	056644	45
15	056693	056741	056790	056838	056886	056935	44
16	056983	057032	057080	057128	057177	057225	43
17	057274	057322	057370	057419	057467	057516	42
18	057564	057612	057661	057709	057758	057806	41
19	057854	057903	057951	057999	058048	058096	40
20	1.058145	058193	058242	058290	058338	058387	39
21	058435	058484	058532	058580	058629	058677	38
22	058726	058774	058822	058871	058919	058968	37
23	059016	059064	059113	059161	059210	059258	36
24	059306	059355	059403	059452	059500	059548	35
25	059597	059645	059694	059742	059790	059839	34
26	059887	059936	059984	060032	060081	060129	33
27	060177	060226	060274	060323	060371	060419	32
28	060468	060516	060565	060613	060661	060710	31
29	060758	060807	060855	060903	060952	061000	30
30	1.061049	061097	061145	061194	061242	061290	29
31	061339	061387	061436	061484	061532	061581	28
32	061629	061678	061726	061774	061823	061871	27
33	061920	061968	062016	062065	062113	062161	26
34	062210	062258	062307	062355	062403	062452	25
35	062500	062549	062597	062645	062694	062742	24
36	062791	062839	062887	062936	062984	063032	23
37	063081	063129	063178	063226	063274	063323	22
38	063371	063420	063468	063516	063565	063613	21
39	063661	063710	063758	063807	063855	063903	20
40	1.063952	064000	064048	064097	064145	064194	19
41	064242	064290	064339	064387	064436	064484	18
42	064532	064581	064629	064677	064726	064774	17
43	064823	064871	064919	064968	065016	065064	16
44	065113	065161	065210	065258	065306	065355	15
45	065403	065452	065500	065548	065597	065645	14
46	065693	065742	065790	065839	065887	065935	13
47	065984	066032	066080	066129	066177	066226	12
48	066274	066322	066371	066419	066467	066516	11
49	066564	066613	066661	066709	066758	066806	10
50	1.066854	066903	066951	067000	067048	067096	9
51	067145	067193	067241	067290	067338	067386	8
52	067435	067483	067532	067580	067628	067677	7
53	067725	067773	067822	067870	067919	067967	6
54	068015	068064	068112	068160	068209	068257	5
55	068306	068354	068402	068451	068499	068547	4
56	068596	068644	068692	068741	068789	068838	3
57	068886	068934	068983	069031	069079	069128	2
58	069176	069224	069273	069321	069370	069418	1
59	069466	069515	069563	069611	069660	069708	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 86 degrees, or Natural Cosine of 86 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	Versed Sine of 94 degrees, or Natural Sine of 4 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.069756	069805	069853	069902	069950	069998	60
1	070047	070095	070143	070192	070240	070288	58
2	070337	070385	070434	070482	070530	070579	57
3	070627	070675	070724	070772	070820	070869	56
4	070917	070966	071014	071062	071111	071159	55
5	071207	071256	071304	071352	071401	071449	54
6	071497	071546	071594	071643	071691	071739	53
7	071788	071836	071884	071933	071981	072029	52
8	072078	072126	072174	072223	072271	072319	51
9	072368	072416	072465	072513	072561	072610	50
10	1.072658	072706	072755	072803	072851	072900	49
11	072948	072996	073045	073093	073141	073190	48
12	073238	073287	073335	073383	073432	073480	47
13	073528	073577	073625	073673	073722	073770	46
14	073818	073867	073915	073963	074012	074060	45
15	074108	074157	074205	074254	074302	074350	44
16	074399	074447	074495	074544	074592	074640	43
17	074689	074737	074785	074834	074882	074930	42
18	074979	075027	075075	075124	075172	075220	41
19	075269	075317	075365	075414	075462	075511	40
20	1.075559	075607	075656	075704	075752	075801	39
21	075849	075897	075946	075994	076042	076091	38
22	076139	076187	076236	076284	076332	076381	37
23	076429	076477	076526	076574	076622	076671	36
24	076719	076767	076816	076864	076912	076961	35
25	077009	077057	077106	077154	077202	077251	34
26	077299	077347	077396	077444	077492	077541	33
27	077589	077637	077686	077734	077782	077831	32
28	077879	077927	077976	078024	078072	078121	31
29	078169	078217	078266	078314	078362	078411	30
30	1.078459	078507	078556	078604	078652	078701	29
31	078749	078797	078846	078894	078942	078991	28
32	079039	079087	079136	079184	079232	079281	27
33	079329	079377	079426	079474	079522	079571	26
34	079619	079667	079716	079764	079812	079861	25
35	079909	079957	080006	080054	080102	080151	24
36	080199	080247	080296	080344	080392	080441	23
37	080489	080537	080585	080634	080682	080730	22
38	080779	080827	080875	080924	080972	081020	21
39	081069	081117	081165	081214	081262	081310	20
40	1.081359	081407	081455	081504	081552	081600	19
41	081649	081697	081745	081794	081842	081890	18
42	081939	081987	082035	082083	082132	082180	17
43	082228	082277	082325	082373	082422	082470	16
44	082518	082567	082615	082663	082712	082760	15
45	082808	082857	082905	082953	083001	083050	14
46	083098	083146	083195	083243	083291	083340	13
47	083388	083436	083485	083533	083581	083630	12
48	083678	083726	083774	083823	083871	083919	11
49	083968	084016	084064	084113	084161	084209	10
50	1.084258	084306	084354	084402	084451	084499	9
51	084547	084596	084644	084692	084741	084789	8
52	084837	084886	084934	084982	085030	085079	7
53	085127	085175	085224	085272	085320	085369	6
54	085417	085465	085514	085562	085610	085658	5
55	085707	085755	085803	085852	085900	085948	4
56	085997	086045	086093	086141	086190	086238	3
57	086286	086335	086383	086431	086480	086528	2
58	086576	086624	086673	086721	086769	086818	1
59	086866	086914	086963	087011	087059	087107	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 85 degrees, or Natural Cosine of 85 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	15	19	24	29	34	39	44

Minutes	Versed Sine of 95 degrees, or Natural Sine of 5 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.087156	087204	087252	087301	087349	087397	59
1	087446	087494	087542	087590	087639	087687	58
2	087735	087784	087832	087880	087928	087977	57
3	088025	088073	088122	088170	088218	088267	56
4	088315	088363	088411	088460	088508	088556	55
5	088605	088653	088701	088749	088798	088846	54
6	088894	088943	088991	089039	089087	089136	53
7	089184	089232	089281	089329	089377	089425	52
8	089474	089522	089570	089619	089667	089715	51
9	089763	089812	089860	089908	089957	090005	50
10	1.090053	090101	090150	090198	090246	090295	49
11	090343	090391	090439	090488	090536	090584	48
12	090633	090681	090729	090777	090826	090874	47
13	090922	090971	091019	091067	091115	091164	46
14	091212	091260	091308	091357	091405	091453	45
15	091502	091550	091598	091646	091695	091743	44
16	091791	091840	091888	091936	091984	092033	43
17	092081	092129	092177	092226	092274	092322	42
18	092371	092419	092467	092515	092564	092612	41
19	092660	092709	092757	092805	092853	092902	40
20	1.092950	092998	093046	093095	093143	093191	39
21	093239	093288	093336	093384	093433	093481	38
22	093529	093577	093626	093674	093722	093770	37
23	093819	093867	093915	093964	094012	094060	36
24	094108	094157	094205	094253	094302	094350	35
25	094398	094446	094494	094543	094591	094639	34
26	094687	094736	094784	094832	094881	094929	33
27	094977	095025	095074	095122	095170	095218	32
28	095267	095315	095363	095411	095460	095508	31
29	095556	095604	095653	095701	095749	095797	30
30	1.095846	095894	095942	095991	096039	096087	29
31	096135	096184	096232	096280	096328	096377	28
32	096425	096473	096521	096570	096618	096666	27
33	096714	096763	096811	096859	096907	096956	26
34	097004	097052	097100	097149	097197	097245	25
35	097293	097342	097390	097438	097486	097535	24
36	097583	097631	097679	097728	097776	097824	23
37	097872	097921	097969	098017	098065	098114	22
38	098162	098210	098258	098307	098355	098403	21
39	098451	098500	098548	098596	098644	098693	20
40	1.098741	098789	098837	098886	098934	098982	19
41	099030	099079	099127	099175	099223	099272	18
42	099320	099368	099416	099464	099513	099561	17
43	099609	099657	099706	099754	099802	099850	16
44	099899	099947	099995	100043	100092	100140	15
45	100188	100236	100285	100333	100381	100429	14
46	100477	100526	100574	100622	100670	100719	13
47	100767	100815	100863	100912	100960	101008	12
48	101056	101105	101153	101201	101249	101297	11
49	101346	101394	101442	101490	101539	101587	10
50	1.101635	101683	101732	101780	101828	101876	9
51	101924	101973	102021	102069	102117	102166	8
52	102214	102262	102310	102359	102407	102455	7
53	102503	102551	102600	102648	102696	102744	6
54	102793	102841	102889	102937	102985	103034	5
55	103082	103130	103178	103227	103275	103323	4
56	103371	103419	103468	103516	103564	103612	3
57	103661	103709	103757	103805	103853	103902	2
58	103950	103998	104046	104095	104143	104191	1
59	104239	104287	104336	104384	104432	104480	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 84 degrees, or Natural Cosine of 84 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	39	44

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Minutes	Versed Sine of 96 degrees, or Natural Sine of 6 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.104528	104577	104625	104673	104721	104770	50
1	104818	104866	104914	104962	105011	105059	58
2	105107	105155	105203	105252	105300	105348	57
3	105396	105445	105493	105541	105589	105637	56
4	105686	105734	105782	105830	105878	105927	55
5	105975	106023	106071	106119	106168	106216	54
6	106264	106312	106360	106409	106457	106505	53
7	106553	106602	106650	106698	106746	106794	52
8	106843	106891	106939	106987	107035	107084	51
9	107132	107180	107228	107276	107325	107373	50
10	1.107421	107469	107517	107566	107614	107662	49
11	107710	107758	107807	107855	107903	107951	48
12	108000	108048	108096	108144	108192	108240	47
13	108289	108337	108385	108433	108481	108530	46
14	108578	108626	108674	108722	108770	108819	45
15	108867	108915	108963	109011	109060	109108	44
16	109156	109204	109252	109301	109349	109397	43
17	109445	109493	109542	109590	109638	109686	42
18	109734	109782	109831	109879	109927	109975	41
19	110023	110072	110120	110168	110216	110264	40
20	1.110313	110361	110409	110457	110505	110553	39
21	110602	110650	110698	110746	110794	110843	38
22	110891	110939	110987	111035	111083	111132	37
23	111180	111228	111276	111324	111373	111421	36
24	111469	111517	111565	111613	111662	111710	35
25	111758	111806	111854	111903	111951	111999	34
26	112047	112095	112143	112192	112240	112288	33
27	112336	112384	112432	112481	112529	112577	32
28	112625	112673	112722	112770	112818	112866	31
29	112914	112962	113011	113059	113107	113155	30
30	1.113203	113251	113300	113348	113396	113444	29
31	113492	113540	113589	113637	113685	113733	28
32	113781	113829	113878	113926	113974	114022	27
33	114070	114118	114167	114215	114263	114311	26
34	114359	114407	114456	114504	114552	114600	25
35	114648	114696	114745	114793	114841	114889	24
36	114937	114985	115033	115082	115130	115178	23
37	115226	115274	115322	115371	115419	115467	22
38	115515	115563	115611	115660	115708	115756	21
39	115804	115852	115900	115948	115997	116045	20
40	1.116093	116141	116189	116237	116286	116334	19
41	116382	116430	116478	116526	116574	116623	18
42	116671	116719	116767	116815	116863	116911	17
43	116960	117008	117056	117104	117152	117200	16
44	117249	117297	117345	117393	117441	117489	15
45	117537	117586	117634	117682	117730	117778	14
46	117826	117874	117923	117971	118019	118067	13
47	118115	118163	118211	118260	118308	118356	12
48	118404	118452	118500	118548	118597	118645	11
49	118693	118741	118789	118837	118885	118933	10
50	1.118982	119030	119078	119126	119174	119222	9
51	119270	119318	119367	119415	119463	119511	8
52	119559	119607	119656	119704	119752	119800	7
53	119848	119896	119944	119992	120041	120089	6
54	120137	120185	120233	120281	120329	120377	5
55	120426	120474	120522	120570	120618	120666	4
56	120714	120763	120811	120859	120907	120955	3
57	121003	121051	121099	121148	121196	121244	2
58	121292	121340	121388	121436	121484	121532	1
59	121581	121629	121677	121725	121773	121821	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 83 degrees, or Natural Co-sine of 83 degrees.						
Propor. parts.	1″ 5	2″ 10	3″ 14	4″ 19	5″ 24	6″ 29	7″ 34	8″ 39	9″ 43

Minutes	Versed Sine of 97 degrees, or Natural Sine of 7 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.121869	121917	121966	122014	122062	122110	50
1	122158	122206	122254	122302	122351	122399	58
2	122447	122495	122543	122591	122639	122687	57
3	122735	122784	122832	122880	122928	122976	56
4	123024	123072	123120	123168	123217	123265	55
5	123313	123361	123409	123457	123505	123553	54
6	123601	123650	123698	123746	123794	123842	53
7	123890	123938	123986	124034	124083	124131	52
8	124179	124227	124275	124323	124371	124419	51
9	124467	124516	124564	124612	124660	124708	50
10	1.124756	124804	124852	124900	124948	124997	49
11	125045	125093	125141	125189	125237	125285	48
12	125333	125381	125429	125478	125526	125574	47
13	125622	125670	125718	125766	125814	125862	46
14	125910	125958	126007	126055	126103	126151	45
15	126199	126247	126295	126343	126391	126439	44
16	126488	126536	126584	126632	126680	126728	43
17	126776	126824	126872	126920	126968	127017	42
18	127065	127113	127161	127209	127257	127305	41
19	127353	127401	127449	127497	127545	127594	40
20	1.127642	127690	127738	127786	127834	127882	39
21	127930	127978	128026	128074	128122	128171	38
22	128219	128267	128315	128363	128411	128459	37
23	128507	128555	128603	128651	128699	128748	36
24	128796	128844	128892	128940	128988	129036	35
25	129084	129132	129180	129228	129276	129324	34
26	129373	129421	129469	129517	129565	129613	33
27	129661	129709	129757	129805	129853	129901	32
28	129949	129997	130046	130094	130142	130190	31
29	130238	130286	130334	130382	130430	130478	30
30	1.130526	130574	130622	130670	130718	130767	29
31	130815	130863	130911	130959	131007	131055	28
32	131103	131151	131199	131247	131295	131343	27
33	131391	131439	131487	131536	131584	131632	26
34	131680	131728	131776	131824	131872	131920	25
35	131968	132016	132064	132112	132160	132208	24
36	132256	132304	132353	132401	132449	132497	23
37	132545	132593	132641	132689	132737	132785	22
38	132833	132881	132929	132977	133025	133073	21
39	133121	133169	133217	133265	133314	133362	20
40	1.133410	133458	133506	133554	133602	133650	19
41	133698	133746	133794	133842	133890	133938	18
42	133986	134034	134082	134130	134178	134226	17
43	134274	134322	134371	134419	134467	134515	16
44	134563	134611	134659	134707	134755	134803	15
45	134851	134899	134947	134995	135043	135091	14
46	135139	135187	135235	135283	135331	135379	13
47	135427	135475	135523	135571	135620	135668	12
48	135716	135764	135812	135860	135908	135956	11
49	136004	136052	136100	136148	136196	136244	10
50	1.136292	136340	136388	136436	136484	136532	9
51	136580	136628	136676	136724	136772	136820	8
52	136868	136916	136964	137012	137060	137108	7
53	137156	137204	137252	137300	137349	137397	6
54	137445	137493	137541	137589	137637	137685	5
55	137733	137781	137829	137877	137925	137973	4
56	138021	138069	138117	138165	138213	138261	3
57	138309	138357	138405	138453	138501	138549	2
58	138597	138645	138693	138741	138789	138837	1
59	138885	138933	138981	139029	139077	139125	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 82 degrees, or Natural Co-sine of 82 degrees.						
Propor. parts.	1″ 5	2″ 10	3″ 14	4″ 19	5″ 24	6″ 29	7″ 34	8″ 38	9″ 43

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 98 degrees, or Natural Sine of 8 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.139173	139221	139269	139317	139365	139413	59
1	139461	139509	139557	139605	139653	139701	58
2	139749	139797	139845	139893	139941	139989	57
3	140037	140085	140133	140181	140229	140277	56
4	140325	140373	140421	140469	140517	140565	55
5	140613	140661	140709	140757	140805	140853	54
6	140901	140949	140997	141045	141093	141141	53
7	141189	141237	141285	141333	141381	141429	52
8	141477	141525	141573	141621	141669	141717	51
9	141765	141813	141861	141909	141957	142005	50
10	1.142053	142101	142149	142197	142245	142293	49
11	142341	142389	142437	142485	142533	142581	48
12	142629	142677	142725	142773	142821	142869	47
13	142917	142965	143013	143061	143109	143157	46
14	143205	143253	143301	143349	143397	143445	45
15	143493	143541	143589	143637	143685	143733	44
16	143780	143828	143876	143924	143972	144020	43
17	144068	144116	144164	144212	144260	144308	42
18	144356	144404	144452	144500	144548	144596	41
19	144644	144692	144740	144788	144836	144884	40
20	1.144932	144980	145028	145076	145124	145172	39
21	145220	145268	145316	145364	145412	145460	38
22	145507	145555	145603	145651	145699	145747	37
23	145795	145843	145891	145939	145987	146035	36
24	146083	146131	146179	146227	146275	146323	35
25	146371	146419	146467	146515	146563	146611	34
26	146659	146706	146754	146802	146850	146898	33
27	146946	146994	147042	147090	147138	147186	32
28	147234	147282	147330	147378	147426	147474	31
29	147522	147570	147618	147666	147714	147761	30
30	1.147809	147857	147905	147953	148001	148049	29
31	148097	148145	148193	148241	148289	148337	28
32	148385	148433	148481	148529	148577	148624	27
33	148672	148720	148768	148816	148864	148912	26
34	148960	149008	149056	149104	149152	149200	25
35	149248	149296	149344	149392	149439	149487	24
36	149535	149583	149631	149679	149727	149775	23
37	149823	149871	149919	149967	150015	150063	22
38	150111	150158	150206	150254	150302	150350	21
39	150398	150446	150494	150542	150590	150638	20
40	1.150686	150734	150782	150829	150877	150925	19
41	150973	151021	151069	151117	151165	151213	18
42	151261	151309	151357	151405	151453	151500	17
43	151548	151596	151644	151692	151740	151788	16
44	151836	151884	151932	151980	152028	152075	15
45	152123	152171	152219	152267	152315	152363	14
46	152411	152459	152507	152555	152603	152650	13
47	152698	152746	152794	152842	152890	152938	12
48	152986	153034	153082	153130	153177	153225	11
49	153273	153321	153369	153417	153465	153513	10
50	1.153561	153609	153657	153704	153752	153800	9
51	153848	153896	153944	153992	154040	154088	8
52	154136	154183	154231	154279	154327	154375	7
53	154423	154471	154519	154567	154615	154662	6
54	154710	184758	154806	154854	154902	154950	5
55	154998	155046	155094	155141	155189	155237	4
56	155285	155333	155381	155429	155477	155525	3
57	155572	155620	155668	155716	155764	155812	2
58	155860	155908	155956	156003	156051	156099	1
59	156147	156195	156243	156291	156339	156387	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 81 degrees, or Natural Co-sine of 81 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

Versed Sine of 99 degrees, or Natural Sine of 9 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.156434	156482	156530	156578	156626	156674	59
1	156722	156770	156818	156865	156913	156961	58
2	157009	157057	157105	157153	157201	157248	57
3	157296	157344	157392	157440	157488	157536	56
4	157584	157631	157679	157727	157775	157823	55
5	157871	157919	157967	158014	158062	158110	54
6	158158	158206	158254	158302	158350	158397	53
7	158445	158493	158541	158589	158637	158685	52
8	158732	158780	158828	158876	158924	158972	51
9	159020	159068	159115	159163	159211	159259	50
10	1.159307	159355	159403	159450	159498	159546	49
11	159594	159642	159690	159738	159785	159833	48
12	159881	159929	159977	160025	160073	160120	47
13	160168	160216	160264	160312	160360	160408	46
14	160455	160503	160551	160599	160647	160695	45
15	160743	160790	160838	160886	160934	160982	44
16	161030	161078	161125	161173	161221	161269	43
17	161317	161365	161412	161460	161508	161556	42
18	161604	161652	161700	161747	161795	161843	41
19	161891	161939	161987	162034	162082	162130	40
20	1.162178	162226	162274	162321	162369	162417	39
21	162465	162513	162561	162608	162656	162704	38
22	162752	162800	162848	162895	162943	162991	37
23	163039	163087	163135	163182	163230	163278	36
24	163326	163374	163422	163469	163517	163565	35
25	163613	163661	163709	163756	163804	163852	34
26	163900	163948	163996	164043	164091	164139	33
27	164187	164235	164282	164330	164378	164426	32
28	164474	164522	164569	164617	164665	164713	31
29	164761	164809	164856	164904	164952	165000	30
30	1.165048	165095	165143	165191	165239	165287	29
31	165334	165382	165430	165478	165526	165574	28
32	165621	165669	165717	165765	165813	165860	27
33	165908	165956	166004	166052	166099	166147	26
34	166195	166243	166291	166339	166386	166434	25
35	166482	166530	166577	166625	166673	166721	24
36	166769	166817	166864	166912	166960	167008	23
37	167056	167103	167151	167199	167247	167295	22
38	167342	167390	167438	167486	167534	167581	21
39	167629	167677	167725	167773	167820	167868	20
40	1.167916	167964	168011	168059	168107	168155	19
41	168203	168250	168298	168346	168394	168442	18
42	168489	168537	168585	168633	168681	168728	17
43	168776	168824	168872	168919	168967	169015	16
44	169063	169111	169158	169206	169254	169302	15
45	169350	169397	169445	169493	169541	169588	14
46	169636	169684	169732	169780	169827	169875	13
47	169923	169971	170018	170066	170114	170162	12
48	170209	170257	170305	170353	170401	170448	11
49	170496	170544	170592	170639	170687	170735	10
50	1.170783	170831	170878	170926	170974	171022	9
51	171069	171117	171165	171213	171260	171308	8
52	171356	171404	171451	171499	171547	171595	7
53	171643	171690	171738	171786	171834	171881	6
54	171929	171977	172025	172072	172120	172168	5
55	172216	172263	172311	172359	172407	172454	4
56	172502	172550	172598	172645	172693	172741	3
57	172789	172836	172884	172932	172980	173027	2
58	173075	173123	173171	173218	173266	173314	1
59	173362	173409	173457	173505	173553	173600	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 80 degrees, or Natural Co-sine of 80 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 100 degrees, or Natural Sine of 10 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1. 173648	173696	173744	173791	173839	173887	59
1	173935	173982	174030	174078	174126	174173	58
2	174221	174269	174317	174364	174412	174460	57
3	174508	174555	174603	174651	174698	174746	56
4	174794	174842	174889	174937	174985	175033	55
5	175080	175128	175176	175224	175271	175319	54
6	175367	175414	175462	175510	175558	175605	53
7	175653	175701	175749	175796	175844	175892	52
8	175939	175987	176035	176083	176130	176178	51
9	176226	176274	176321	176369	176417	176464	50
10	1. 176512	176560	176608	176655	176703	176751	49
11	176798	176846	176894	176942	176989	177037	48
12	177085	177132	177180	177228	177276	177323	47
13	177371	177419	177466	177514	177562	177610	46
14	177657	177705	177753	177800	177848	177896	45
15	177944	177991	178039	178087	178134	178182	44
16	178230	178277	178325	178373	178421	178468	43
17	178516	178564	178611	178659	178707	178755	42
18	178802	178850	178898	178945	178993	179041	41
19	179088	179136	179184	179231	179279	179327	40
20	1. 179375	179422	179470	179518	179565	179613	39
21	179661	179708	179756	179804	179852	179899	38
22	179947	179995	180042	180090	180138	180185	37
23	180233	180281	180328	180376	180424	180471	36
24	180519	180567	180615	180662	180710	180758	35
25	180805	180853	180901	180948	180996	181044	34
26	181091	181139	181187	181234	181282	181330	33
27	181377	181425	181473	181520	181568	181616	32
28	181663	181711	181759	181806	181854	181902	31
29	181950	181997	182045	182093	182140	182188	30
30	1. 182236	182283	182331	182379	182426	182474	29
31	182522	182569	182617	182665	182712	182760	28
32	182808	182855	182903	182951	182998	183046	27
33	183094	183141	183189	183236	183284	183332	26
34	183379	183427	183475	183522	183570	183618	25
35	183665	183713	183761	183808	183856	183904	24
36	183951	183999	184047	184094	184142	184190	23
37	184237	184285	184333	184380	184428	184476	22
38	184523	184571	184618	184666	184714	184761	21
39	184809	184857	184904	184952	185000	185047	20
40	1 185095	185143	185190	185238	185285	185333	19
41	185381	185428	185476	185524	185571	185619	18
42	185667	185714	185762	185810	185857	185905	17
43	185952	186000	186048	186095	186143	186191	16
44	186238	186286	186334	186381	186429	186476	15
45	186524	186572	186619	186667	186715	186762	14
46	186810	186857	186905	186953	187000	187048	13
47	187096	187143	187191	187238	187286	187334	12
48	187381	187429	187477	187524	187572	187619	11
49	187667	187715	187762	187810	187858	187905	10
50	1. 187953	188000	188048	188096	188143	188191	9
51	188238	188286	188334	188381	188429	188477	8
52	188524	188572	188619	188667	188715	188762	7
53	188810	188857	188905	188953	189000	189048	6
54	189095	189143	189191	189238	189286	189333	5
55	189381	189429	189476	189524	189571	189619	4
56	189667	189714	189762	189809	189857	189905	3
57	189952	190000	190047	190095	190143	190190	2
58	190238	190285	190333	190381	190428	190476	1
59	190523	190571	190619	190666	190714	190761	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 79 degrees, or Natural Co-sine of 79 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

Versed Sine of 101 degrees, or Natural Sine of 11 degrees.

Minutes	0″	10″	20″	30″	40	50″	Minutes
0	1. 190809	190857	190904	190952	190999	191047	5
1	191095	191142	191190	191237	191285	191332	5
2	191380	191428	191475	191523	191570	191618	5
3	191666	191713	191761	191808	191856	191903	5
4	191951	191999	192046	192094	192141	192189	5
5	192237	192284	192332	192379	192427	192474	5
6	192522	192570	192617	192665	192712	192760	5
7	192807	192855	192903	192950	192998	193045	5
8	193093	193140	193188	193236	193283	193331	5
9	193378	193426	193473	193521	193568	193616	5
10	1. 193664	193711	193759	193806	193854	193901	4
11	193949	193997	194044	194092	194139	194187	4
12	194234	194282	194329	194377	194425	194472	4
13	194520	194567	194615	194662	194710	194757	4
14	194805	194853	194900	194948	194995	195043	4
15	195090	195138	195185	195233	195281	195328	4
16	195376	195423	195471	195518	195566	195613	4
17	195661	195708	195756	195804	195851	195899	4
18	195946	195994	196041	196089	196136	196184	4
19	196231	196279	196326	196374	196422	196469	4
20	1. 196517	196564	196612	196659	196707	196754	3
21	196802	196849	196897	196944	196992	197039	3
22	197087	197135	197182	197230	197277	197325	3
23	197372	197420	197467	197515	197562	197610	3
24	197657	197705	197752	197800	197847	197895	3
25	197942	197990	198038	198085	198133	198180	3
26	198228	198275	198323	198370	198418	198465	3
27	198513	198560	198608	198655	198703	198750	3
28	198798	198845	198893	198940	198988	199035	3
29	199083	199130	199178	199225	199273	199320	3
30	1. 199368	199415	199463	199510	199558	199605	2
31	199653	199700	199748	199795	199843	199890	2
32	199938	199985	200033	200081	200128	200176	2
33	200223	200270	200318	200366	200413	200460	2
34	200508	200555	200603	200650	200698	200745	2
35	200793	200840	200888	200935	200983	201030	2
36	201078	201125	201173	201220	201268	201315	2
37	201363	201410	201458	201505	201553	201600	2
38	201648	201695	201743	201790	201838	201885	2
39	201933	201980	202028	202075	202123	202170	2
40	1. 202218	202265	202313	202360	202407	202455	1
41	202502	202550	202597	202645	202692	202740	1
42	202787	202835	202882	202930	202977	203025	1
43	203072	203120	203167	203215	203262	203309	1
44	203357	203404	203452	203499	203547	203594	1
45	203642	203689	203737	203784	203832	203879	1
46	203927	203974	204021	204069	204116	204164	1
47	204211	204259	204306	204354	204401	204449	1
48	204496	204544	204591	204638	204686	204733	1
49	204781	204828	204876	204923	204971	205018	1
50	1. 205065	205113	205160	205208	205255	205303	
51	205350	205398	205445	205493	205540	205587	
52	205635	205682	205730	205777	205825	205872	
53	205920	205967	206014	206062	206109	206157	
54	206204	206252	206299	206347	206394	206441	
55	206489	206536	206584	206631	206678	206726	
56	206773	206821	206868	206916	206963	207011	
57	207058	207105	207153	207200	207248	207295	
58	207343	207390	207437	207485	207532	207580	
59	207627	207675	207722	207769	207817	207864	
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 78 degrees, or Natural Co-sine of 78 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	43

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 102 degrees, or Natural Sine of 12 degrees.

	0″	10″	20″	30″	40″	50″	Minutes
0	1.207912	207959	208007	208054	208101	208149	59
1	208196	208244	208291	208338	208386	208434	58
2	208482	208529	208576	208623	208670	208718	57
3	208765	208813	208860	208907	208955	209002	56
4	209050	209097	209144	209192	209239	209287	55
5	209334	209382	209429	209476	209524	209571	54
6	209619	209666	209713	209761	209808	209856	53
7	209903	209950	209998	210045	210093	210140	52
8	210187	210235	210282	210330	210377	210424	51
9	210472	210519	210567	210614	210661	210709	50
10	1.210756	210804	210851	210898	210946	210993	49
11	211040	211088	211135	211183	211230	211277	48
12	211325	211372	211420	211467	211514	211562	47
13	211609	211656	211704	211751	211799	211846	46
14	211893	211941	211988	212036	212083	212130	45
15	212178	212225	212272	212320	212367	212415	44
16	212462	212509	212557	212604	212651	212699	43
17	212746	212794	212841	212888	212936	212983	42
18	213030	213078	213125	213172	213220	213267	41
19	213315	213362	213409	213457	213504	213551	40
20	1.213599	213646	213693	213741	213788	213836	39
21	213883	213930	213978	214025	214072	214120	38
22	214167	214214	214262	214309	214357	214404	37
23	214451	214499	214546	214593	214641	214688	36
24	214735	214783	214830	214877	214925	214972	35
25	215019	215067	215114	215161	215209	215256	34
26	215303	215351	215398	215446	215493	215540	33
27	215588	215635	215682	215730	215777	215824	32
28	215872	215919	215966	216014	216061	216108	31
29	216156	216203	216251	216298	216345	216392	30
30	1.216440	216487	216534	216582	216629	216676	29
31	216724	216771	216818	216866	216913	216960	28
32	217008	217055	217102	217150	217197	217244	27
33	217292	217339	217386	217433	217481	217528	26
34	217575	217623	217670	217717	217765	217812	25
35	217859	217907	217954	218001	118049	218096	24
36	118143	218191	218238	218285	218332	218380	23
37	218427	218474	218522	218569	218616	218664	22
38	218711	218758	218806	218853	218900	218948	21
39	218995	219042	219089	219137	219184	219231	20
40	1.219279	219326	219373	219421	219468	219515	19
41	219562	219610	219657	219704	219752	219799	18
42	219846	219893	219941	219988	220035	220083	17
43	220130	220177	220225	220272	220319	220366	16
44	220413	220461	220508	220556	220603	220650	15
45	220697	220745	220792	220839	220887	220934	14
46	220981	221028	221076	221123	221170	221218	13
47	221265	221312	221359	221407	221454	221501	12
48	221548	221596	221643	221690	221738	221785	11
49	221832	221879	221927	221974	222021	222069	10
50	1.222116	222163	222210	222258	222305	222352	9
51	222399	222447	222494	222541	222588	222636	8
52	222683	222730	222778	222825	222872	222919	7
53	222967	223014	223061	223108	223156	223203	6
54	223250	223297	223345	223392	223439	223486	5
55	223534	223581	223628	223675	223723	223770	4
56	223817	223864	223912	223959	224006	224053	3
57	224101	224148	224195	224242	224290	224337	2
58	224384	224432	224479	224526	224573	224620	1
59	224668	224715	224762	224809	224857	224904	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 77 degrees, or Natural Co-sine of 77 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	43

Versed Sine of 103 degrees, or Natural Sine of 13 degrees.

	0″	10″	20″	30″	40″	50″	Minutes
0	1.224951	224998	225046	225093	225140	225187	59
1	225234	225282	225329	225376	225423	225471	58
2	225518	225565	225612	225660	225707	225754	57
3	225801	225848	225896	225943	225990	226037	56
4	226085	226132	226179	226226	226274	226321	55
5	226368	226415	226462	226510	226557	226604	54
6	226651	226699	226746	226793	226840	226887	53
7	226935	226982	227029	227076	227123	227171	52
8	227218	227265	227312	227360	227407	227454	51
9	227501	227548	227596	227643	227690	227737	50
10	1.227784	227832	227879	227926	227973	228020	49
11	228068	228115	228162	228209	228256	228304	48
12	228351	228398	228445	228492	228540	228587	47
13	228634	228681	228728	228776	228823	228870	46
14	228917	228964	229012	229059	229106	229153	45
15	229200	229248	229295	229342	229389	229436	44
16	229484	229531	229578	229625	229672	229719	43
17	229767	229814	229861	229908	229955	230003	42
18	230050	230097	230144	230191	230238	230286	41
19	230333	230380	230427	230474	230522	230569	40
20	1.230616	230663	230710	230757	230805	230852	39
21	230899	230946	230993	231040	231088	231135	38
22	231182	231229	231276	231323	231371	231418	37
23	231465	231512	231559	231606	231654	231701	36
24	231748	231795	231842	231889	231937	231984	35
25	232031	232078	232125	232172	232219	232267	34
26	232314	232361	232408	232455	232502	232550	33
27	232597	232644	232691	232738	232785	232832	32
28	232880	232927	232974	233021	233068	233115	31
29	233163	233210	233257	233304	233351	233398	30
30	1.233445	233493	233540	233587	233634	233681	29
31	233728	233775	233822	233870	233917	233964	28
32	234011	234058	234105	234152	234200	234247	27
33	234294	234341	234388	234435	234482	234529	26
34	234577	234624	234671	234718	234765	234812	25
35	234859	234906	234954	235001	235048	235095	24
36	235142	235189	235236	235283	235331	235378	23
37	235425	235472	235519	235566	235613	235660	22
38	235708	235755	235802	235849	235896	235943	21
39	235990	236037	236084	236132	236179	236226	20
40	1.236273	236320	236367	236414	236461	236508	19
41	236556	236603	236650	236697	236744	236791	18
42	236838	236885	236932	236979	237027	237074	17
43	237121	237168	237215	237262	237309	237356	16
44	237403	237450	237498	237545	237592	237639	15
45	237686	237733	237780	237827	237874	237921	14
46	237968	238016	238063	238110	238157	238204	13
47	238251	238298	238345	238392	238439	238486	12
48	238533	238581	238628	238675	238722	238769	11
49	238816	238863	238910	238957	239004	239051	10
50	1.239098	239145	239193	239240	239287	239334	9
51	239381	239428	239475	239522	239569	239616	8
52	239663	239710	239757	239804	239852	239899	7
53	239946	239993	240040	240087	240134	240181	6
54	240228	240275	240322	240369	240416	240463	5
55	240510	240557	240605	240652	240699	240746	4
56	240793	240840	240887	240934	240981	241028	3
57	241075	241122	241169	241216	241263	241310	2
58	241357	241404	241451	241499	241546	241593	1
59	241640	241687	241734	241781	241828	241875	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 76 degrees, or Natural Co-sine of 76 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	38	42

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	Versed Sine of 104 degrees, or Natural Sine of 14 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1. 241922	241969	242016	242063	242110	242157	59
1	242204	242251	242298	242345	242392	242439	58
2	242486	242533	242580	242627	242674	242722	57
3	242769	242816	242863	242910	242957	243004	56
4	243051	243098	243145	243192	243239	243286	55
5	243333	243380	243427	243474	243521	243568	54
6	243615	243662	243709	243756	243803	243850	53
7	243897	243944	243991	244038	244085	244132	52
8	244179	244226	244273	244320	244367	244414	51
9	244461	244508	244555	244602	244649	244696	50
10	1. 244743	244790	244837	244884	244931	244978	49
11	245025	245072	245119	245166	245213	245260	48
12	245307	245354	245401	245448	245495	245542	47
13	245589	245636	245683	245730	245777	245824	46
14	245871	245918	245965	246012	246059	246106	45
15	246153	246200	246247	246294	246341	246388	44
16	246435	246482	246529	246576	246623	246670	43
17	246717	246764	246811	246858	246905	246952	42
18	246999	247046	247093	247140	247187	247234	41
19	247281	247328	247375	247422	247469	247516	40
20	1. 247563	247610	247657	247704	247751	247798	39
21	247845	247892	247938	247985	248032	248079	38
22	248126	248173	248220	248267	248314	248361	37
23	248408	248455	248502	248549	248596	248643	36
24	248690	248737	248784	248831	248878	248925	35
25	248972	249019	249066	249112	249159	249206	34
26	249253	249300	249347	249394	249441	249488	33
27	249534	249582	249629	249676	249723	249770	32
28	249817	249864	249911	249958	250004	250051	31
29	250098	250145	250192	250239	250286	250333	30
30	1. 250380	250427	250474	250521	250568	250615	29
31	250662	250709	250755	250802	250849	250896	28
32	250943	250990	251037	251084	251131	251178	27
33	251225	251272	251319	251366	251412	251459	26
34	251506	251553	251600	251647	251694	251741	25
35	251788	251835	251882	251929	251976	252022	24
36	252069	252116	252163	252210	252257	252304	23
37	252351	252398	252445	252492	252539	252586	22
38	252632	252679	252726	252773	252820	252867	21
39	252914	252961	253008	253054	253101	253148	20
40	1. 253195	253242	253289	253336	253383	253430	19
41	253477	253523	253570	253617	253664	253711	18
42	253758	253805	253852	253899	253946	253992	17
43	254039	254086	254133	254180	254227	254274	16
44	254321	254368	254414	254461	254508	254555	15
45	254602	254649	254696	254743	254789	254836	14
46	254883	254930	254977	255024	255071	255118	13
47	255165	255211	255258	255305	255352	255399	12
48	255446	255493	255540	255586	255633	255680	11
49	255727	255774	255821	255868	255914	255961	10
50	1. 256008	256055	256102	256149	256196	256243	9
51	256289	256336	256383	256430	256477	256524	8
52	256571	256617	256664	256711	256758	256805	7
53	256852	256899	256945	256992	257039	257086	6
54	257133	257180	257226	257273	257320	257367	5
55	257414	257461	257508	257554	257601	257648	4
56	257695	257742	257789	257835	257882	257929	3
57	257976	258023	258070	258117	258163	258210	2
58	258257	258304	258351	258398	258444	258491	1
59	258538	258585	258632	258679	258725	258772	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 75 degrees, or Natural Co-sine of 75 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	38	42

Minutes	Versed Sine of 105 degrees, or Natural Sine of 15 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1. 258819	258866	258913	258960	259006	259053	59
1	259100	259147	259194	259240	259287	259334	58
2	259381	259428	259475	259521	259568	259615	57
3	259662	259709	259756	259802	259849	259896	56
4	259943	259990	260036	260083	260130	260177	55
5	260224	260270	260317	260364	260411	260458	54
6	260505	260551	260598	260645	260692	260739	53
7	260785	260832	260879	260926	260973	261019	52
8	261066	261113	261160	261207	261253	261300	51
9	261347	261394	261441	261487	261534	261581	50
10	1. 261628	261675	261721	261768	261815	261862	49
11	261908	261955	262002	262049	262096	262142	48
12	262189	262236	262283	262330	262376	262423	47
13	262470	262517	262563	262610	262657	262704	46
14	262751	262797	262844	262891	262938	262984	45
15	263031	263078	263125	263172	263218	263265	44
16	263312	263359	263405	263452	263499	263546	43
17	263592	263639	263686	263733	263780	263826	42
18	263873	263920	263967	264013	264060	264107	41
19	264154	264200	264247	264294	264341	264387	40
20	1. 264434	264481	264528	264574	264621	264668	39
21	264715	264761	264808	264855	264902	264948	38
22	264995	265042	265089	265135	265182	265229	37
23	265276	265322	265369	265416	265463	265509	36
24	265556	265603	265650	265696	265743	265790	35
25	265837	265883	265930	265977	266023	266070	34
26	266117	266164	266210	266257	266304	266351	33
27	266397	266444	266491	266538	266584	266631	32
28	266678	266724	266771	266818	266865	266911	31
29	266958	267005	267051	267098	267145	267192	30
30	1. 267238	267285	267332	267379	267425	267472	29
31	267519	267565	267612	267659	267706	267752	28
32	267799	267846	267892	267939	267986	268032	27
33	268079	268126	268173	268219	268266	268313	26
34	268359	268406	268453	268500	268546	268593	25
35	268640	268686	268733	268780	268826	268873	24
36	268920	268967	269013	269060	269107	269153	23
37	269200	269247	269293	269340	269387	269433	22
38	269480	269527	269573	269620	269667	269714	21
39	269760	269807	269854	269900	269947	269994	20
40	1. 270040	270087	270134	270180	270227	270274	19
41	270320	270367	270414	270460	270507	270554	18
42	270600	270647	270694	270740	270787	270834	17
43	270880	270927	270974	271020	271067	271114	16
44	271160	271207	271254	271300	271347	271394	15
45	271440	271487	271534	271580	271627	271674	14
46	271720	271767	271814	271860	271907	271954	13
47	272000	272047	272094	272140	272187	272234	12
48	272280	272327	272374	272420	272467	272513	11
49	272560	272607	272653	272700	272747	272793	10
50	1. 272840	272887	272933	272980	273027	273073	9
51	273120	273166	273213	273260	273306	273353	8
52	273400	273446	273493	273540	273586	273633	7
53	273679	273726	273773	273819	273866	273913	6
54	273959	274006	274052	274099	274146	274192	5
55	274239	274286	274332	274379	274425	274472	4
56	274519	274565	274612	274659	274705	274752	3
57	274798	274845	274892	274938	274985	275031	2
58	275078	275125	275171	275218	275265	275311	1
59	275358	275404	275451	275498	275544	275591	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 74 degrees, or Natural Co-sine of 74 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 106 degrees, or Natural Sine of 16 degrees.

	0″	10″	20″	30″	40″	50″	Minutes
0	1.275637	275684	275731	275777	275824	275870	59
1	275917	275964	276010	276057	276103	276150	58
2	276197	276243	276290	276336	276383	276430	57
3	276476	276523	276569	276616	276662	276709	56
4	276756	276802	276849	276895	276942	276989	55
5	277035	277082	277128	277175	277221	277268	54
6	277315	277361	277408	277454	277501	277548	53
7	277594	277641	277687	277734	277780	277827	52
8	277874	277920	277967	278013	278060	278106	51
9	278153	278200	278246	278293	278339	278386	50
10	1.278432	278479	278526	278572	278619	278665	49
11	278712	278758	278805	278851	278898	278945	48
12	278991	279038	279084	279131	279177	279224	47
13	279270	279317	279364	279410	279457	279503	46
14	279550	279596	279643	279689	279736	279782	45
15	279829	279876	279922	279969	280015	280062	44
16	280108	280155	280201	280248	280294	280341	43
17	280388	280434	280481	280527	280574	280620	42
18	280667	280713	280760	280806	280853	280899	41
19	280946	280992	281039	281085	281132	281179	40
20	1.281225	281272	281318	281365	281411	281458	39
21	281504	281551	281597	281644	281690	281737	38
22	281783	281830	281876	281923	281969	282016	37
23	282062	282109	282155	282202	282248	282295	36
24	282341	282388	282434	282481	282527	282574	35
25	282620	282667	282714	282760	282807	282853	34
26	282900	282946	282993	283039	283086	283132	33
27	283179	283225	283272	283318	283364	283411	32
28	283457	283504	283550	283597	283643	283690	31
29	283736	283783	283829	283876	283922	283969	30
30	1.284015	284062	284108	284155	284201	284248	29
31	284294	284341	284387	284434	284480	284527	28
32	284573	284620	284666	284713	284759	284805	27
33	284852	284898	284945	284991	285038	285084	26
34	285131	285177	285224	285270	285317	285363	25
35	285410	285456	285503	285549	285595	285642	24
36	285688	285735	285781	285828	285874	285921	23
37	285967	286014	286060	286106	286153	286199	22
38	286246	286292	286339	286385	286432	286478	21
39	286525	286571	286617	286664	286710	286757	20
40	1.286803	286850	286896	286943	286989	287035	19
41	287082	287128	287175	287222	287268	287314	18
42	287361	287407	287453	287500	287546	287593	17
43	287639	287686	287732	287778	287825	287871	16
44	287918	287964	288011	288057	288103	288150	15
45	288196	288243	288289	288336	288382	288428	14
46	288475	288521	288568	288614	288660	288707	13
47	288753	288800	288846	288893	288939	288985	12
48	289032	289078	289125	289171	289217	289264	11
49	289310	289357	289403	289449	289496	289542	10
50	1.289589	289635	289682	289728	289774	289821	9
51	289867	289914	289960	290006	290053	290099	8
52	290145	290192	290238	290285	290331	290377	7
53	290424	290470	290517	290563	290610	290656	6
54	290702	290749	290795	290841	290888	290934	5
55	290981	291027	291073	291120	291166	291212	4
56	291259	291305	291352	291398	291444	291491	3
57	291537	291583	291630	291676	291723	291769	2
58	291815	291862	291908	291954	292001	292047	1
59	292094	292140	292186	292233	292279	292325	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 73 degrees, or Natural Co-sine of 73 degrees.

Proper parts.	1″	2″	3	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

Versed Sine of 107 degrees, or Natural Sine of 17 degrees.

	0″	10″	20″	30″	40″	50″	Minutes
0	1.292372	292418	292464	292511	292557	292604	59
1	292650	292696	292743	292789	292835	292882	58
2	292928	292974	293021	293067	293113	293160	57
3	293206	293252	293299	293345	293392	293438	56
4	293484	293531	293577	293623	293670	293716	55
5	293762	293809	293855	293901	293948	293994	54
6	294040	294087	294133	294179	294226	294272	53
7	294318	294365	294411	294457	294504	294550	52
8	294596	294643	294689	294735	294782	294828	51
9	294874	294921	294967	295013	295060	295106	50
10	1.295152	295199	295245	295291	295338	295384	49
11	295430	295476	295523	295569	295615	295662	48
12	295708	295754	295801	295847	295893	295940	47
13	295986	296032	296079	296125	296171	296217	46
14	296264	296310	296356	296403	296449	296495	45
15	296542	296588	296634	296680	296727	296773	44
16	296819	296866	296912	296958	297005	297051	43
17	297097	297143	297190	297236	297282	297329	42
18	297375	297421	297467	297514	297560	297606	41
19	297653	297699	297745	297791	297838	297884	40
20	1.297930	297977	298023	298069	298115	298162	39
21	298208	298254	298300	298347	298393	298439	38
22	298486	298532	298578	298624	298671	298717	37
23	298763	298809	298856	298902	298948	298995	36
24	299041	299087	299133	299180	299226	299272	35
25	299318	299365	299411	299457	299503	299550	34
26	299596	299642	299688	299735	299781	299827	33
27	299873	299920	299966	300012	300058	300105	32
28	300151	300197	300243	300290	300336	300382	31
29	300428	300475	300521	300567	300613	300660	30
30	1.300706	300752	300798	300845	300891	300937	29
31	300983	301029	301076	301122	301168	301214	28
32	301261	301307	301353	301399	301446	301492	27
33	301538	301584	301630	301677	301723	301769	26
34	301815	301862	301908	301954	302000	302046	25
35	302093	302139	302185	302231	302277	302324	24
36	302370	302416	302462	302509	302555	302601	23
37	302647	302693	302740	302786	302832	302878	22
38	302924	302971	303017	303063	303109	303155	21
39	303202	303248	303294	303340	303386	303433	20
40	1.303479	303525	303571	303617	303664	303710	19
41	303756	303802	303848	303894	303941	303987	18
42	304033	304079	304125	304172	304218	304264	17
43	304310	304356	304403	304449	304495	304541	16
44	304587	304633	304680	304726	304772	304818	15
45	304864	304910	304957	305003	305049	305095	14
46	305141	305187	305234	305280	305326	305372	13
47	305418	305464	305511	305557	305603	305649	12
48	305695	305741	305788	305834	305880	305926	11
49	305972	306018	306065	306111	306157	306203	10
50	1.306249	306295	306341	306388	306434	306480	9
51	306526	306572	306618	306665	306711	306757	8
52	306803	306849	306895	306941	306988	307034	7
53	307080	307126	307172	307218	307264	307310	6
54	307357	307403	307449	307495	307541	307587	5
55	307633	307680	307726	307772	307818	307864	4
56	307910	307956	308002	308049	308095	308141	3
57	308187	308233	308279	308325	308371	308418	2
58	308464	308510	308556	308602	308648	308694	1
59	308740	308786	308833	308879	308925	308971	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 72 degrees, or Natural Co-sine of 72 degrees.

Proper parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	42

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	*Versed Sine of 92 degrees, or Natural Sine of 2 degrees.* 0″	10″	20″	30″	40″	50″	Minutes
0	1.034899	034948	034996	035045	035093	035142	59
1	035190	035239	035287	035336	035384	035432	58
2	035481	035529	035578	035626	035675	035723	57
3	035772	035820	035869	035917	035965	036014	56
4	036062	036111	036159	036208	036256	036305	55
5	036353	036401	036450	036498	036547	036595	54
6	036644	036692	036741	036789	036838	036886	53
7	036934	036983	037031	037080	037128	037177	52
8	037225	037274	037322	037370	037419	037467	51
9	037516	037564	037613	037661	037710	037758	50
10	1.037806	037855	037903	037952	038000	038049	49
11	038097	038146	038194	038242	038291	038339	48
12	038388	038436	038485	038533	038582	038630	47
13	038678	038727	038775	038824	038872	038921	46
14	038969	039018	039066	039114	039163	039211	45
15	039260	039308	039357	039405	039454	039502	44
16	039550	039599	039647	039696	039744	039793	43
17	039841	039890	039938	039986	040035	040083	42
18	040132	040180	040229	040277	040326	040374	41
19	040422	040471	040519	040568	040616	040665	40
20	1.040713	040762	040810	040858	040907	040955	39
21	041004	041052	041101	041149	041198	041246	38
22	041294	041343	041391	041440	041488	041537	37
23	041585	041633	041682	041730	041779	041827	36
24	041876	041924	041973	042021	042069	042118	35
25	042166	042215	042263	042312	042360	042408	34
26	042457	042505	042554	042602	042651	042699	33
27	042748	042796	042844	042893	042941	042990	32
28	043038	043087	043135	043183	043232	043280	31
29	043329	043377	043426	043474	043523	043571	30
30	1.043619	043668	043716	043765	043813	043862	29
31	043910	043958	044007	044055	044104	044152	28
32	044201	044249	044297	044346	044394	044443	27
33	044491	044540	044588	044637	044685	044733	26
34	044782	044830	044879	044927	044976	045024	25
35	045072	045121	045169	045218	045266	045315	24
36	045363	045411	045460	045508	045557	045605	23
37	045654	045702	045750	045799	045847	045896	22
38	045944	045993	046041	046089	046138	046186	21
39	046235	046283	046332	046380	046428	046477	20
40	1.046525	046574	046622	046671	046719	046767	19
41	046816	046864	046913	046961	047010	047058	18
42	047106	047155	047203	047252	047300	047349	17
43	047397	047445	047494	047542	047591	047639	16
44	047688	047736	047784	047833	047881	047930	15
45	047978	048027	048075	048123	048172	048220	14
46	048269	048317	048366	048414	048462	048511	13
47	048559	048608	048656	048704	048753	048801	12
48	048850	048898	048947	048995	049043	049092	11
49	049140	049189	049237	049286	049334	049382	10
50	1.049431	049479	049528	049576	049625	049673	9
51	049721	049770	049818	049867	049915	049963	8
52	050012	050060	050109	050157	050206	050254	7
53	050302	050351	050399	050448	050496	050545	6
54	050593	050641	050690	050738	050787	050835	5
55	050883	050932	050980	051029	051077	051126	4
56	051174	051222	051271	051319	051368	051416	3
57	051464	051513	051561	051610	051658	051707	2
58	051755	051803	051852	051900	051949	051997	1
59	052045	052094	052142	052191	052239	052288	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 87 degrees, or Natural Cosine of 87 degrees.						
	Propor.	1″	2″	3″	4″	5″	6″ 7″ 8″ 9″

Minutes	*Versed Sine of 93 degrees, or Natural Sine of 3 degrees.* 0″	10″	20″	30″	40″	50″	Minutes
0	1.052336	052384	052433	052481	052530	052578	59
1	052626	052675	052723	052772	052820	052869	58
2	052917	052965	053014	053062	053111	053159	57
3	053207	053256	053304	053353	053401	053449	56
4	053498	053546	053595	053643	053692	053740	55
5	053788	053837	053885	053934	053982	054030	54
6	054079	054127	054176	054224	054272	054321	53
7	054369	054418	054466	054515	054563	054611	52
8	054660	054708	054757	054805	054853	054902	51
9	054950	054999	055047	055095	055144	055192	50
10	1.055241	055289	055337	055386	055434	055483	49
11	055531	055579	055628	055676	055725	055773	48
12	055822	055870	055918	055967	056015	056064	47
13	056112	056160	056209	056257	056306	056354	46
14	056402	056451	056499	056548	056596	056644	45
15	056693	056741	056790	056838	056886	056935	44
16	056983	057032	057080	057128	057177	057225	43
17	057274	057322	057370	057419	057467	057516	42
18	057564	057612	057661	057709	057758	057806	41
19	057854	057903	057951	057999	058048	058096	40
20	1.058145	058193	058242	058290	058338	058387	39
21	058435	058484	058532	058580	058629	058677	38
22	058726	058774	058822	058871	058919	058968	37
23	059016	059064	059113	059161	059210	059258	36
24	059306	059355	059403	059452	059500	059548	35
25	059597	059645	059694	059742	059790	059839	34
26	059887	059936	059984	060032	060081	060129	33
27	060177	060226	060274	060323	060371	060419	32
28	060468	060516	060565	060613	060661	060710	31
29	060758	060807	060855	060903	060952	061000	30
30	1.061049	061097	061145	061194	061242	061290	29
31	061339	061387	061436	061484	061532	061581	28
32	061629	061678	061726	061774	061823	061871	27
33	061920	061968	062016	062065	062113	062161	26
34	062210	062258	062307	062355	062403	062452	25
35	062500	062549	062597	062645	062694	062742	24
36	062791	062839	062887	062936	062984	063032	23
37	063081	063129	063178	063226	063274	063323	22
38	063371	063420	063468	063516	063565	063613	21
39	063661	063710	063758	063807	063855	063903	20
40	1.063952	064000	064048	064097	064145	064194	19
41	064242	064290	064339	064387	064436	064484	18
42	064532	064581	064629	064677	064726	064774	17
43	064823	064871	064919	064968	065016	065064	16
44	065113	065161	065210	065258	065306	065355	15
45	065403	065452	065500	065548	065597	065645	14
46	065693	065742	065790	065839	065887	065935	13
47	065984	066032	066080	066129	066177	066226	12
48	066274	066322	066371	066419	066467	066516	11
49	066564	066613	066661	066709	066758	066806	10
50	1.066854	066903	066951	067000	067048	067096	9
51	067145	067193	067241	067290	067338	067386	8
52	067435	067483	067532	067580	067628	067677	7
53	067725	067773	067822	067870	067919	067967	6
54	068015	068064	068112	068160	068209	068257	5
55	068306	068354	068402	068451	068499	068547	4
56	068596	068644	068692	068741	068789	068838	3
57	068886	068934	068983	069031	069079	069128	2
58	069176	069224	069273	069321	069370	069418	1
59	069466	069515	069563	069611	069660	069708	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 86 degrees, or Natural Cosine of 86 degrees.						
	Propor.	1″	2″	3″	4″	5″	6″ 7″ 8″ 9″

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

	Versed Sine of 94 degrees, or Natural Sine of 4 degrees.						
	0″	10″	20″	30″	40″	50″	Minutes
0	1.069756	069805	069853	069902	069950	069998	59
1	070047	070095	070143	070192	070240	070288	58
2	070337	070385	070434	070482	070530	070579	57
3	070627	070675	070724	070772	070820	070869	56
4	070917	070966	071014	071062	071111	071159	55
5	071207	071256	071304	071352	071401	071449	54
6	071497	071546	071594	071643	071691	071739	53
7	071788	071836	071884	071933	071981	072029	52
8	072078	072126	072174	072223	072271	072319	51
9	072368	072416	072465	072513	072561	072610	50
10	1.072658	072706	072755	072803	072851	072900	49
11	072948	072996	073045	073093	073141	073190	48
12	073238	073287	073335	073383	073432	073480	47
13	073528	073577	073625	073673	073722	073770	46
14	073818	073867	073915	073963	074012	074060	45
15	074108	074157	074205	074254	074302	074350	44
16	074399	074447	074495	074544	074592	074640	43
17	074689	074737	074785	074834	074882	074930	42
18	074979	075027	075075	075124	075172	075220	41
19	075269	075317	075365	075414	075462	075511	40
20	1.075559	075607	075656	075704	075752	075801	39
21	075849	075897	075946	075994	076042	076091	38
22	076139	076187	076236	076284	076332	076381	37
23	076429	076477	076526	076574	076622	076671	36
24	076719	076767	076816	076864	076912	076961	35
25	077009	077057	077106	077154	077202	077251	34
26	077299	077347	077396	077444	077492	077541	33
27	077589	077637	077686	077734	077782	077831	32
28	077879	077927	077976	078024	078072	078121	31
29	078169	078217	078266	078314	078362	078411	30
30	1.078459	078507	078556	078604	078652	078701	29
31	078749	078797	078846	078894	078942	078991	28
32	079039	079087	079136	079184	079232	079281	27
33	079329	079377	079426	079474	079522	079571	26
34	079619	079667	079716	079764	079812	079861	25
35	079909	079957	080006	080054	080102	080151	24
36	080199	080247	080296	080344	080392	080441	23
37	080489	080537	080585	080634	080682	080730	22
38	080779	080827	080875	080924	080972	081020	21
39	081069	081117	081165	081214	081262	081310	20
40	1.081359	081407	081455	081504	081552	081600	19
41	081649	081697	081745	081794	081842	081890	18
42	081939	081987	082035	082083	082132	082180	17
43	082228	082277	082325	082373	082422	082470	16
44	082518	082567	082615	082663	082712	082760	15
45	082808	082857	082905	082953	083001	083050	14
46	083098	083146	083195	083243	083291	083340	13
47	083388	083436	083485	083533	083581	083630	12
48	083678	083726	083774	083823	083871	083919	11
49	083968	084016	084064	084113	084161	084209	10
50	1.084258	084306	084354	084402	084451	084499	9
51	084547	084596	084644	084692	084741	084789	8
52	084837	084886	084934	084982	085030	085079	7
53	085127	085175	085224	085272	085320	085369	6
54	085417	085465	085514	085562	085610	085658	5
55	085707	085755	085803	085852	085900	085948	4
56	085997	086045	086093	086141	086190	086238	3
57	086286	086335	086383	086431	086480	086528	2
58	086576	086624	086673	086721	086769	086818	1
59	086866	086914	086963	087011	087059	087107	0
	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 85 degrees, or Natural Cosine of 85 degrees.						
	Propor. parts. 1″ 5; 2″ 10; 3″ 15; 4″ 19; 5″ 24; 6″ 29; 7″ 34; 8″ 39; 9″ 44						

	Versed Sine of 95 degrees, or Natural Sine of 5 degrees.						
Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.087156	087204	087252	087301	087349	087397	59
1	087446	087494	087542	087590	087639	087687	58
2	087735	087784	087832	087880	087928	087977	57
3	088025	088073	088122	088170	088218	088267	56
4	088315	088363	088411	088460	088508	088556	55
5	088605	088653	088701	088749	088798	088846	54
6	088894	088943	088991	089039	089087	089136	53
7	089184	089232	089281	089329	089377	089425	52
8	089474	089522	089570	089619	089667	089715	51
9	089763	089812	089860	089908	089957	090005	50
10	1.090053	090101	090150	090198	090246	090295	49
11	090343	090391	090439	090488	090536	090584	48
12	090633	090681	090729	090777	090826	090874	47
13	090922	090971	091019	091067	091115	091164	46
14	091212	091260	091308	091357	091405	091453	45
15	091502	091550	091598	091646	091695	091743	44
16	091791	091840	091888	091936	091984	092033	43
17	092081	092129	092177	092226	092274	092322	42
18	092371	092419	092467	092515	092564	092612	41
19	092660	092709	092757	092805	092853	092902	40
20	1.092950	092998	093046	093095	093143	093191	39
21	093239	093288	093336	093384	093433	093481	38
22	093529	093577	093626	093674	093722	093770	37
23	093819	093867	093915	093964	094012	094060	36
24	094108	094157	094205	094253	094302	094350	35
25	094398	094446	094494	094543	094591	094639	34
26	094687	094736	094784	094832	094881	094929	33
27	094977	095025	095074	095122	095170	095218	32
28	095267	095315	095363	095411	095460	095508	31
29	095556	095604	095653	095701	095749	095797	30
30	1.095846	095894	095942	095991	096039	096087	29
31	096135	096184	096232	096280	096328	096377	28
32	096425	096473	096521	096570	096618	096666	27
33	096714	096763	096811	096859	096907	096956	26
34	097004	097052	097100	097149	097197	097245	25
35	097293	097342	097390	097438	097486	097535	24
36	097583	097631	097679	097728	097776	097824	23
37	097872	097921	097969	098017	098065	098114	22
38	098162	098210	098258	098307	098355	098403	21
39	098451	098500	098548	098596	098644	098693	20
40	1.098741	098789	098837	098886	098934	098982	19
41	099030	099079	099127	099175	099223	099272	18
42	099320	099368	099416	099464	099513	099561	17
43	099609	099657	099706	099754	099802	099850	16
44	099899	099947	099995	100043	100092	100140	15
45	100188	100236	100285	100333	100381	100429	14
46	100477	100526	100574	100622	100670	100719	13
47	100767	100815	100863	100912	100960	101008	12
48	101056	101105	101153	101201	101249	101297	11
49	101346	101394	101442	101490	101539	101587	10
50	1.101635	101683	101732	101780	101828	101876	9
51	101924	101973	102021	102069	102117	102166	8
52	102214	102262	102310	102359	102407	102455	7
53	102503	102551	102600	102648	102696	102744	6
54	102793	102841	102889	102937	102985	103034	5
55	103082	103130	103178	103227	103275	103323	4
56	103371	103419	103468	103516	103564	103612	3
57	103661	103709	103757	103805	103853	103902	2
58	103950	103998	104046	104095	104143	104191	1
59	104239	104287	104336	104384	104432	104480	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 84 degrees, or Natural Cosine of 84 degrees.						
	Propor. parts. 1″ 5; 2″ 10; 3″ 14; 4″ 19; 5″ 24; 6″ 29; 7″ 34; 8″ 39; 9″ 44						

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Minutes	Versed Sine of 96 degrees, or Natural Sine of 6 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.104528	104577	104625	104673	104721	104770	59
1	104818	104866	104914	104962	105011	105059	58
2	105107	105155	105203	105252	105300	105348	57
3	105396	105445	105493	105541	105589	105637	56
4	105686	105734	105782	105830	105878	105927	55
5	105975	106023	106071	106119	106168	106216	54
6	106264	106312	106360	106409	106457	106505	53
7	106553	106602	106650	106698	106746	106794	52
8	106843	106891	106939	106987	107035	107084	51
9	107132	107180	107228	107276	107325	107373	50
10	1.107421	107469	107517	107566	107614	107662	49
11	107710	107758	107807	107855	107903	107951	48
12	108000	108048	108096	108144	108192	108240	47
13	108289	108337	108385	108433	108481	108530	46
14	108578	108626	108674	108722	108770	108819	45
15	108867	108915	108963	109011	109060	109108	44
16	109156	109204	109252	109301	109349	109397	43
17	109445	109493	109542	109590	109638	109686	42
18	109734	109782	109831	109879	109927	109975	41
19	110023	110072	110120	110168	110216	110264	40
20	1.110313	110361	110409	110457	110505	110553	39
21	110602	110650	110698	110746	110794	110843	38
22	110891	110939	110987	111035	111083	111132	37
23	111180	111228	111276	111324	111373	111421	36
24	111469	111517	111565	111613	111662	111710	35
25	111758	111806	111854	111903	111951	111999	34
26	112047	112095	112143	112192	112240	112288	33
27	112336	112384	112432	112481	112529	112577	32
28	112625	112673	112722	112770	112818	112866	31
29	112914	112962	113011	113059	113107	113155	30
30	1.113203	113251	113300	113348	113396	113444	29
31	113492	113540	113589	113637	113685	113733	28
32	113781	113829	113878	113926	113974	114022	27
33	114070	114118	114167	114215	114263	114311	26
34	114359	114407	114456	114504	114552	114600	25
35	114648	114696	114745	114793	114841	114889	24
36	114937	114985	115033	115082	115130	115178	23
37	115226	115274	115322	115371	115419	115467	22
38	115515	115563	115611	115660	115708	115756	21
39	115804	115852	115900	115948	115997	116045	20
40	1.116093	116141	116189	116237	116286	116334	19
41	116382	116430	116478	116526	116574	116623	18
42	116671	116719	116767	116815	116863	116911	17
43	116960	117008	117056	117104	117152	117200	16
44	117249	117297	117345	117393	117441	117489	15
45	117537	117586	117634	117682	117730	117778	14
46	117826	117874	117923	117971	118019	118067	13
47	118115	118163	118211	118260	118308	118356	12
48	118404	118452	118500	118548	118597	118645	11
49	118693	118741	118789	118837	118885	118933	10
50	1.118982	119030	119078	119126	119174	119222	9
51	119270	119318	119367	119415	119463	119511	8
52	119559	119607	119656	119704	119752	119800	7
53	119848	119896	119944	119992	120041	120089	6
54	120137	120185	120233	120281	120329	120377	5
55	120426	120474	120522	120570	120618	120666	4
56	120714	120763	120811	120859	120907	120955	3
57	121003	121051	121099	121148	121196	121244	2
58	121292	121340	121388	121436	121484	121532	1
59	121581	121629	121677	121725	121773	121821	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 83 degrees, or Natural Co-sine of 83 degrees.

Propor. } 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

Minutes	Versed Sine of 97 degrees, or Natural Sine of 7 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.121869	121917	121966	122014	122062	122110	59
1	122158	122206	122254	122302	122351	122399	58
2	122447	122495	122543	122591	122639	122687	57
3	122735	122784	122832	122880	122928	122976	56
4	123024	123072	123120	123168	123217	123265	55
5	123313	123361	123409	123457	123505	123553	54
6	123601	123650	123698	123746	123794	123842	53
7	123890	123938	123986	124034	124083	124131	52
8	124179	124227	124275	124323	124371	124419	51
9	124467	124516	124564	124612	124660	124708	50
10	1.124756	124804	124852	124900	124948	124997	49
11	125045	125093	125141	125189	125237	125285	48
12	125333	125381	125429	125478	125526	125574	47
13	125622	125670	125718	125766	125814	125862	46
14	125910	125958	126007	126055	126103	126151	45
15	126199	126247	126295	126343	126391	126439	44
16	126488	126536	126584	126632	126680	126728	43
17	126776	126824	126872	126920	126968	127017	42
18	127065	127113	127161	127209	127257	127305	41
19	127353	127401	127449	127497	127545	127594	40
20	1.127642	127690	127738	127786	127834	127882	39
21	127930	127978	128026	128074	128122	128171	38
22	128219	128267	128315	128363	128411	128459	37
23	128507	128555	128603	128651	128699	128748	36
24	128796	128844	128892	128940	128988	129036	35
25	129084	129132	129180	129228	129276	129324	34
26	129373	129421	129469	129517	129565	129613	33
27	129661	129709	129757	129805	129853	129901	32
28	129949	129997	130046	130094	130142	130190	31
29	130238	130286	130334	130382	130430	130478	30
30	1.130526	130574	130622	130670	130718	130767	29
31	130815	130863	130911	130959	131007	131055	28
32	131103	131151	131199	131247	131295	131343	27
33	131391	131439	131487	131536	131584	131632	26
34	131680	131728	131776	131824	131872	131920	25
35	131968	132016	132064	132112	132160	132208	24
36	132256	132304	132353	132401	132449	132497	23
37	132545	132593	132641	132689	132737	132785	22
38	132833	132881	132929	132977	133025	133073	21
39	133121	133169	133217	133265	133314	133362	20
40	1.133410	133458	133506	133554	133602	133650	19
41	133698	133746	133794	133842	133890	133938	18
42	133986	134034	134082	134130	134178	134226	17
43	134274	134322	134371	134419	134467	134515	16
44	134563	134611	134659	134707	134755	134803	15
45	134851	134899	134947	134995	135043	135091	14
46	135139	135187	135235	135283	135331	135379	13
47	135427	135475	135523	135571	135620	135668	12
48	135716	135764	135812	135860	135908	135956	11
49	136004	136052	136100	136148	136196	136244	10
50	1.136292	136340	136388	136436	136484	136532	9
51	136580	136628	136676	136724	136772	136820	8
52	136868	136916	136964	137012	137060	137108	7
53	137156	137204	137252	137300	137349	137397	6
54	137445	137493	137541	137589	137637	137685	5
55	137733	137781	137829	137877	137925	137973	4
56	138021	138069	138117	138165	138213	138261	3
57	138309	138357	138405	138453	138501	138549	2
58	138597	138645	138693	138741	138789	138837	1
59	138885	138933	138981	139029	139077	139125	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 82 degrees, or Natural Co-sine of 82 degrees.

Propor. } 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 98 degrees, or Natural Sine of 8 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.139173	139221	139269	139317	139365	139413	59
1	139461	139509	139557	139605	139653	139701	58
2	139749	139797	139845	139893	139941	139989	57
3	140037	140085	140133	140181	140229	140277	56
4	140325	140373	140421	140469	140517	140565	55
5	140613	140661	140709	140757	140805	140853	54
6	140901	140949	140997	141045	141093	141141	53
7	141189	141237	141285	141333	141381	141429	52
8	141477	141525	141573	141621	141669	141717	51
9	141765	141813	141861	141909	141957	142005	50
10	1.142053	142101	142149	142197	142245	142293	49
11	142341	142389	142437	142485	142533	142581	48
12	142629	142677	142725	142773	142821	142869	47
13	142917	142965	143013	143061	143109	143157	46
14	143205	143253	143301	143349	143397	143445	45
15	143493	143541	143589	143637	143685	143733	44
16	143780	143828	143876	143924	143972	144020	43
17	144068	144116	144164	144212	144260	144308	42
18	144356	144404	144452	144500	144548	144596	41
19	144644	144692	144740	144788	144836	144884	40
20	1.144932	144980	145028	145076	145124	145172	39
21	145220	145268	145316	145364	145412	145460	38
22	145507	145555	145603	145651	145699	145747	37
23	145795	145843	145891	145939	145987	146035	36
24	146083	146131	146179	146227	146275	146323	35
25	146371	146419	146467	146515	146563	146611	34
26	146659	146706	146754	146802	146850	146898	33
27	146946	146994	147042	147090	147138	147186	32
28	147234	147282	147330	147378	147426	147474	31
29	147522	147570	147618	147666	147714	147761	30
30	1.147809	147857	147905	147953	148001	148049	29
31	148097	148145	148193	148241	148289	148337	28
32	148385	148433	148481	148529	148577	148624	27
33	148672	148720	148768	148816	148864	148912	26
34	148960	149008	149056	149104	149152	149200	25
35	149248	149296	149344	149392	149439	149487	24
36	149535	149583	149631	149679	149727	149775	23
37	149823	149871	149919	149967	150015	150063	22
38	150111	150158	150206	150254	150302	150350	21
39	150398	150446	150494	150542	150590	150638	20
40	1.150686	150734	150782	150829	150877	150925	19
41	150973	151021	151069	151117	151165	151213	18
42	151261	151309	151357	151405	151453	151500	17
43	151548	151596	151644	151692	151740	151788	16
44	151836	151884	151932	151980	152028	152075	15
45	152123	152171	152219	152267	152315	152363	14
46	152411	152459	152507	152555	152603	152650	13
47	152698	152746	152794	152842	152890	152938	12
48	152986	153034	153082	153130	153177	153225	11
49	153273	153321	153369	153417	153465	153513	10
50	1.153561	153609	153657	153704	153752	153800	9
51	153848	153896	153944	153992	154040	154088	8
52	154136	154183	154231	154279	154327	154375	7
53	154423	154471	154519	154567	154615	154662	6
54	154710	154758	154806	154854	154902	154950	5
55	154998	155046	155094	155141	155189	155237	4
56	155285	155333	155381	155429	155477	155525	3
57	155572	155620	155668	155716	155764	155812	2
58	155860	155908	155956	156003	156051	156099	1
59	156147	156195	156243	156291	156339	156387	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 81 degrees, or Natural Co-sine of 81 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

Versed Sine of 99 degrees, or Natural Sine of 9 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.156434	156482	156530	156578	156626	156674	59
1	156722	156770	156818	156865	156913	156961	58
2	157009	157057	157105	157153	157201	157248	57
3	157296	157344	157392	157440	157488	157536	56
4	157584	157631	157679	157727	157775	157823	55
5	157871	157919	157967	158014	158062	158110	54
6	158158	158206	158254	158302	158350	158397	53
7	158445	158493	158541	158589	158637	158685	52
8	158732	158780	158828	158876	158924	158972	51
9	159020	159068	159115	159163	159211	159259	50
10	1.159307	159355	159403	159450	159498	159546	49
11	159594	159642	159690	159738	159785	159833	48
12	159881	159929	159977	160025	160073	160120	47
13	160168	160216	160264	160312	160360	160408	46
14	160455	160503	160551	160599	160647	160695	45
15	160743	160790	160838	160886	160934	160982	44
16	161030	161078	161125	161173	161221	161269	43
17	161317	161365	161412	161460	161508	161556	42
18	161604	161652	161700	161747	161795	161843	41
19	161891	161939	161987	162034	162082	162130	40
20	1.162178	162226	162274	162321	162369	162417	39
21	162465	162513	162561	162608	162656	162704	38
22	162752	162800	162848	162895	162943	162991	37
23	163039	163087	163135	163182	163230	163278	36
24	163326	163374	163422	163469	163517	163565	35
25	163613	163661	163709	163756	163804	163852	34
26	163900	163948	163996	164043	164091	164139	33
27	164187	164235	164282	164330	164378	164426	32
28	164474	164522	164569	164617	164665	164713	31
29	164761	164809	164856	164904	164952	165000	30
30	1.165048	165095	165143	165191	165239	165287	29
31	165334	165382	165430	165478	165526	165574	28
32	165621	165669	165717	165765	165813	165860	27
33	165908	165956	166004	166052	166099	166147	26
34	166195	166243	166291	166339	166386	166434	25
35	166482	166530	166577	166625	166673	166721	24
36	166769	166817	166864	166912	166960	167008	23
37	167056	167103	167151	167199	167247	167295	22
38	167342	167390	167438	167486	167534	167581	21
39	167629	167677	167725	167773	167820	167868	20
40	1.167916	167964	168011	168059	168107	168155	19
41	168203	168250	168298	168346	168394	168442	18
42	168489	168537	168585	168633	168681	168728	17
43	168776	168824	168872	168919	168967	169015	16
44	169063	169111	169158	169206	169254	169302	15
45	169350	169397	169445	169493	169541	169588	14
46	169636	169684	169732	169780	169827	169875	13
47	169923	169971	170018	170066	170114	170162	12
48	170209	170257	170305	170353	170401	170448	11
49	170496	170544	170592	170639	170687	170735	10
50	1.170783	170831	170878	170926	170974	171022	9
51	171069	171117	171165	171213	171260	171308	8
52	171356	171404	171451	171499	171547	171595	7
53	171643	171690	171738	171786	171834	171881	6
54	171929	171977	172025	172072	172120	172168	5
55	172216	172263	172311	172359	172407	172454	4
56	172502	172550	172598	172645	172693	172741	3
57	172789	172836	172884	172932	172980	173027	2
58	173075	173123	173171	173218	173266	173314	1
59	173362	173409	173457	173505	173553	173600	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 80 degrees, or Natural Co-sine of 80 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 100 degrees, or Natural Sine of 10 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1. 173648	173696	173744	173791	173839	173887	59
1	173935	173982	174030	174078	174126	174173	58
2	174221	174269	174317	174364	174412	174460	57
3	174508	174555	174603	174651	174698	174746	56
4	174794	174842	174889	174937	174985	175033	55
5	175080	175128	175176	175224	175271	175319	54
6	175367	175414	175462	175510	175558	175605	53
7	175653	175701	175749	175796	175844	175892	52
8	175939	175987	176035	176083	176130	176178	51
9	176226	176274	176321	176369	176417	176464	50
10	1. 176512	176560	176608	176655	176703	176751	49
11	176798	176846	176894	176942	176989	177037	48
12	177085	177132	177180	177228	177276	177323	47
13	177371	177419	177466	177514	177562	177610	46
14	177657	177705	177753	177800	177848	177896	45
15	177944	177991	178039	178087	178134	178182	44
16	178230	178277	178325	178373	178421	178468	43
17	178516	178564	178611	178659	178707	178755	42
18	178802	178850	178898	178945	178993	179041	41
19	179088	179136	179184	179231	179279	179327	40
20	1. 179375	179422	179470	179518	179565	179613	39
21	179661	179708	179756	179804	179852	179899	38
22	179947	179995	180042	180090	180138	180185	37
23	180233	180281	180328	180376	180424	180471	36
24	180519	180567	180615	180662	180710	180758	35
25	180805	180853	180901	180948	180996	181044	34
26	181091	181139	181187	181234	181282	181330	33
27	181377	181425	181473	181520	181568	181616	32
28	181663	181711	181759	181806	181854	181902	31
29	181950	181997	182045	182093	182140	182188	30
30	1. 182236	182283	182331	182379	182426	182474	29
31	182522	182569	182617	182665	182712	182760	28
32	182808	182855	182903	182951	182998	183046	27
33	183094	183141	183189	183236	183284	183332	26
34	183379	183427	183475	183522	183570	183618	25
35	183665	183713	183761	183808	183856	183904	24
36	183951	183999	184047	184094	184142	184190	23
37	184237	184285	184333	184380	184428	184476	22
38	184523	184571	184618	184666	184714	184761	21
39	184809	184857	184904	184952	185000	185047	20
40	1. 185095	185143	185190	185238	185285	185333	19
41	185381	185428	185476	185524	185571	185619	18
42	185667	185714	185762	185810	185857	185905	17
43	185952	186000	186048	186095	186143	186191	16
44	186238	186286	186334	186381	186429	186476	15
45	186524	186572	186619	186667	186715	186762	14
46	186810	186857	186905	186953	187000	187048	13
47	187096	187143	187191	187238	187286	187334	12
48	187381	187429	187477	187524	187572	187619	11
49	187667	187715	187762	187810	187858	187905	10
50	1. 187953	188000	188048	188096	188143	188191	9
51	188238	188286	188334	188381	188429	188477	8
52	188524	188572	188619	188667	188715	188762	7
53	188810	188857	188905	188953	189000	189048	6
54	189095	189143	189191	189238	189286	189333	5
55	189381	189429	189476	189524	189571	189619	4
56	189667	189714	189762	189809	189857	189905	3
57	189952	190000	190047	190095	190143	190190	2
58	190238	190285	190333	190381	190428	190476	1
59	190523	190571	190619	190666	190714	190761	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 79 degrees, or Natural Co-sine of 79 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	10	14	19	24	29	34	38	43

Versed Sine of 101 degrees, or Natural Sine of 11 degrees.

Minutes	0″	10″	20″	30″	40	50″	Minutes
0	1. 190809	190857	190904	190952	190999	191047	59
1	191095	191142	191190	191237	191285	191332	58
2	191380	191428	191475	191523	191570	191618	57
3	191666	191713	191761	191808	191856	191903	56
4	191951	191999	192046	192094	192141	192189	55
5	192237	192284	192332	192379	192427	192474	54
6	192522	192570	192617	192665	192712	192760	53
7	192807	192855	192903	192950	192998	193045	52
8	193093	193140	193188	193236	193283	193331	51
9	193378	193426	193473	193521	193568	193616	50
10	1. 193664	193711	193759	193806	193854	193901	49
11	193949	193997	194044	194092	194139	194187	48
12	194234	194282	194329	194377	194425	194472	47
13	194520	194567	194615	194662	194710	194757	46
14	194805	194853	194900	194948	194995	195043	45
15	195090	195138	195185	195233	195281	195328	44
16	195376	195423	195471	195518	195566	195613	43
17	195661	195708	195756	195804	195851	195899	42
18	195946	195994	196041	196089	196136	196184	41
19	196231	196279	196326	196374	196422	196469	40
20	1. 196517	196564	196612	196659	196707	196754	39
21	196802	196849	196897	196944	196992	197039	38
22	197087	197135	197182	197230	197277	197325	37
23	197372	197420	197467	197515	197562	197610	36
24	197657	197705	197752	197800	197847	197895	35
25	197942	197990	198038	198085	198133	198180	34
26	198228	198275	198323	198370	198418	198465	33
27	198513	198560	198608	198655	198703	198750	32
28	198798	198845	198893	198940	198988	199035	31
29	199083	199130	199178	199225	199273	199320	30
30	1. 199368	199415	199463	199510	199558	199605	29
31	199653	199700	199748	199795	199843	199890	28
32	199938	199985	200033	200081	200128	200176	27
33	200223	200270	200318	200366	200413	200460	26
34	200508	200555	200603	200650	200698	200745	25
35	200793	200840	200888	200935	200983	201030	24
36	201078	201125	201173	201220	201268	201315	23
37	201363	201410	201458	201505	201553	201600	22
38	201648	201695	201743	201790	201838	201885	21
39	201933	201980	202028	202075	202123	202170	20
40	1. 202218	202265	202313	202360	202407	202455	19
41	202502	202550	202597	202645	202692	202740	18
42	202787	202835	202882	202930	202977	203025	17
43	203072	203120	203167	203215	203262	203309	16
44	203357	203404	203452	203499	203547	203594	15
45	203642	203689	203737	203784	203832	203879	14
46	203927	203974	204021	204069	204116	204164	13
47	204211	204259	204306	204354	204401	204449	12
48	204496	204544	204591	204638	204686	204733	11
49	204781	204828	204876	204923	204971	205018	10
50	1. 205065	205113	205160	205208	205255	205303	9
51	205350	205398	205445	205493	205540	205587	8
52	205635	205682	205730	205777	205825	205872	7
53	205920	205967	206014	206062	206109	206157	6
54	206204	206252	206299	206347	206394	206441	5
55	206489	206536	206584	206631	206678	206726	4
56	206773	206821	206868	206916	206963	207011	3
57	207058	207105	207153	207200	207248	207295	2
58	207343	207390	207437	207485	207532	207580	1
59	207627	207675	207722	207769	207817	207864	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 78 degrees, or Natural Co-sine of 78 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	43

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 102 degrees, or Natural Sine of 12 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.207912	207959	208007	208054	208101	208149	59
1	208196	208244	208291	208338	208386	208434	58
2	208482	208529	208576	208623	208670	208718	57
3	208765	208813	208860	208907	208955	209002	56
4	209050	209097	209144	209192	209239	209287	55
5	209334	209382	209429	209476	209524	209571	54
6	209619	209666	209713	209761	209808	209856	53
7	209903	209950	209998	210045	210093	210140	52
8	210187	210235	210282	210330	210377	210424	51
9	210472	210519	210567	210614	210661	210709	50
10	1.210756	210804	210851	210898	210946	210993	49
11	211040	211088	211135	211183	211230	211277	48
12	211325	211372	211420	211467	211514	211562	47
13	211609	211656	211704	211751	211799	211846	46
14	211893	211941	211988	212036	212083	212130	45
15	212178	212225	212272	212320	212367	212415	44
16	212462	212509	212557	212604	212651	212699	43
17	212746	212794	212841	212888	212936	212983	42
18	213030	213078	213125	213172	213220	213267	41
19	213315	213362	213409	213457	213504	213551	40
20	1.213599	213646	213693	213741	213788	213836	39
21	213883	213930	213978	214025	214072	214120	38
22	214167	214214	214262	214309	214357	214404	37
23	214451	214499	214546	214593	214641	214688	36
24	214735	214783	214830	214877	214925	214972	35
25	215019	215067	215114	215161	215209	215256	34
26	215303	215351	215398	215446	215493	215540	33
27	215588	215635	215682	215730	215777	215824	32
28	215872	215919	215966	216014	216061	216108	31
29	216156	216203	216251	216298	216345	216392	30
30	1.216440	216487	216534	216582	216629	216676	29
31	216724	216771	216818	216866	216913	216960	28
32	217008	217055	217102	217150	217197	217244	27
33	217292	217339	217386	217433	217481	217528	26
34	217575	217623	217670	217717	217765	217812	25
35	217859	217907	217954	218001	218049	218096	24
36	218143	218191	218238	218285	218332	218380	23
37	218427	218474	218522	218569	218616	218664	22
38	218711	218758	218806	218853	218900	218948	21
39	218995	219042	219089	219137	219184	219231	20
40	1.219279	219326	219373	219421	219468	219515	19
41	219562	219610	219657	219704	219752	219799	18
42	219846	219893	219941	219988	220035	220083	17
43	220130	220177	220225	220272	220319	220366	16
44	220413	220461	220508	220556	220603	220650	15
45	220697	220745	220792	220839	220887	220934	14
46	220981	221028	221076	221123	221170	221218	13
47	221265	221312	221359	221407	221454	221501	12
48	221548	221596	221643	221690	221738	221785	11
49	221832	221879	221927	221974	222021	222069	10
50	1.222116	222163	222210	222258	222305	222352	9
51	222399	222447	222494	222541	222588	222636	8
52	222683	222730	222778	222825	222872	222919	7
53	222967	223014	223061	223108	223156	223203	6
54	223250	223297	223345	223392	223439	223486	5
55	223534	223581	223628	223675	223723	223770	4
56	223817	223864	223912	223959	224006	224053	3
57	224101	224148	224195	224242	224290	224337	2
58	224384	224432	224479	224526	224573	224620	1
59	224668	224715	224762	224809	224857	224904	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 77 degrees, or Natural Co-sine of 77 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	24	28	33	38	43

Versed Sine of 103 degrees, or Natural Sine of 13 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.224951	224998	225046	225093	225140	225187	59
1	225234	225282	225329	225376	225423	225471	58
2	225518	225565	225612	225660	225707	225754	57
3	225801	225848	225896	225943	225990	226037	56
4	226085	226132	226179	226226	226274	226321	55
5	226368	226415	226462	226510	226557	226604	54
6	226651	226699	226746	226793	226840	226887	53
7	226935	226982	227029	227076	227123	227171	52
8	227218	227265	227312	227360	227407	227454	51
9	227501	227548	227596	227643	227690	227737	50
10	1.227784	227832	227879	227926	227973	228020	49
11	228068	228115	228162	228209	228256	228304	48
12	228351	228398	228445	228492	228540	228587	47
13	228634	228681	228728	228776	228823	228870	46
14	228917	228964	229012	229059	229106	229153	45
15	229200	229248	229295	229342	229389	229436	44
16	229484	229531	229578	229625	229672	229719	43
17	229767	229814	229861	229908	229955	230003	42
18	230050	230097	230144	230191	230238	230286	41
19	230333	230380	230427	230474	230522	230569	40
20	1.230616	230663	230710	230757	230805	230852	39
21	230899	230946	230993	231040	231088	231135	38
22	231182	231229	231276	231323	231371	231418	37
23	231465	231512	231559	231606	231654	231701	36
24	231748	231795	231842	231889	231937	231984	35
25	232031	232078	232125	232172	232219	232267	34
26	232314	232361	232408	232455	232502	232550	33
27	232597	232644	232691	232738	232785	232832	32
28	232880	232927	232974	233021	233068	233115	31
29	233163	233210	233257	233304	233351	233398	30
30	1.233445	233493	233540	233587	233634	233681	29
31	233728	233775	233822	233870	233917	233964	28
32	234011	234058	234105	234152	234200	234247	27
33	234294	234341	234388	234435	234482	234529	26
34	234577	234624	234671	234718	234765	234812	25
35	234859	234906	234954	235001	235048	235095	24
36	235142	235189	235236	235283	235331	235378	23
37	235425	235472	235519	235566	235613	235660	22
38	235708	235755	235802	235849	235896	235943	21
39	235990	236037	236084	236132	236179	236226	20
40	1.236273	236320	236367	236414	236461	236508	19
41	236556	236603	236650	236697	236744	236791	18
42	236838	236885	236932	236979	237027	237074	17
43	237121	237168	237215	237262	237309	237356	16
44	237403	237450	237498	237545	237592	237639	15
45	237686	237733	237780	237827	237874	237921	14
46	237968	238016	238063	238110	238157	238204	13
47	238251	238298	238345	238392	238439	238486	12
48	238533	238581	238628	238675	238722	238769	11
49	238816	238863	238910	238957	239004	239051	10
50	1.239098	239145	239193	239240	239287	239334	9
51	239381	239428	239475	239522	239569	239616	8
52	239663	239710	239757	239804	239852	239899	7
53	239946	239993	240040	240087	240134	240181	6
54	240228	240275	240322	240369	240416	240463	5
55	240510	240557	240605	240652	240699	240746	4
56	240793	240840	240887	240934	240981	241028	3
57	241075	241122	241169	241216	241263	241310	2
58	241357	241404	241451	241499	241546	241593	1
59	241640	241687	241734	241781	241828	241875	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 76 degrees, or Natural Co-sine of 76 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	38	42

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Minutes	Versed Sine of 104 degrees, or Natural Sine of 14 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1. 241922	241969	242016	242063	242110	242157	59
1	242204	242251	242298	242345	242392	242439	58
2	242486	242533	242580	242627	242674	242722	57
3	242769	242816	242863	242910	242957	243004	56
4	243051	243098	243145	243192	243239	243286	55
5	243333	243380	243427	243474	243521	243568	54
6	243615	243662	243709	243756	243803	243850	53
7	243897	243944	243991	244038	244085	244132	52
8	244179	244226	244273	244320	244367	244414	51
9	244461	244508	244555	244602	244649	244696	50
10	1. 244743	244790	244837	244884	244931	244978	49
11	245025	245072	245119	245166	245213	245260	48
12	245307	245354	245401	245448	245495	245542	47
13	245589	245636	245683	245730	245777	245824	46
14	245871	245918	245965	246012	246059	246106	45
15	246153	246200	246247	246294	246341	246388	44
16	246435	246482	246529	246576	246623	246670	43
17	246717	246764	246811	246858	246905	246952	42
18	246999	247046	247093	247140	247187	247234	41
19	247281	247328	247375	247422	247469	247516	40
20	1. 247563	247610	247657	247704	247751	247798	39
21	247845	247892	247938	247985	248032	248079	38
22	248126	248173	248220	248267	248314	248361	37
23	248408	248455	248502	248549	248596	248643	36
24	248690	248737	248784	248831	248878	248925	35
25	248972	249019	249066	249112	249159	249206	34
26	249253	249300	249347	249394	249441	249488	33
27	249534	249582	249629	249676	249723	249770	32
28	249817	249864	249911	249958	250004	250051	31
29	250098	250145	250192	250239	250286	250333	30
30	1. 250380	250427	250474	250521	250568	250615	29
31	250662	250709	250755	250802	250849	250896	28
32	250943	250990	251037	251084	251131	251178	27
33	251225	251272	251319	251366	251412	251459	26
34	251506	251553	251600	251647	251694	251741	25
35	251788	251835	251882	251929	251976	252022	24
36	252069	252116	252163	252210	252257	252304	23
37	252351	252398	252445	252492	252539	252586	22
38	252632	252679	252726	252773	252820	252867	21
39	252914	252961	253008	253054	253101	253148	20
40	1. 253195	253242	253289	253336	253383	253430	19
41	253477	253523	253570	253617	253664	253711	18
42	253758	253805	253852	253899	253946	253992	17
43	254039	254086	254133	254180	254227	254274	16
44	254321	254368	254414	254461	254508	254555	15
45	254602	254649	254696	254743	254789	254836	14
46	254883	254930	254977	255024	255071	255118	13
47	255165	255211	255258	255305	255352	255399	12
48	255446	255493	255540	255586	255633	255680	11
49	255727	255774	255821	255868	255914	255961	10
50	1. 256008	256055	256102	256149	256196	256243	9
51	256289	256336	256383	256430	256477	256524	8
52	256571	256617	256664	256711	256758	256805	7
53	256852	256899	256945	256992	257039	257086	6
54	257133	257180	257226	257273	257320	257367	5
55	257414	257461	257508	257554	257601	257648	4
56	257695	257742	257789	257835	257882	257929	3
57	257976	258023	258070	258117	258163	258210	2
58	258257	258304	258351	258398	258444	258491	1
59	258538	258585	258632	258679	258725	258772	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 75 degrees, or Natural Co-sine of 75 degrees.						
Propor. parts.	1″ 5	2″ 9	3″ 14	4″ 19	5″ 23	6″ 28	7″ 33	8″ 38	9″ 42

Minutes	Versed Sine of 105 degrees, or Natural Sine of 15 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1. 258819	258866	258913	258960	259006	259053	59
1	259100	259147	259194	259240	259287	259334	58
2	259381	259428	259475	259521	259568	259615	57
3	259662	259709	259756	259802	259849	259896	56
4	259943	259990	260036	260083	260130	260177	55
5	260224	260270	260317	260364	260411	260458	54
6	260505	260551	260598	260645	260692	260739	53
7	260785	260832	260879	260926	260973	261019	52
8	261066	261113	261160	261207	261253	261300	51
9	261347	261394	261441	261487	261534	261581	50
10	1. 261628	261675	261721	261768	261815	261862	49
11	261908	261955	262002	262049	262096	262142	48
12	262189	262236	262283	262330	262376	262423	47
13	262470	262517	262563	262610	262657	262704	46
14	262751	262797	262844	262891	262938	262984	45
15	263031	263078	263125	263172	263218	263265	44
16	263312	263359	263405	263452	263499	263546	43
17	263592	263639	263686	263733	263780	263826	42
18	263873	263920	263967	264013	264060	264107	41
19	264154	264200	264247	264294	264341	264387	40
20	1. 264434	264481	264528	264574	264621	264668	39
21	264715	264761	264808	264855	264902	264948	38
22	264995	265042	265089	265135	265182	265229	37
23	265276	265322	265369	265416	265463	265509	36
24	265556	265603	265650	265696	265743	265790	35
25	265837	265883	265930	265977	266023	266070	34
26	266117	266164	266210	266257	266304	266351	33
27	266397	266444	266491	266538	266584	266631	32
28	266678	266724	266771	266818	266865	266911	31
29	266958	267005	267051	267098	267145	267192	30
30	1. 267238	267285	267332	267379	267425	267472	29
31	267519	267565	267612	267659	267706	267752	28
32	267799	267846	267892	267939	267986	268032	27
33	268079	268126	268173	268219	268266	268313	26
34	268359	268406	268453	268500	268546	268593	25
35	268640	268686	268733	268780	268826	268873	24
36	268920	268967	269013	269060	269107	269153	23
37	269200	269247	269293	269340	269387	269433	22
38	269480	269527	269573	269620	269667	269714	21
39	269760	269807	269854	269900	269947	269994	20
40	1. 270040	270087	270134	270180	270227	270274	19
41	270320	270367	270414	270460	270507	270554	18
42	270600	270647	270694	270740	270787	270834	17
43	270880	270927	270974	271020	271067	271114	16
44	271160	271207	271254	271300	271347	271394	15
45	271440	271487	271534	271580	271627	271674	14
46	271720	271767	271814	271860	271907	271954	13
47	272000	272047	272094	272140	272187	272234	12
48	272280	272327	272374	272420	272467	272513	11
49	272560	272607	272653	272700	272747	272793	10
50	1. 272840	272887	272933	272980	273027	273073	9
51	273120	273166	273213	273260	273306	273353	8
52	273400	273446	273493	273540	273586	273633	7
53	273679	273726	273773	273819	273866	273913	6
54	273959	274006	274052	274099	274146	274192	5
55	274239	274286	274332	274379	274425	274472	4
56	274519	274565	274612	274659	274705	274752	3
57	274798	274845	274892	274938	274985	275031	2
58	275078	275125	275171	275218	275265	275311	1
59	275358	275404	275451	275498	275544	275591	0
Minutes	60″	50″	40″	30″	20″	10	Minutes
	Versed Sine Supplement of 74 degrees, or Natural Co-sine of 74 degrees.						
Propor. parts.	1″ 5	2″ 9	3″ 14	4″ 19	5″ 23	6″ 28	7″ 33	8″ 37	9″ 42

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 106 degrees, or Natural Sine of 16 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.275637	275684	275731	275777	275824	275870	59
1	275917	275964	276010	276057	276103	276150	58
2	276197	276243	276290	276336	276383	276430	57
3	276476	276523	276569	276616	276662	276709	56
4	276756	276802	276849	276895	276942	276989	55
5	277035	277082	277128	277175	277221	277268	54
6	277315	277361	277408	277454	277501	277548	53
7	277594	277641	277687	277734	277780	277827	52
8	277874	277920	277967	278013	278060	278106	51
9	278153	278200	278246	278293	278339	278386	50
10	1.278432	278479	278526	278572	278619	278665	49
11	278712	278758	278805	278851	278898	278945	48
12	278991	279038	279084	279131	279177	279224	47
13	279270	279317	279364	279410	279457	279503	46
14	279550	279596	279643	279689	279736	279782	45
15	279829	279876	279922	279969	280015	280062	44
16	280108	280155	280201	280248	280294	280341	43
17	280388	280434	280481	280527	280574	280620	42
18	280667	280713	280760	280806	280853	280899	41
19	280946	280992	281039	281085	281132	281179	40
20	1.281225	281272	281318	281365	281411	281458	39
21	281504	281551	281597	281644	281690	281737	38
22	281783	281830	281876	281923	281969	282016	37
23	282062	282109	282155	282202	282248	282295	36
24	282341	282388	282434	282481	282527	282574	35
25	282620	282667	282714	282760	282807	282853	34
26	282900	282946	282993	283039	283086	283132	33
27	283179	283225	283272	283318	283364	283411	32
28	283457	283504	283550	283597	283643	283690	31
29	283736	283783	283829	283876	283922	283969	30
30	1.284015	284062	284108	284155	284201	284248	29
31	284294	284341	284387	284434	284480	284527	28
32	284573	284620	284666	284713	284759	284805	27
33	284852	284898	284945	284991	285038	285084	26
34	285131	285177	285224	285270	285317	285363	25
35	285410	285456	285503	285549	285595	285642	24
36	285688	285735	285781	285828	285874	285921	23
37	285967	286014	286060	286106	286153	286199	22
38	286246	286292	286339	286385	286432	286478	21
39	286525	286571	286617	286664	286710	286757	20
40	1.286803	286850	286896	286943	286989	287035	19
41	287082	287128	287175	287222	287268	287314	18
42	287361	287407	287453	287500	287546	287593	17
43	287639	287686	287732	287778	287825	287871	16
44	287918	287964	288011	288057	288103	288150	15
45	288196	288243	288289	288336	288382	288428	14
46	288475	288521	288568	288614	288660	288707	13
47	288753	288800	288846	288893	288939	288985	12
48	289032	289078	289125	289171	289217	289264	11
49	289310	289357	289403	289449	289496	289542	10
50	1.289589	289635	289682	289728	289774	289821	9
51	289867	289914	289960	290006	290053	290099	8
52	290145	290192	290238	290285	290331	290377	7
53	290424	290470	290517	290563	290610	290656	6
54	290702	290749	290795	290841	290888	290934	5
55	290981	291027	291073	291120	291166	291212	4
56	291259	291305	291352	291398	291444	291491	3
57	291537	291583	291630	291676	291723	291769	2
58	291815	291862	291908	291954	292001	292047	1
59	292094	292140	292186	292233	292279	292325	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 73 degrees, or Natural Co-sine of 73 degrees.

Propor. parts.	1″	2″	3	4″	5″	6″	7″	8″	9″
	5	9	14	19	23	28	33	37	42

Versed Sine of 107 degrees, or Natural Sine of 17 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.292372	292418	292464	292511	292557	292604	59
1	292650	292696	292743	292789	292835	292882	58
2	292928	292974	293021	293067	293113	293160	57
3	293206	293252	293299	293345	293392	293438	56
4	293484	293531	293577	293623	293670	293716	55
5	293762	293809	293855	293901	293948	293994	54
6	294040	294087	294133	294179	294226	294272	53
7	294318	294365	294411	294457	294504	294550	52
8	294596	294643	294689	294735	294782	294828	51
9	294874	294921	294967	295013	295060	295106	50
10	1.295152	295199	295245	295291	295338	295384	49
11	295430	295476	295523	295569	295615	295662	48
12	295708	295754	295801	295847	295893	295940	47
13	295986	296032	296079	296125	296171	296217	46
14	296264	296310	296356	296403	296449	296495	45
15	296542	296588	296634	296680	296727	296773	44
16	296819	296866	296912	296958	297005	297051	43
17	297097	297143	297190	297236	297282	297329	42
18	297375	297421	297467	297514	297560	297606	41
19	297653	297699	297745	297791	297838	297884	40
20	1.297930	297977	298023	298069	298115	298162	39
21	298208	298254	298300	298347	298393	298439	38
22	298486	298532	298578	298624	298671	298717	37
23	298763	298809	298856	298902	298948	298995	36
24	299041	299087	299133	299180	299226	299272	35
25	299318	299365	299411	299457	299503	299550	34
26	299596	299642	299688	299735	299781	299827	33
27	299873	299920	299966	300012	300058	300105	32
28	300151	300197	300243	300290	300336	300382	31
29	300428	300475	300521	300567	300613	300660	30
30	1.300706	300752	300798	300845	300891	300937	29
31	300983	301029	301076	301122	301168	301214	28
32	301261	301307	301353	301399	301446	301492	27
33	301538	301584	301630	301677	301723	301769	26
34	301815	301862	301908	301954	302000	302046	25
35	302093	302139	302185	302231	302277	302324	24
36	302370	302416	302462	302509	302555	302601	23
37	302647	302693	302740	302786	302832	302878	22
38	302924	302971	303017	303063	303109	303155	21
39	303202	303248	303294	303340	303386	303433	20
40	1.303479	303525	303571	303617	303664	303710	19
41	303756	303802	303848	303894	303941	303987	18
42	304033	304079	304125	304172	304218	304264	17
43	304310	304356	304403	304449	304495	304541	16
44	304587	304633	304680	304726	304772	304818	15
45	304864	304910	304957	305003	305049	305095	14
46	305141	305187	305234	305280	305326	305372	13
47	305418	305464	305511	305557	305603	305649	12
48	305695	305741	305788	305834	305880	305926	11
49	305972	306018	306065	306111	306157	306203	10
50	1.306249	306295	306341	306388	306434	306480	9
51	306526	306572	306618	306665	306711	306757	8
52	306803	306849	306895	306941	306988	307034	7
53	307080	307126	307172	307218	307264	307310	6
54	307357	307403	307449	307495	307541	307587	5
55	307633	307680	307726	307772	307818	307864	4
56	307910	307956	308002	308049	308095	308141	3
57	308187	308233	308279	308325	308371	308418	2
58	308464	308510	308556	308602	308648	308694	1
59	308740	308786	308833	308879	308925	308971	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 72 degrees, or Natural Co-sine of 72 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	42

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 108 degrees, or Natural Sine of 18 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.309017	309063	309109	309155	309201	309248	59
1	309294	309340	309386	309432	309478	309524	58
2	309570	309616	309662	309709	309755	309801	57
3	309847	309893	309939	309985	310031	310077	56
4	310123	310169	310216	310262	310308	310354	55
5	310400	310446	310492	310538	310584	310630	54
6	310676	310723	310769	310815	310861	310907	53
7	310953	310999	311045	311091	311137	311183	52
8	311229	311275	311322	311368	311414	311460	51
9	311506	311552	311598	311644	311690	311736	50
10	1.311782	311828	311874	311920	311966	312013	49
11	312059	312105	312151	312197	312243	312289	48
12	312335	312381	312427	312473	312519	312565	47
13	312611	312657	312703	312749	312795	312841	46
14	312888	312934	312980	313026	313072	313118	45
15	313164	313210	313256	313302	313348	313394	44
16	313440	313486	313532	313578	313624	313670	43
17	313716	313762	313808	313854	313900	313946	42
18	313992	314038	314085	314131	314177	314223	41
19	314269	314315	314361	314407	314453	314499	40
20	1.314545	314591	314637	314683	314729	314775	39
21	314821	314867	314913	314959	315005	315051	38
22	315097	315143	315189	315235	315281	315327	37
23	315373	315419	315465	315511	315557	315603	36
24	315649	315695	315741	315787	315833	315879	35
25	315925	315971	316017	316063	316109	316155	34
26	316201	316247	316293	316339	316385	316431	33
27	316477	316523	316569	316615	316661	316707	32
28	316753	316799	316845	316891	316937	316983	31
29	317029	317075	317121	317167	317213	317259	30
30	1.317305	317351	317397	317443	317489	317535	29
31	317580	317626	317672	317718	317764	317810	28
32	317856	317902	317948	317994	318040	318086	27
33	318132	318178	318224	318270	318316	318362	26
34	318408	318454	318500	318546	318592	318638	25
35	318684	318730	318776	318821	318867	318913	24
36	318959	319005	319051	319097	319143	319189	23
37	319235	319281	319327	319373	319419	319465	22
38	319511	319557	319603	319648	319694	319740	21
39	319786	319832	319878	319924	319970	320016	20
40	1.320062	320108	320154	320200	320246	320292	19
41	320337	320383	320429	320475	320521	320567	18
42	320613	320659	320705	320751	320797	320843	17
43	320889	320934	320980	321026	321072	321118	16
44	321164	321210	321256	321302	321348	321394	15
45	321439	321485	321531	321577	321623	321669	14
46	321715	321761	321807	321853	321899	321944	13
47	321990	322036	322082	322128	322174	322220	12
48	322266	322312	322357	322403	322449	322495	11
49	322541	322587	322633	322679	322725	322770	10
50	1.322816	322862	322908	322954	323000	323046	9
51	323092	323138	323183	323229	323275	323321	8
52	323367	323413	323459	323505	323550	323596	7
53	323642	323688	323734	323780	323826	323872	6
54	323917	323963	324009	324055	324101	324147	5
55	324193	324238	324284	324330	324376	324422	4
56	324468	324514	324559	324605	324651	324697	3
57	324743	324789	324835	324880	324926	324972	2
58	325018	325064	325110	325156	325201	325247	1
59	325293	325339	325385	325431	325476	325522	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 71 degrees, or Natural Co-sine of 71 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	41

Versed Sine of 109 degrees, or Natural Sine of 19 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.325568	325614	325660	325706	325752	325797	59
1	325843	325889	325935	325981	326027	326072	58
2	326118	326164	326210	326256	326302	326347	57
3	326393	326439	326485	326531	326577	326622	56
4	326668	326714	326760	326806	326851	326897	55
5	326943	326989	327035	327080	327126	327172	54
6	327218	327264	327310	327355	327401	327447	53
7	327493	327539	327584	327630	327676	327722	52
8	327768	327813	327859	327905	327951	327997	51
9	328042	328088	328134	328180	328226	328271	50
10	1.328317	328363	328409	328455	328500	328546	49
11	328592	328638	328683	328729	328775	328821	48
12	328867	328912	328958	329004	329050	329096	47
13	329141	329187	329233	329279	329324	329370	46
14	329416	329462	329508	329553	329599	329645	45
15	329691	329736	329782	329828	329874	329919	44
16	329965	330011	330057	330103	330148	330194	43
17	330240	330286	330331	330377	330423	330469	42
18	330514	330560	330606	330652	330697	330743	41
19	330789	330835	330880	330926	330972	331018	40
20	1.331063	331109	331155	331201	331246	331292	39
21	331338	331384	331429	331475	331521	331567	38
22	331612	331658	331704	331750	331795	331841	37
23	331887	331932	331978	332024	332070	332115	36
24	332161	332207	332253	332298	332344	332390	35
25	332435	332481	332527	332573	332618	332664	34
26	332710	332756	332801	332847	332893	332938	33
27	332984	333030	333076	333121	333167	333213	32
28	333258	333304	333350	333396	333441	333487	31
29	333533	333578	333624	333670	333715	333761	30
30	1.333807	333853	333898	333944	333990	334035	29
31	334081	334127	334172	334218	334264	334310	28
32	334355	334401	334447	334492	334538	334584	27
33	334629	334675	334721	334766	334812	334858	26
34	334903	334949	334995	335040	335086	335132	25
35	335178	335223	335269	335315	335360	335406	24
36	335452	335497	335543	335589	335634	335680	23
37	335726	335771	335817	335863	335908	335954	22
38	336000	336045	336091	336137	336182	336228	21
39	336274	336319	336365	336411	336456	336502	20
40	1.336547	336593	336639	336684	336730	336776	19
41	336821	336867	336913	336958	337004	337050	18
42	337095	337141	337187	337232	337278	337323	17
43	337369	337415	337460	337506	337552	337597	16
44	337643	337689	337734	337780	337825	337871	15
45	337917	337962	338008	338054	338099	338145	14
46	338190	338236	338282	338327	338373	338419	13
47	338464	338510	338555	338601	338647	338692	12
48	338738	338784	338829	338875	338920	338966	11
49	339012	339057	339103	339148	339194	339240	10
50	1.339285	339331	339376	339422	339468	339513	9
51	339559	339604	339650	339696	339741	339787	8
52	339832	339878	339924	339969	340015	340060	7
53	340106	340152	340197	340243	340288	340334	6
54	340380	340425	340471	340516	340562	340607	5
55	340653	340699	340744	340790	340835	340881	4
56	340927	340972	341018	341063	341109	341154	3
57	341200	341246	341291	341337	341382	341428	2
58	341473	341519	341565	341610	341656	341701	1
59	341747	341792	341838	341883	341929	341975	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 70 degrees, or Natural Co-sine of 70 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	28	32	37	41

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 110 degrees, or Natural Sine of 20 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.342020	342066	342111	342157	342202	342248	59
1	342293	342339	342385	342430	342476	342521	58
2	342567	342612	342658	342703	342749	342795	57
3	342840	342886	342931	342977	343022	343067	56
4	343113	343159	343204	343250	343295	343341	55
5	343387	343432	343478	343523	343569	343614	54
6	343660	343705	343751	343796	343842	343887	53
7	343933	343978	344024	344069	344115	344160	52
8	344206	344251	344297	344343	344388	344434	51
9	344479	344525	344570	344616	344661	344707	50
10	1.344752	344798	344843	344889	344934	344980	49
11	345025	345071	345116	345162	345207	345253	48
12	345298	345344	345389	345435	345480	345526	47
13	345571	345617	345662	345708	345753	345799	46
14	345844	345890	345935	345981	346026	346072	45
15	346117	346163	346208	346254	346299	346344	44
16	346390	346435	346481	346526	346572	346617	43
17	346663	346708	346754	346799	346845	346890	42
18	346936	346981	347027	347072	347118	347163	41
19	347208	347254	347299	347345	347390	347436	40
20	1.347481	347527	347572	347618	347663	347708	39
21	347754	347799	347845	347890	347936	347981	38
22	348027	348072	348118	348163	348208	348254	37
23	348299	348345	348390	348436	348481	348527	36
24	348572	348617	348663	348708	348754	348799	35
25	348845	348890	348936	348981	349026	349071	34
26	349117	349163	349208	349254	349299	349344	33
27	349390	349435	349481	349526	349572	349617	32
28	349662	349708	349753	349799	349844	349889	31
29	349935	349980	350026	350071	350117	350162	30
30	1.350207	350253	350298	350344	350389	350434	29
31	350480	350525	350571	350616	350661	350707	28
32	350752	350798	350843	350888	350934	350979	27
33	351025	351070	351115	351161	351206	351252	26
34	351297	351342	351388	351433	351478	351524	25
35	351569	351615	351660	351706	351751	351796	24
36	351841	351887	351932	351978	352023	352069	23
37	352114	352159	352205	352250	352295	352341	22
38	352386	352431	352477	352522	352567	352613	21
39	352658	352704	352749	352794	352840	352885	20
40	1.352931	352976	353021	353067	353112	353157	19
41	353203	353248	353293	353339	353384	353429	18
42	353475	353520	353566	353611	353656	353702	17
43	353747	353792	353838	353883	353928	353974	16
44	354019	354064	354110	354155	354200	354246	15
45	354291	354336	354382	354427	354472	354518	14
46	354563	354608	354654	354699	354744	354790	13
47	354835	354880	354926	354971	355016	355062	12
48	355107	355152	355198	355243	355288	355334	11
49	355379	355424	355470	355515	355560	355605	10
50	1.355651	355696	355741	355787	355832	355877	9
51	355923	355968	356013	356059	356104	356149	8
52	356194	356240	356285	356330	356376	356421	7
53	356466	356512	356557	356602	356647	356693	6
54	356738	356783	356829	356874	356919	356964	5
55	357010	357055	357100	357146	357191	357236	4
56	357281	357327	357372	357417	357463	357508	3
57	357553	357598	357644	357689	357734	357779	2
58	357825	357870	357915	357961	358006	358051	1
59	358096	358142	358187	358232	358277	358323	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 69 degrees, or Natural Co-sine of 69 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	27	32	36	41

Versed Sine of 111 degrees, or Natural Sine of 21 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.358368	358413	358458	358504	358549	358594	59
1	358640	358685	358730	358775	358821	358866	58
2	358911	358956	359002	359047	359092	359137	57
3	359183	359228	359273	359318	359363	359409	56
4	359454	359499	359544	359590	359635	359680	55
5	359725	359771	359816	359861	359906	359952	54
6	359997	360042	360087	360132	360178	360223	53
7	360268	360313	360359	360404	360449	360494	52
8	360540	360585	360630	360675	360720	360766	51
9	360811	360856	360901	360946	360992	361037	50
10	1.361082	361127	361173	361218	361263	361308	49
11	361353	361399	361444	361489	361534	361579	48
12	361625	361670	361715	361760	361805	361851	47
13	361896	361941	361986	362031	362077	362122	46
14	362167	362212	362257	362302	362348	362393	45
15	362438	362483	362528	362574	362619	362664	44
16	362709	362754	362799	362845	362890	362935	43
17	362980	363025	363071	363116	363161	363206	42
18	363251	363296	363342	363387	363432	363477	41
19	363522	363567	363613	363658	363703	363748	40
20	1.363793	363838	363884	363929	363974	364019	39
21	364064	364109	364154	364200	364245	364290	38
22	364335	364380	364425	364470	364516	364561	37
23	364606	364651	364696	364741	364787	364832	36
24	364877	364922	364967	365012	365057	365102	35
25	365148	365193	365238	365283	365328	365373	34
26	365418	365464	365509	365554	365599	365644	33
27	365689	365734	365779	365825	365870	365915	32
28	365960	366005	366050	366095	366140	366185	31
29	366231	366276	366321	366366	366411	366456	30
30	1.366501	366546	366591	366637	366682	366727	29
31	366772	366817	366862	366907	366952	366997	28
32	367042	367088	367133	367178	367223	367268	27
33	367313	367358	367403	367448	367493	367538	26
34	367584	367629	367674	367719	367764	367809	25
35	367854	367899	367944	367989	368034	368079	24
36	368125	368170	368215	368260	368305	368350	23
37	368395	368440	368485	368530	368575	368620	22
38	368665	368710	368756	368801	368846	368891	21
39	368936	368981	369026	369071	369116	369161	20
40	1.369206	369251	369296	369341	369386	369431	19
41	369476	369522	369567	369612	369657	369702	18
42	369747	369792	369837	369882	369927	369972	17
43	370017	370062	370107	370152	370197	370242	16
44	370287	370332	370377	370422	370467	370512	15
45	370557	370602	370647	370693	370738	370783	14
46	370828	370873	370918	370963	371008	371053	13
47	371098	371143	371188	371233	371278	371323	12
48	371368	371413	371458	371503	371548	371593	11
49	371638	371683	371728	371773	371818	371863	10
50	1.371908	371953	371998	372043	372088	372133	9
51	372178	372223	372268	372313	372358	372403	8
52	372448	372493	372538	372583	372628	372673	7
53	372718	372763	372808	372853	372898	372943	6
54	372988	373033	373078	373123	373168	373213	5
55	373258	373303	373348	373393	373438	373483	4
56	373528	373572	373617	373662	373707	373752	3
57	373797	373842	373887	373932	373977	374022	2
58	374067	374112	374157	374202	374247	374292	1
59	374337	374382	374427	374472	374517	374562	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 68 degrees, or Natural Co-sine of 68 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	5	9	14	18	23	27	32	36	41

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 112 degrees, or Natural Sine of 22 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.374607	374652	374697	374741	374786	374831	59
1	374876	374921	374966	375011	375056	375101	58
2	375146	375191	375236	375281	375326	375371	57
3	375416	375461	375505	375550	375595	375640	56
4	375685	375730	375775	375820	375865	375910	55
5	375955	376000	376045	376090	376134	376179	54
6	376224	376269	376314	376359	376404	376449	53
7	376494	376539	376584	376629	376673	376718	52
8	376763	376808	376853	376898	376943	376988	51
9	377033	377078	377122	377167	377212	377257	50
10	1.377302	377347	377392	377437	377482	377527	49
11	377571	377616	377661	377706	377751	377796	48
12	377841	377886	377931	377975	378020	378065	47
13	378110	378155	378200	378245	378290	378334	46
14	378379	378424	378469	378514	378559	378604	45
15	378649	378693	378738	378783	378828	378873	44
16	378918	378963	379008	379052	379097	379142	43
17	379187	379232	379277	379322	379366	379411	42
18	379456	379501	379546	379591	379636	379680	41
19	379725	379770	379815	379860	379905	379950	40
20	1.379994	380039	380084	380129	380174	380219	39
21	380263	380308	380353	380398	380443	380488	38
22	380532	380577	380622	380667	380712	380757	37
23	380801	380846	380891	380936	380981	381026	36
24	381070	381115	381160	381205	381250	381294	35
25	381339	381384	381429	381474	381519	381563	34
26	381608	381653	381698	381743	381787	381832	33
27	381877	381922	381967	382011	382056	382101	32
28	382146	382191	382235	382280	382325	382370	31
29	382415	382459	382504	382549	382594	382639	30
30	1.382683	382728	382773	382818	382863	382907	29
31	382952	382997	383042	383087	383131	383176	28
32	383221	383266	383310	383355	383400	383445	27
33	383490	383534	383579	383624	383669	383713	26
34	383758	383803	383848	383892	383937	383982	25
35	384027	384072	384116	384161	384206	384251	24
36	384295	384340	384385	384430	384474	384519	23
37	384564	384609	384653	384698	384743	384788	22
38	384832	384877	384922	384967	385011	385056	21
39	385101	385146	385190	385235	385280	385325	20
40	1.385369	385414	385459	385503	385548	385593	19
41	385638	385682	385727	385772	385817	385861	18
42	385906	385951	385995	386040	386085	386130	17
43	386174	386219	386264	386309	386353	386398	16
44	386443	386487	386532	386577	386622	386666	15
45	386711	386756	386800	386845	386890	386934	14
46	386979	387024	387069	387113	387158	387203	13
47	387247	387292	387337	387382	387426	387471	12
48	387516	387560	387605	387650	387694	387739	11
49	387784	387828	387873	387918	387962	388007	10
50	1.388052	388097	388141	388186	388231	388275	9
51	388320	388365	388409	388454	388499	388543	8
52	388588	388633	388677	388722	388767	388811	7
53	388856	388901	388945	388990	389035	389079	6
54	389124	389169	389213	389258	389303	389347	5
55	389392	389436	389481	389526	389571	389615	4
56	389660	389704	389749	389794	389838	389883	3
57	389928	389972	390017	390062	390106	390151	2
58	390196	390240	390285	390329	390374	390419	1
59	390463	390508	390553	390597	390642	390687	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 67 degrees, or Natural Co-sine of 67 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	27	31	36	40

Versed Sine of 113 degrees, or Natural Sine of 23 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.390731	390776	390820	390865	390910	390954	59
1	390999	391043	391088	391133	391177	391222	58
2	391267	391311	391356	391400	391445	391490	57
3	391534	391579	391623	391668	391713	391757	56
4	391802	391847	391891	391936	391980	392025	55
5	392070	392114	392159	392203	392248	392293	54
6	392337	392382	392426	392471	392515	392560	53
7	392605	392649	392694	392738	392783	392828	52
8	392872	392917	392961	393006	393051	393095	51
9	393140	393184	393229	393273	393318	393363	50
10	1.393407	393452	393496	393541	393585	393630	49
11	393675	393719	393764	393808	393853	393897	48
12	393942	393986	394031	394076	394120	394165	47
13	394209	394254	394298	394343	394387	394432	46
14	394477	394521	394566	394610	394655	394699	45
15	394744	394788	394833	394877	394922	394967	44
16	395011	395056	395100	395145	395189	395234	43
17	395278	395323	395367	395412	395456	395501	42
18	395546	395590	395635	395679	395724	395768	41
19	395813	395857	395902	395946	395991	396035	40
20	1.396080	396124	396169	396213	396258	396302	39
21	396347	396391	396436	396480	396525	396569	38
22	396614	396658	396703	396747	396792	396836	37
23	396881	396925	396970	397014	397059	397103	36
24	397148	397192	397237	397281	397326	397370	35
25	397415	397459	397504	397548	397593	397637	34
26	397682	397726	397771	397815	397860	397904	33
27	397949	397993	398038	398082	398127	398171	32
28	398215	398260	398304	398349	398393	398438	31
29	398482	398527	398571	398616	398660	398705	30
30	1.398749	398794	398838	398882	398927	398971	29
31	399016	399060	399105	399149	399194	399238	28
32	399283	399327	399371	399416	399460	399505	27
33	399549	399594	399638	399683	399727	399771	26
34	399816	399860	399905	399949	399994	400038	25
35	400082	400127	400171	400216	400260	400305	24
36	400349	400393	400438	400482	400527	400571	23
37	400616	400660	400704	400749	400793	400838	22
38	400882	400926	400971	401015	401060	401104	21
39	401149	401193	401237	401282	401326	401371	20
40	1.401415	401459	401504	401548	401593	401637	19
41	401681	401726	401770	401815	401859	401903	18
42	401948	401992	402037	402081	402125	402170	17
43	402214	402259	402303	402347	402392	402436	16
44	402480	402525	402569	402614	402658	402702	15
45	402747	402791	402835	402879	402924	402969	14
46	403013	403057	403102	403146	403190	403235	13
47	403279	403323	403368	403412	403457	403501	12
48	403545	403590	403634	403678	403723	403767	11
49	403811	403856	403900	403944	403989	404033	10
50	1.404078	404122	404166	404211	404255	404299	9
51	404344	404388	404432	404477	404521	404565	8
52	404610	404654	404698	404743	404787	404831	7
53	404876	404920	404964	405009	405053	405097	6
54	405142	405186	405230	405275	405319	405363	5
55	405408	405452	405496	405540	405585	405629	4
56	405673	405718	405762	405806	405851	405895	3
57	405939	405984	406028	406072	406116	406161	2
58	406205	406249	406294	406338	406382	406427	1
59	406471	406515	406559	406604	406648	406692	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 66 degrees, or Natural Co-sine of 66 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	27	31	36	40

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 114 degrees, or Natural Sine of 24 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.406737	406781	406825	406870	406914	406958	59
1	407002	407047	407091	407135	407179	407224	58
2	407268	407312	407357	407401	407445	407489	57
3	407534	407578	407622	407667	407711	407755	56
4	407799	407844	407888	407932	407976	408021	55
5	408065	408109	408153	408198	408242	408286	54
6	408330	408375	408419	408463	408507	408551	53
7	408596	408640	408684	408729	408773	408817	52
8	408861	408906	408950	408994	409038	409083	51
9	409127	409171	409215	409260	409304	409348	50
10	1.409392	409437	409481	409525	409569	409613	49
11	409658	409702	409746	409790	409835	409879	48
12	409923	409967	410011	410056	410100	410144	47
13	410188	410233	410277	410321	410365	410409	46
14	410454	410498	410542	410586	410630	410675	45
15	410719	410763	410807	410851	410896	410940	44
16	410984	411028	411072	411117	411161	411205	43
17	411249	411293	411338	411382	411426	411470	42
18	411514	411559	411603	411647	411691	411735	41
19	411779	411824	411868	411912	411956	412000	40
20	1.412045	412089	412133	412177	412221	412265	39
21	412310	412354	412398	412442	412486	412530	38
22	412575	412619	412663	412707	412751	412795	37
23	412840	412884	412928	412972	413016	413060	36
24	413104	413149	413193	413237	413281	413325	35
25	413369	413414	413458	413502	413546	413590	34
26	413634	413678	413722	413767	413811	413855	33
27	413899	413943	413987	414031	414076	414120	32
28	414164	414208	414252	414296	414340	414384	31
29	414429	414473	414517	414561	414605	414649	30
30	1.414693	414737	414781	414826	414870	414914	29
31	414958	415002	415046	415090	415134	415178	28
32	415223	415267	415311	415355	415399	415443	27
33	415487	415531	415575	415619	415664	415708	26
34	415752	415796	415840	415884	415928	415972	25
35	416016	416060	416104	416149	416193	416237	24
36	416281	416325	416369	416413	416457	416501	23
37	416545	416589	416633	416677	416722	416766	22
38	416810	416854	416898	416942	416986	417030	21
39	417074	417118	417162	417206	417250	417294	20
40	1.417338	417383	417427	417471	417515	417559	19
41	417603	417647	417691	417735	417779	417823	18
42	417867	417911	417955	417999	418043	418087	17
43	418131	418175	418219	418263	418307	418352	16
44	418396	418440	418484	418528	418572	418616	15
45	418660	418704	418748	418792	418836	418880	14
46	418924	418968	419012	419056	419100	419144	13
47	419188	419232	419276	419320	419364	419408	12
48	419452	419496	419540	419584	419628	419672	11
49	419716	419760	419804	419848	419892	419936	10
50	1.419980	420024	420068	420112	420156	420200	9
51	420244	420288	420332	420376	420420	420464	8
52	420508	420552	420596	420640	420684	420728	7
53	420772	420816	420860	420904	420948	420992	6
54	421036	421080	421124	421168	421212	421256	5
55	421300	421344	421388	421432	421476	421519	4
56	421563	421607	421651	421695	421739	421783	3
57	421827	421871	421915	421959	422003	422047	2
58	422091	422135	422179	422223	422267	422311	1
59	422355	422399	422442	422486	422530	422574	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 65 degrees, or Natural Co-sine of 65 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	18	22	26	31	35	40

Versed Sine of 115 degrees, or Natural Sine of 25 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.422618	422662	422706	422750	422794	422838	59
1	422882	422926	422970	423014	423058	423102	58
2	423145	423189	423233	423277	423321	423365	57
3	423409	423453	423497	423541	423585	423629	56
4	423673	423716	423760	423804	423848	423892	55
5	423936	423980	424024	424068	424112	424156	54
6	424199	424243	424287	424331	424375	424419	53
7	424463	424507	424551	424595	424638	424682	52
8	424726	424770	424814	424858	424902	424946	51
9	424990	425033	425077	425121	425165	425209	50
10	1.425253	425297	425341	425384	425428	425472	49
11	425516	425560	425604	425648	425692	425735	48
12	425779	425823	425867	425911	425955	425999	47
13	426042	426086	426130	426174	426218	426262	46
14	426306	426349	426393	426437	426481	426525	45
15	426569	426613	426656	426700	426744	426788	44
16	426832	426876	426920	426963	427007	427051	43
17	427095	427139	427183	427226	427270	427314	42
18	427358	427402	427446	427489	427533	427577	41
19	427621	427665	427708	427752	427796	427840	40
20	1.427884	427928	427971	428015	428059	428103	39
21	428147	428190	428234	428278	428322	428366	38
22	428410	428453	428497	428541	428585	428629	37
23	428672	428716	428760	428804	428848	428891	36
24	428935	428979	429023	429067	429110	429154	35
25	429198	429242	429285	429329	429373	429417	34
26	429461	429504	429548	429592	429636	429680	33
27	429723	429767	429811	429855	429898	429942	32
28	429986	430030	430073	430117	430161	430205	31
29	430249	430292	430336	430380	430424	430467	30
30	1.430511	430555	430599	430642	430686	430730	29
31	430774	430817	430861	430905	430949	430992	28
32	431036	431080	431124	431167	431211	431255	27
33	431299	431342	431386	431430	431474	431517	26
34	431561	431605	431648	431692	431736	431780	25
35	431823	431867	431911	431955	431998	432042	24
36	432086	432129	432173	432217	432261	432304	23
37	432348	432392	432435	432479	432523	432567	22
38	432610	432654	432698	432741	432785	432829	21
39	432873	432916	432960	433004	433047	433091	20
40	1.433135	433178	433222	433266	433310	433353	19
41	433397	433441	433484	433528	433572	433615	18
42	433659	433703	433746	433790	433834	433877	17
43	433921	433965	434009	434052	434096	434140	16
44	434183	434227	434271	434314	434358	434402	15
45	434445	434489	434533	434576	434620	434664	14
46	434707	434751	434795	434838	434882	434926	13
47	434969	435013	435056	435100	435144	435187	12
48	435231	435275	435318	435362	435406	435449	11
49	435493	435537	435580	435624	435668	435711	10
50	1.435755	435798	435842	435886	435929	435973	9
51	436017	436060	436104	436147	436191	436235	8
52	436278	436322	436366	436409	436453	436496	7
53	436540	436584	436627	436671	436715	436758	6
54	436802	436845	436889	436933	436976	437020	5
55	437063	437107	437151	437194	437238	437281	4
56	437325	437369	437412	437456	437499	437543	3
57	437587	437630	437674	437717	437761	437805	2
58	437848	437892	437935	437979	438023	438066	1
59	438110	438153	438197	438240	438284	438328	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 64 degrees, or Natural Co-sine of 64 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	22	26	30	35	39

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 116 degrees, or Natural Sine of 26 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.438371	438415	438458	438502	438545	438589	59
1	438633	438676	438720	438763	438807	438850	58
2	438894	438938	438981	439025	439068	439112	57
3	439155	439199	439242	439286	439330	439373	56
4	439417	439460	439504	439547	439591	439634	55
5	439678	439721	439765	439809	439852	439896	54
6	439939	439983	440026	440070	440113	440157	53
7	440200	440244	440287	440331	440374	440418	52
8	440462	440505	440549	440592	440636	440679	51
9	440723	440766	440810	440853	440897	440940	50
10	1.440984	441027	441071	441114	441158	441201	49
11	441245	441288	441332	441375	441419	441462	48
12	441506	441549	441593	441636	441680	441723	47
13	441767	441810	441854	441897	441941	441984	46
14	442028	442071	442115	442158	442202	442245	45
15	442289	442332	442376	442419	442463	442506	44
16	442550	442593	442637	442680	442723	442767	43
17	442810	442854	442897	442941	442984	443028	42
18	443071	443115	443158	443202	443245	443288	41
19	443332	443375	443419	443462	443506	443549	40
20	1.443593	443636	443680	443723	443766	443810	39
21	443853	443897	443940	443984	444027	444071	38
22	444114	444157	444201	444244	444288	444331	37
23	444375	444418	444461	444505	444548	444592	36
24	444635	444679	444722	444765	444809	444852	35
25	444896	444939	444983	445026	445069	445113	34
26	445156	445200	445243	445286	445330	445373	33
27	445417	445460	445503	445547	445590	445634	32
28	445677	445720	445764	445807	445851	445894	31
29	445937	445981	446024	446068	446111	446154	30
30	1.446198	446241	446285	446328	446371	446415	29
31	446458	446502	446545	446588	446632	446675	28
32	446718	446762	446805	446849	446892	446935	27
33	446979	447022	447065	447109	447152	447195	26
34	447239	447282	447325	447369	447412	447456	25
35	447499	447542	447586	447629	447672	447716	24
36	447759	447802	447846	447889	447932	447976	23
37	448019	448063	448106	448149	448193	448236	22
38	448279	448323	448366	448409	448453	448496	21
39	448539	448583	448626	448669	448713	448756	20
40	1.448799	448843	448886	448929	448972	449016	19
41	449059	449102	449146	449189	449232	449276	18
42	449319	449362	449406	449449	449492	449536	17
43	449579	449622	449665	449709	449752	449795	16
44	449839	449882	449925	449969	450012	450055	15
45	450098	450142	450185	450228	450272	450315	14
46	450358	450401	450445	450488	450531	450575	13
47	450618	450661	450704	450748	450791	450834	12
48	450878	450921	450964	451007	451051	451094	11
49	451137	451180	451224	451267	451310	451353	10
50	1.451397	451440	451483	451527	451570	451613	9
51	451656	451700	451743	451786	451829	451873	8
52	451916	451959	452002	452046	452089	452132	7
53	452175	452219	452262	452305	452348	452391	6
54	452435	452478	452521	452564	452608	452651	5
55	452694	452737	452781	452824	452867	452910	4
56	452953	452997	453040	453083	453126	453170	3
57	453213	453256	453299	453342	453386	453429	2
58	453472	453515	453558	453602	453645	453688	1
59	453731	453775	453818	453861	453904	453947	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 63 degrees, or Natural Co-sine of 63 degrees.

Proper Cs 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

Versed Sine of 117 degrees, or Natural Sine of 27 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.453990	454034	454077	454120	454163	454206	59
1	454250	454293	454336	454379	454422	454466	58
2	454509	454552	454595	454638	454682	454725	57
3	454768	454811	454854	454897	454941	454984	56
4	455027	455070	455113	455156	455200	455243	55
5	455286	455329	455372	455415	455459	455502	54
6	455545	455588	455631	455674	455718	455761	53
7	455804	455847	455890	455933	455976	456020	52
8	456063	456106	456149	456192	456235	456278	51
9	456322	456365	456408	456451	456494	456537	50
10	1.456580	456624	456667	456710	456753	456796	49
11	456839	456882	456925	456969	457012	457055	48
12	457098	457141	457184	457227	457270	457314	47
13	457357	457400	457443	457486	457529	457572	46
14	457615	457658	457702	457745	457788	457831	45
15	457874	457917	457960	458003	458046	458089	44
16	458133	458176	458219	458262	458305	458348	43
17	458391	458434	458477	458520	458563	458606	42
18	458650	458693	458736	458779	458822	458865	41
19	458908	458951	458994	459037	459080	459123	40
20	1.459166	459210	459253	459296	459339	459382	39
21	459425	459468	459511	459554	459597	459640	38
22	459683	459726	459769	459812	459855	459898	37
23	459942	459985	460028	460071	460114	460157	36
24	460200	460243	460286	460329	460372	460415	35
25	460458	460501	460544	460587	460630	460673	34
26	460716	460759	460802	460845	460888	460931	33
27	460974	461017	461060	461103	461146	461189	32
28	461232	461276	461319	461362	461405	461448	31
29	461491	461534	461577	461620	461663	461706	30
30	1.461749	461792	461835	461878	461921	461964	29
31	462007	462050	462093	462136	462179	462222	28
32	462265	462308	462351	462394	462437	462480	27
33	462523	462565	462608	462651	462694	462737	26
34	462780	462823	462866	462909	462952	462995	25
35	463038	463081	463124	463167	463210	463253	24
36	463296	463339	463382	463425	463468	463511	23
37	463554	463597	463640	463683	463726	463769	22
38	463812	463854	463897	463940	463983	464026	21
39	464069	464112	464155	464198	464241	464284	20
40	1.464327	464370	464413	464456	464499	464542	19
41	464584	464627	464670	464713	464756	464799	18
42	464842	464885	464928	464971	465014	465057	17
43	465100	465142	465185	465228	465271	465314	16
44	465357	465400	465443	465486	465529	465572	15
45	465615	465657	465700	465743	465786	465829	14
46	465872	465915	465958	466001	466044	466086	13
47	466129	466172	466215	466258	466301	466344	12
48	466387	466429	466472	466515	466558	466601	11
49	466644	466687	466730	466773	466815	466858	10
50	1.466901	466944	466987	467030	467073	467116	9
51	467158	467201	467244	467287	467330	467373	8
52	467416	467458	467501	467544	467587	467630	7
53	467673	467716	467758	467801	467844	467887	6
54	467930	467973	468016	468058	468101	468144	5
55	468187	468230	468273	468315	468358	468401	4
56	468444	468487	468530	468572	468615	468658	3
57	468701	468744	468787	468829	468872	468915	2
58	468958	469001	469043	469086	469129	469172	1
59	469215	469258	469300	469343	469386	469429	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 62 degrees, or Natural Co-sine of 62 degrees.

Proper Cs 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTI

Versed Sine of 118 degrees, or Natural Sine of 28 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.469472	469514	469557	469600	469643	469686	59
1	469728	469771	469814	469857	469900	469942	58
2	469985	470028	470071	470114	470156	470199	57
3	470242	470285	470327	470370	470413	470456	56
4	470499	470541	470584	470627	470670	470712	55
5	470755	470798	470841	470884	470926	470969	54
6	471012	471055	471097	471140	471183	471226	53
7	471268	471311	471354	471397	471439	471482	52
8	471525	471568	471611	471653	471696	471739	51
9	471782	471824	471867	471909	471952	471995	50
10	1.472038	472081	472123	472166	472209	472252	49
11	472294	472337	472380	472423	472465	472508	48
12	472551	472593	472636	472679	472722	472764	47
13	472807	472850	472893	472935	472978	473021	46
14	473063	473106	473149	473192	473234	473277	45
15	473320	473362	473405	473448	473490	473533	44
16	473576	473619	473661	473704	473747	473789	43
17	473832	473875	473917	473960	474003	474046	42
18	474088	474131	474174	474216	474259	474302	41
19	474344	474387	474430	474472	474515	474558	40
20	1.474600	474643	474686	474728	474771	474814	39
21	474856	474899	474942	474984	475027	475070	38
22	475112	475155	475198	475240	475283	475326	37
23	475368	475411	475454	475496	475539	475582	36
24	475624	475667	475709	475752	475795	475837	35
25	475880	475923	475965	476008	476051	476093	34
26	476136	476179	476221	476264	476306	476349	33
27	476392	476434	476477	476520	476562	476605	32
28	476647	476690	476733	476775	476818	476860	31
29	476903	476946	476988	477031	477074	477116	30
30	1.477159	477201	477244	477287	477329	477372	29
31	477414	477457	477500	477542	477585	477627	28
32	477670	477713	477755	477798	477840	477883	27
33	477925	477968	478011	478053	478096	478138	26
34	478181	478224	478266	478309	478351	478394	25
35	478436	478479	478522	478564	478607	478649	24
36	478692	478734	478777	478820	478862	478905	23
37	478947	478990	479032	479075	479117	479160	22
38	479203	479245	479288	479330	479373	479415	21
39	479458	479500	479543	479585	479628	479671	20
40	1.479713	479756	479798	479841	479883	479926	19
41	479968	480011	480053	480096	480138	480181	18
42	480223	480266	480309	480351	480394	480436	17
43	480479	480521	480564	480606	480649	480691	16
44	480734	480776	480819	480861	480904	480946	15
45	480989	481031	481074	481116	481159	481201	14
46	481244	481286	481329	481371	481414	481456	13
47	481499	481541	481584	481626	481669	481711	12
48	481754	481796	481839	481881	481924	481966	11
49	482009	482051	482094	482136	482178	482221	10
50	1.482263	482306	482348	482391	482433	482476	9
51	482518	482561	482603	482646	482688	482731	8
52	482773	482815	482858	482900	482943	482985	7
53	483028	483070	483113	483155	483197	483240	6
54	483282	483325	483367	483410	483452	483495	5
55	483537	483579	483622	483664	483707	483749	4
56	483792	483834	483876	483919	483961	484004	3
57	484046	484089	484131	484173	484216	484258	2
58	484301	484343	484386	484428	484470	484513	1
59	484555	484598	484640	484682	484725	484767	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 61 degrees, or Natural Co-sine of 61 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	9	13	17	21	26	30	34	38

Versed Sine of 119 degrees, or Natural Sine of 29 degrees.

Minutes	0″	10″	20″	30″	40″	50″
0	1.484810	484852	484894	484937	484979	485022
1	485064	485106	485149	485191	485234	485276
2	485318	485361	485403	485446	485488	485530
3	485573	485615	485657	485700	485742	485785
4	485827	485869	485912	485954	485996	486039
5	486081	486124	486166	486208	486251	486293
6	486335	486378	486420	486462	486505	486547
7	486590	486632	486674	486717	486759	486801
8	486844	486886	486928	486971	487013	487055
9	487098	487140	487182	487225	487267	487309
10	1.487352	487394	487436	487479	487521	487563
11	487606	487648	487690	487733	487775	487817
12	487860	487902	487944	487987	488029	488071
13	488114	488156	488198	488240	488283	488325
14	488367	488410	488452	488494	488537	488579
15	488621	488663	488706	488748	488790	488833
16	488875	488917	488960	489002	489044	489086
17	489129	489171	489213	489256	489298	489340
18	489382	489425	489467	489509	489552	489594
19	489636	489678	489721	489763	489805	489847
20	1.489890	489932	489974	490017	490059	490101
21	490143	490186	490228	490270	490312	490355
22	490397	490439	490481	490524	490566	490608
23	490650	490693	490735	490777	490819	490862
24	490904	490946	490988	491030	491073	491115
25	491157	491199	491242	491284	491326	491368
26	491411	491453	491495	491537	491579	491622
27	491664	491706	491748	491790	491833	491875
28	491917	491959	492002	492044	492086	492128
29	492170	492213	492255	492297	492339	492381
30	1.492424	492466	492508	492550	492592	492635
31	492677	492719	492761	492803	492845	492888
32	492930	492972	493014	493056	493099	493141
33	493183	493225	493267	493309	493352	493394
34	493436	493478	493520	493562	493605	493647
35	493689	493731	493773	493815	493858	493900
36	493942	493984	494026	494068	494110	494153
37	494195	494237	494279	494321	494363	494405
38	494448	494490	494532	494574	494616	494658
39	494700	494743	494785	494827	494869	494911
40	1.494953	494995	495037	495080	495122	495164
41	495206	495248	495290	495332	495374	495417
42	495459	495501	495543	495585	495627	495669
43	495711	495753	495796	495838	495880	495922
44	495964	496006	496048	496090	496132	496174
45	496217	496259	496301	496343	496385	496427
46	496469	496511	496553	496595	496637	496679
47	496722	496764	496806	496848	496890	496932
48	496974	497016	497058	497100	497142	497184
49	497226	497268	497310	497353	497395	497437
50	1.497479	497521	497563	497605	497647	497689
51	497731	497773	497815	497857	497899	497941
52	497983	498025	498067	498109	498151	498194
53	498236	498278	498320	498362	498404	498446
54	498488	498530	498572	498614	498656	498698
55	498740	498782	498824	498866	498908	498950
56	498992	499034	499076	499118	499160	499202
57	499244	499286	499328	499370	499412	499454
58	499496	499538	499580	499622	499664	499706
59	499748	499790	499832	499874	499916	499958
Minutes	60″	50″	40″	30″	20″	10″

Versed Sine Supplement of 60 degrees, or Natural Co-sine of 60 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	13	17	21	25	29	34	38

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	Versed Sine of 120 degrees, or Natural Sine of 30 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.500000	500042	500084	500126	500168	500210	59
1	500252	500294	500336	500378	500420	500462	58
2	500504	500546	500588	500630	500672	500714	57
3	500756	500798	500839	500881	500923	500965	56
4	501007	501049	501091	501133	501175	501217	55
5	501259	501301	501343	501385	501427	501469	54
6	501511	501553	501595	501637	501679	501720	53
7	501762	501804	501846	501888	501930	501972	52
8	502014	502056	502098	502140	502182	502224	51
9	502266	502307	502349	502391	502433	502475	50
10	1.502517	502559	502601	502643	502685	502727	49
11	502769	502810	502852	502894	502936	502978	48
12	503020	503062	503104	503146	503188	503229	47
13	503271	503313	503355	503397	503439	503481	46
14	503523	503565	503606	503648	503690	503732	45
15	503774	503816	503858	503900	503941	503983	44
16	504025	504067	504109	504151	504193	504235	43
17	504276	504318	504360	504402	504444	504486	42
18	504528	504569	504611	504653	504695	504737	41
19	504779	504821	504862	504904	504946	504988	40
20	1.505030	505072	505114	505155	505197	505239	39
21	505281	505323	505365	505406	505448	505490	38
22	505532	505574	505616	505657	505699	505741	37
23	505783	505825	505866	505908	505950	505992	36
24	506034	506076	506117	506159	506201	506243	35
25	506285	506326	506368	506410	506452	506494	34
26	506535	506577	506619	506661	506703	506744	33
27	506786	506828	506870	506912	506953	506995	32
28	507037	507079	507121	507162	507204	507246	31
29	507288	507329	507371	507413	507455	507497	30
30	1.507538	507580	507622	507664	507705	507747	29
31	507789	507831	507872	507914	507956	507998	28
32	508040	508081	508123	508165	508207	508248	27
33	508290	508332	508374	508415	508457	508499	26
34	508541	508582	508624	508666	508708	508749	25
35	508791	508833	508874	508916	508958	509000	24
36	509041	509083	509125	509167	509208	509250	23
37	509292	509333	509375	509417	509459	509500	22
38	509542	509584	509626	509667	509709	509751	21
39	509792	509834	509876	509917	509959	510001	20
40	1.510043	510084	510126	510168	510209	510251	19
41	510293	510334	510376	510418	510460	510501	18
42	510543	510585	510626	510668	510710	510751	17
43	510793	510835	510876	510918	510960	511001	16
44	511043	511085	511126	511168	511210	511251	15
45	511293	511335	511376	511418	511460	511501	14
46	511543	511585	511626	511668	511710	511751	13
47	511793	511835	511876	511918	511960	512001	12
48	512043	512085	512126	512168	512209	512251	11
49	512293	512334	512376	512418	512459	512501	10
50	1.512543	512584	512626	512667	512709	512751	9
51	512792	512834	512875	512917	512958	513000	8
52	513042	513084	513125	513167	513208	513250	7
53	513292	513333	513375	513416	513458	513500	6
54	513541	513583	513624	513666	513708	513749	5
55	513791	513832	513874	513916	513957	513999	4
56	514040	514082	514124	514165	514207	514248	3
57	514290	514331	514373	514415	514456	514498	2
58	514539	514581	514622	514664	514706	514747	1
59	514789	514830	514872	514913	514955	514997	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 59 degrees, or Natural Co-sine of 59 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	13	17	21	25	29	34	38

Minutes	Versed Sine of 121 degrees, or Natural Sine of 31 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.515038	515080	515121	515163	515204	515246	59
1	515287	515329	515370	515412	515454	515495	58
2	515537	515578	515620	515661	515703	515744	57
3	515786	515827	515869	515910	515952	515994	56
4	516035	516077	516118	516160	516201	516243	55
5	516284	516326	516367	516409	516450	516492	54
6	516533	516575	516616	516658	516699	516741	53
7	516782	516824	516865	516907	516948	516990	52
8	517031	517073	517114	517156	517197	517239	51
9	517280	517322	517363	517405	517446	517488	50
10	1.517529	517571	517612	517654	517695	517737	49
11	517778	517820	517861	517903	517944	517986	48
12	518027	518068	518110	518151	518193	518234	47
13	518276	518317	518359	518400	518442	518483	46
14	518525	518566	518607	518649	518690	518732	45
15	518773	518815	518856	518898	518939	518980	44
16	519022	519063	519105	519146	519188	519229	43
17	519271	519312	519353	519395	519436	519478	42
18	519519	519561	519602	519643	519685	519726	41
19	519768	519809	519850	519892	519933	519975	40
20	1.520016	520058	520099	520140	520182	520223	39
21	520265	520306	520347	520389	520430	520472	38
22	520513	520554	520596	520637	520679	520720	37
23	520761	520803	520844	520885	520927	520968	36
24	521010	521051	521092	521134	521175	521217	35
25	521258	521299	521341	521382	521423	521465	34
26	521506	521547	521589	521630	521672	521713	33
27	521754	521796	521837	521878	521920	521961	32
28	522002	522044	522085	522126	522168	522209	31
29	522251	522292	522333	522375	522416	522457	30
30	1.522499	522540	522581	522623	522664	522705	29
31	522747	522788	522829	522871	522912	522953	28
32	522995	523036	523077	523118	523160	523201	27
33	523242	523284	523325	523366	523408	523449	26
34	523490	523532	523573	523614	523656	523697	25
35	523738	523779	523821	523862	523903	523945	24
36	523986	524027	524068	524110	524151	524192	23
37	524234	524275	524316	524357	524399	524440	22
38	524481	524523	524564	524605	524646	524688	21
39	524729	524770	524812	524853	524894	524935	20
40	1.524977	525018	525059	525100	525142	525183	19
41	525224	525265	525307	525348	525389	525430	18
42	525472	525513	525554	525595	525637	525678	17
43	525719	525760	525802	525843	525884	525925	16
44	525967	526008	526049	526090	526131	526173	15
45	526214	526255	526296	526338	526379	526420	14
46	526461	526502	526544	526585	526626	526667	13
47	526709	526750	526791	526832	526873	526915	12
48	526956	526997	527038	527079	527121	527162	11
49	527203	527244	527285	527327	527368	527409	10
50	1.527450	527491	527533	527574	527615	527656	9
51	527697	527738	527780	527821	527862	527903	8
52	527944	527986	528027	528068	528109	528150	7
53	528191	528233	528274	528315	528356	528397	6
54	528438	528479	528521	528562	528603	528644	5
55	528685	528726	528768	528809	528850	528891	4
56	528932	528973	529014	529056	529097	529138	3
57	529179	529220	529261	529302	529344	529385	2
58	529426	529467	529508	529549	529590	529631	1
59	529673	529714	529755	529796	529837	529878	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 58 degrees, or Natural Co-sine of 58 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	17	21	25	29	33	37

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 122 degrees, or Natural Sine of 32 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.529919	529960	530001	530043	530084	530125	59
1	530166	530207	530248	530289	530330	530371	58
2	530413	530454	530495	530536	530577	530618	57
3	530659	530700	530741	530782	530823	530865	56
4	530906	530947	530988	531029	531070	531111	55
5	531152	531193	531234	531275	531316	531358	54
6	531399	531440	531481	531522	531563	531604	53
7	531645	531686	531727	531768	531809	531850	52
8	531891	531932	531973	532014	532056	532097	51
9	532138	532179	532220	532261	532302	532343	50
10	1.532384	532425	532466	532507	532548	532589	49
11	532630	532671	532712	532753	532794	532835	48
12	532876	532917	532958	532999	533040	533081	47
13	533122	533163	533204	533245	533286	533327	46
14	533368	533409	533450	533491	533533	533574	45
15	533615	533656	533697	533738	533779	533819	44
16	533860	533901	533942	533983	534024	534065	43
17	534106	534147	534188	534229	534270	534311	42
18	534352	534393	534434	534475	534516	534557	41
19	534598	534639	534680	534721	534762	534803	40
20	1.534844	534885	534926	534967	535008	535049	39
21	535090	535131	535172	535213	535254	535295	38
22	535335	535376	535417	535458	535499	535540	37
23	535581	535622	535663	535704	535745	535786	36
24	535827	535868	535909	535950	535991	536031	35
25	536072	536113	536154	536195	536236	536277	34
26	536318	536359	536400	536441	536482	536522	33
27	536563	536604	536645	536686	536727	536768	32
28	536809	536850	536891	536932	536972	537013	31
29	537054	537095	537136	537177	537218	537259	30
30	1.537300	537340	537381	537422	537463	537504	29
31	537545	537586	537627	537668	537708	537749	28
32	537790	537831	537872	537913	537954	537995	27
33	538035	538076	538117	538158	538199	538240	26
34	538281	538321	538362	538403	538444	538485	25
35	538526	538567	538607	538648	538689	538730	24
36	538771	538812	538852	538893	538934	538975	23
37	539016	539057	539097	539138	539179	539220	22
38	539261	539302	539342	539383	539424	539465	21
39	539506	539547	539587	539628	539669	539710	20
40	1.539751	539791	539832	539873	539914	539955	19
41	539996	540036	540077	540118	540159	540200	18
42	540240	540281	540322	540363	540404	540444	17
43	540485	540526	540567	540607	540648	540689	16
44	540730	540771	540811	540852	540893	540934	15
45	540974	541015	541056	541097	541138	541178	14
46	541219	541260	541301	541341	541382	541423	13
47	541464	541504	541545	541586	541627	541667	12
48	541708	541749	541790	541830	541871	541912	11
49	541953	541993	542034	542075	542116	542156	10
50	1.542197	542238	542279	542319	542360	542401	9
51	542442	542482	542523	542564	542604	542645	8
52	542686	542727	542767	542808	542849	542889	7
53	542930	542971	543012	543052	543093	543134	6
54	543174	543215	543256	543297	543337	543378	5
55	543419	543459	543500	543541	543581	543622	4
56	543663	543704	543744	543785	543826	543866	3
57	543907	543948	543988	544029	544070	544110	2
58	544151	544192	544232	544273	544314	544354	1
59	544395	544436	544476	544517	544558	544598	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 57 degrees, or Natural Co-sine of 57 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	25	29	33	37

Versed Sine of 123 degrees, or Natural Sine of 33 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.544639	544680	544720	544761	544802	544842	59
1	544883	544924	544964	545005	545046	545086	58
2	545127	545168	545208	545249	545289	545330	57
3	545371	545411	545452	545493	545533	545574	56
4	545615	545655	545696	545736	545777	545818	55
5	545858	545899	545939	545980	546021	546061	54
6	546102	546143	546183	546224	546264	546305	53
7	546346	546386	546427	546467	546508	546549	52
8	546589	546630	546670	546711	546752	546792	51
9	546833	546873	546914	546955	546995	547036	50
10	1.547076	547117	547157	547198	547239	547279	49
11	547320	547360	547401	547442	547482	547523	48
12	547563	547604	547644	547685	547725	547766	47
13	547807	547847	547888	547928	547969	548009	46
14	548050	548090	548131	548172	548212	548253	45
15	548293	548334	548374	548415	548455	548496	44
16	548536	548577	548618	548658	548699	548739	43
17	548780	548820	548861	548901	548942	548982	42
18	549023	549063	549104	549144	549185	549225	41
19	549266	549306	549347	549387	549428	549468	40
20	1.549509	549549	549590	549630	549671	549711	39
21	549752	549792	549833	549873	549914	549954	38
22	549995	550035	550076	550116	550157	550197	37
23	550238	550278	550319	550359	550400	550440	36
24	550481	550521	550562	550602	550643	550683	35
25	550724	550764	550804	550845	550885	550926	34
26	550966	551007	551047	551088	551128	551169	33
27	551209	551250	551290	551330	551371	551411	32
28	551452	551492	551533	551573	551614	551654	31
29	551694	551735	551775	551816	551856	551897	30
30	1.551937	551977	552018	552058	552099	552139	29
31	552180	552220	552260	552301	552341	552382	28
32	552422	552462	552503	552543	552584	552624	27
33	552664	552705	552745	552786	552826	552866	26
34	552907	552947	552988	553028	553068	553109	25
35	553149	553190	553230	553270	553311	553351	24
36	553392	553432	553472	553513	553553	553593	23
37	553634	553674	553715	553755	553795	553836	22
38	553876	553916	553957	553997	554037	554078	21
39	554118	554159	554199	554239	554280	554320	20
40	1.554360	554401	554441	554481	554522	554562	19
41	554602	554643	554683	554723	554764	554804	18
42	554844	554885	554925	554965	555006	555046	17
43	555086	555127	555167	555207	555248	555288	16
44	555328	555369	555409	555449	555490	555530	15
45	555570	555611	555651	555691	555731	555772	14
46	555812	555852	555893	555933	555973	556014	13
47	556054	556094	556134	556175	556215	556255	12
48	556296	556336	556376	556416	556457	556497	11
49	556537	556578	556618	556658	556698	556739	10
50	1.556779	556819	556860	556900	556940	556980	9
51	557021	557061	557101	557141	557182	557222	8
52	557262	557302	557343	557383	557423	557463	7
53	557504	557544	557584	557624	557665	557705	6
54	557745	557785	557826	557866	557906	557946	5
55	557987	558027	558067	558107	558147	558188	4
56	558228	558268	558308	558349	558389	558429	3
57	558469	558509	558550	558590	558630	558670	2
58	558710	558751	558791	558831	558871	558912	1
59	558952	558992	559032	559072	559113	559153	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 56 degrees, or Natural Co-sine of 56 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	24	28	32	36

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 124 degrees, or Natural Sine of 34 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.559193	559233	559273	559313	559354	559394	59
1	559434	559474	559514	559555	559595	559635	58
2	559675	559715	559755	559796	559836	559876	57
3	559916	559956	559996	560037	560077	560117	56
4	560157	560197	560237	560278	560318	560358	55
5	560398	560438	560478	560519	560559	560599	54
6	560639	560679	560719	560759	560800	560840	53
7	560880	560920	560960	561000	561040	561081	52
8	561121	561161	561201	561241	561281	561321	51
9	561361	561402	561442	561482	561522	561562	50
10	1.561602	561642	561682	561722	561763	561803	49
11	561843	561883	561923	561963	562003	562043	48
12	562083	562123	562164	562204	562244	562284	47
13	562324	562364	562404	562444	562484	562524	46
14	562564	562604	562645	562685	562725	562765	45
15	562805	562845	562885	562925	562965	563005	44
16	563045	563085	563125	563166	563206	563246	43
17	563286	563326	563366	563406	563446	563486	42
18	563526	563566	563606	563646	563686	563726	41
19	563766	563806	563846	563886	563926	563967	40
20	1.564007	564047	564087	564127	564167	564207	39
21	564247	564287	564327	564367	564407	564447	38
22	564487	564527	564567	564607	564647	564687	37
23	564727	564767	564807	564847	564887	564927	36
24	564967	565007	565047	565087	565127	565167	35
25	565207	565247	565287	565327	565367	565407	34
26	565447	565487	565527	565567	565607	565647	33
27	565687	565727	565767	565807	565847	565887	32
28	565927	565967	566007	566047	566087	566127	31
29	566166	566206	566246	566286	566326	566366	30
30	1.566406	566446	566486	566526	566566	566606	29
31	566646	566686	566726	566766	566806	566846	28
32	566886	566926	566965	567005	567045	567085	27
33	567125	567165	567205	567245	567285	567325	26
34	567365	567405	567445	567485	567524	567564	25
35	567604	567644	567684	567724	567764	567804	24
36	567844	567884	567924	567963	568003	568043	23
37	568083	568123	568163	568203	568243	568283	22
38	568323	568362	568402	568442	568482	568522	21
39	568562	568602	568642	568681	568721	568761	20
40	1.568801	568841	568881	568921	568961	569000	19
41	569040	569080	569120	569160	569200	569240	18
42	569280	569319	569359	569399	569439	569479	17
43	569519	569559	569598	569638	569678	569718	16
44	569758	569798	569837	569877	569917	569957	15
45	569997	570037	570076	570116	570156	570196	14
46	570236	570276	570315	570355	570395	570435	13
47	570475	570514	570554	570594	570634	570674	12
48	570714	570753	570793	570833	570873	570913	11
49	570952	570992	571032	571072	571112	571151	10
50	1.571191	571231	571271	571311	571350	571390	9
51	571430	571470	571510	571549	571589	571629	8
52	571669	571708	571748	571788	571828	571868	7
53	571907	571947	571987	572027	572066	572106	6
54	572146	572186	572225	572265	572305	572345	5
55	572384	572424	572464	572504	572543	572583	4
56	572623	572663	572702	572742	572782	572822	3
57	572861	572901	572941	572981	573020	573060	2
58	573100	573140	573179	573219	573259	573298	1
59	573338	573378	573418	573457	573497	573537	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 55 degrees, or Natural Co-sine of 55 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	24	28	32	36

Versed Sine of 125 degrees, or Natural Sine of 35 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.573576	573616	573656	573696	573735	573775	59
1	573815	573854	573894	573934	573974	574013	58
2	574053	574093	574132	574172	574212	574251	57
3	574291	574331	574370	574410	574450	574489	56
4	574529	574569	574609	574648	574688	574728	55
5	574767	574807	574847	574886	574926	574966	54
6	575005	575045	575085	575124	575164	575204	53
7	575243	575283	575323	575362	575402	575441	52
8	575481	575521	575560	575600	575640	575679	51
9	575719	575759	575798	575838	575878	575917	50
10	1.575957	575996	576036	576076	576115	576155	49
11	576195	576234	576274	576313	576353	576393	48
12	576432	576472	576512	576551	576591	576630	47
13	576670	576710	576749	576789	576828	576868	46
14	576908	576947	576987	577026	577066	577106	45
15	577145	577185	577224	577264	577304	577343	44
16	577383	577422	577462	577501	577541	577581	43
17	577620	577660	577699	577739	577778	577818	42
18	577858	577897	577937	577976	578016	578055	41
19	578095	578135	578174	578214	578253	578293	40
20	1.578332	578372	578411	578451	578491	578530	39
21	578570	578609	578649	578688	578728	578767	38
22	578807	578846	578886	578925	578965	579005	37
23	579044	579084	579123	579163	579202	579242	36
24	579281	579321	579360	579400	579439	579479	35
25	579518	579558	579597	579637	579676	579716	34
26	579755	579795	579834	579874	579913	579953	33
27	579992	580032	580071	580111	580150	580190	32
28	580229	580269	580308	580348	580387	580427	31
29	580466	580506	580545	580585	580624	580663	30
30	1.580703	580742	580782	580821	580861	580900	29
31	580940	580979	581019	581058	581098	581137	28
32	581176	581216	581255	581295	581334	581374	27
33	581413	581453	581492	581532	581571	581610	26
34	581650	581689	581729	581768	581808	581847	25
35	581886	581926	581965	582005	582044	582084	24
36	582123	582162	582202	582241	582281	582320	23
37	582359	582399	582438	582478	582517	582557	22
38	582596	582635	582675	582714	582754	582793	21
39	582832	582872	582911	582950	582990	583029	20
40	1.583069	583108	583147	583187	583226	583266	19
41	583305	583344	583384	583423	583462	583502	18
42	583541	583581	583620	583659	583699	583738	17
43	583777	583817	583856	583895	583935	583974	16
44	584014	584053	584092	584132	584171	584210	15
45	584250	584289	584328	584368	584407	584446	14
46	584486	584525	584564	584604	584643	584682	13
47	584722	584761	584800	584840	584879	584918	12
48	584958	584997	585036	585076	585115	585154	11
49	585194	585233	585272	585312	585351	585390	10
50	1.585429	585469	585508	585547	585587	585626	9
51	585665	585705	585744	585783	585822	585862	8
52	585901	585940	585980	586019	586058	586097	7
53	586137	586176	586215	586255	586294	586333	6
54	586372	586412	586451	586490	586520	586569	5
55	586608	586647	586686	586726	586765	586804	4
56	586844	586883	586922	586961	587001	587040	3
57	587079	587118	587158	587197	587236	587275	2
58	587314	587354	587393	587432	587471	587511	1
59	587550	587589	587628	587668	587707	587746	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 54 degrees, or Natural Co-sine of 54 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	20	24	28	32	36

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	Versed Sine of 126 degrees, or Natural Sine of 36 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.587785	587824	587864	587903	587942	587981	59
1	588021	588060	588099	588138	588177	588217	58
2	588256	588295	588334	588373	588413	588452	57
3	588491	588530	588569	588609	588648	588687	56
4	588726	588765	588805	588844	588883	588922	55
5	588961	589000	589040	589079	589118	589157	54
6	589196	589236	589275	589314	589353	589392	53
7	589431	589471	589510	589549	589588	589627	52
8	589666	589705	589745	589784	589823	589862	51
9	589901	589940	589980	590019	590058	590097	50
10	1.590136	590175	590214	590254	590293	590332	49
11	590371	590410	590449	590488	590527	590567	48
12	590606	590645	590684	590723	590762	590801	47
13	590840	590879	590919	590958	590997	591036	46
14	591075	591114	591153	591192	591231	591271	45
15	591310	591349	591388	591427	591466	591505	44
16	591544	591583	591622	591661	591701	591740	43
17	591779	591818	591857	591896	591935	591974	42
18	592013	592052	592091	592130	592169	592209	41
19	592248	592287	592326	592365	592404	592443	40
20	1.592482	592521	592560	592599	592638	592677	39
21	592716	592755	592794	592833	592872	592911	38
22	592951	592990	593029	593068	593107	593146	37
23	593185	593224	593263	593302	593341	593380	36
24	593419	593458	593497	593536	593575	593614	35
25	593653	593692	593731	593770	593809	593848	34
26	593887	593926	593965	594004	594043	594082	33
27	594121	594160	594199	594238	594277	594316	32
28	594355	594394	594433	594472	594511	594550	31
29	594589	594628	594667	594706	594745	594784	30
30	1.594823	594862	594901	594940	594979	595018	29
31	595057	595096	595135	595173	595212	595251	28
32	595290	595329	595368	595407	595446	595485	27
33	595524	595563	595602	595641	595680	595719	26
34	595758	595797	595836	595875	595913	595952	25
35	595991	596030	596069	596108	596147	596186	24
36	596225	596264	596303	596342	596381	596419	23
37	596458	596497	596536	596575	596614	596653	22
38	596692	596731	596770	596809	596847	596886	21
39	596925	596964	597003	597042	597081	597120	20
40	1.597159	597197	597236	597275	597314	597353	19
41	597392	597431	597470	597509	597547	597586	18
42	597625	597664	597703	597742	597781	597819	17
43	597858	597897	597936	597975	598014	598053	16
44	598092	598130	598169	598208	598247	598286	15
45	598325	598363	598402	598441	598480	598519	14
46	598558	598596	598635	598674	598713	598752	13
47	598791	598829	598868	598907	598946	598985	12
48	599024	599062	599101	599140	599179	599218	11
49	599256	599295	599334	599373	599412	599451	10
50	1.599489	599528	599567	599606	599645	599683	9
51	599722	599761	599800	599839	599877	599916	8
52	599955	599994	600032	600071	600110	600149	7
53	600188	600226	600265	600304	600343	600381	6
54	600420	600459	600498	600537	600575	600614	5
55	600653	600692	600730	600769	600808	600847	4
56	600885	600924	600963	601002	601040	601079	3
57	601118	601157	601195	601234	601273	601312	2
58	601350	601389	601428	601466	601505	601544	1
59	601583	601621	601660	601699	601738	601776	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 53 degrees, or Natural Co-sine of 53 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	16	19	23	27	31	35

Minutes	Versed Sine of 127 degrees, or Natural Sine of 37 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.601815	601854	601892	601931	601970	602009	59
1	602047	602086	602125	602163	602202	602241	58
2	602280	602318	602357	602396	602434	602473	57
3	602512	602550	602589	602628	602666	602705	56
4	602744	602783	602821	602860	602899	602937	55
5	602976	603015	603053	603092	603131	603169	54
6	603208	603247	603285	603324	603363	603401	53
7	603440	603479	603517	603556	603595	603633	52
8	603672	603711	603749	603788	603826	603865	51
9	603904	603942	603981	604020	604058	604097	50
10	1.604136	604174	604213	604252	604290	604329	49
11	604367	604406	604445	604483	604522	604560	48
12	604599	604638	604676	604715	604754	604792	47
13	604831	604869	604908	604947	604985	605024	46
14	605062	605101	605140	605178	605217	605255	45
15	605294	605332	605371	605410	605448	605487	44
16	605526	605564	605603	605641	605680	605718	43
17	605757	605796	605834	605873	605911	605950	42
18	605988	606027	606066	606104	606143	606181	41
19	606220	606258	606297	606335	606374	606413	40
20	1.606451	606490	606528	606567	606605	606644	39
21	606682	606721	606759	606798	606836	606875	38
22	606914	606952	606991	607029	607068	607106	37
23	607145	607183	607222	607260	607299	607337	36
24	607376	607414	607453	607491	607530	607568	35
25	607607	607645	607684	607722	607761	607799	34
26	607838	607876	607915	607953	607992	608030	33
27	608069	608107	608146	608184	608223	608261	32
28	608300	608338	608377	608415	608454	608492	31
29	608531	608569	608608	608646	608685	608723	30
30	1.608761	608800	608838	608877	608915	608954	29
31	608992	609031	609069	609108	609146	609184	28
32	609223	609261	609300	609338	609377	609415	27
33	609454	609492	609530	609569	609607	609646	26
34	609684	609723	609761	609799	609838	609876	25
35	609915	609953	609992	610030	610068	610107	24
36	610145	610184	610222	610260	610299	610337	23
37	610376	610414	610452	610491	610529	610568	22
38	610606	610644	610683	610721	610760	610798	21
39	610836	610875	610913	610951	610990	611028	20
40	1.611067	611105	611143	611182	611220	611258	19
41	611297	611335	611374	611412	611450	611489	18
42	611527	611565	611604	611642	611680	611719	17
43	611757	611796	611834	611872	611911	611949	16
44	611987	612026	612064	612102	612141	612179	15
45	612217	612256	612294	612332	612371	612409	14
46	612447	612486	612524	612562	612601	612639	13
47	612677	612715	612754	612792	612830	612869	12
48	612907	612945	612984	613022	613060	613099	11
49	613137	613175	613213	613252	613290	613328	10
50	1.613367	613405	613443	613482	613520	613558	9
51	613596	613635	613673	613711	613749	613788	8
52	613826	613864	613903	613941	613979	614017	7
53	614056	614094	614132	614170	614209	614247	6
54	614285	614323	614362	614400	614438	614476	5
55	614515	614553	614591	614629	614668	614706	4
56	614744	614782	614821	614859	614897	614935	3
57	614974	615012	615050	615088	615126	615165	2
58	615203	615241	615279	615318	615356	615394	1
59	615432	615470	615509	615547	615585	615623	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 52 degrees, or Natural Co-sine of 52 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	12	15	19	23	27	31	35

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 128 degrees, or Natural Sine of 38 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.615661	615700	615738	615776	615814	615852	59
1	615891	615929	615967	616005	616043	616082	58
2	616120	616158	616196	616234	616273	616311	57
3	616349	616387	616425	616463	616502	616540	56
4	616578	616616	616654	616692	616731	616769	55
5	616807	616845	616883	616921	616960	616998	54
6	617036	617074	617112	617150	617188	617227	53
7	617265	617303	617341	617379	617417	617455	52
8	617494	617532	617570	617608	617646	617684	51
9	617722	617760	617799	617837	617875	617913	50
10	1.617951	617989	618027	618065	618104	618142	49
11	618180	618218	618256	618294	618332	618370	48
12	618408	618446	618485	618523	618561	618599	47
13	618637	618675	618713	618751	618789	618827	46
14	618865	618904	618942	618980	619018	619056	45
15	619094	619132	619170	619208	619246	619284	44
16	619322	619361	619399	619437	619475	619513	43
17	619551	619589	619627	619665	619703	619741	42
18	619779	619817	619855	619893	619931	619969	41
19	620007	620045	620083	620121	620159	620197	40
20	1.620235	620274	620312	620350	620388	620426	39
21	620464	620502	620540	620578	620616	620654	38
22	620692	620730	620768	620806	620844	620882	37
23	620920	620958	620996	621034	621072	621110	36
24	621148	621186	621224	621262	621300	621338	35
25	621376	621414	621452	621490	621528	621566	34
26	621604	621642	621680	621718	621756	621793	33
27	621831	621869	621907	621945	621983	622021	32
28	622059	622097	622135	622173	622211	622249	31
29	622287	622325	622363	622401	622439	622477	30
30	1.622515	622553	622591	622628	622666	622704	29
31	622742	622780	622818	622856	622894	622932	28
32	622970	623008	623046	623084	623122	623159	27
33	623197	623235	623273	623311	623349	623387	26
34	623425	623463	623501	623539	623576	623614	25
35	623652	623690	623728	623766	623804	623842	24
36	623880	623917	623955	623993	624031	624069	23
37	624107	624145	624183	624221	624258	624296	22
38	624334	624372	624410	624448	624486	624524	21
39	624561	624599	624637	624675	624713	624751	20
40	1.624789	624826	624864	624902	624940	624978	19
41	625016	625053	625091	625129	625167	625205	18
42	625243	625280	625318	625356	625394	625432	17
43	625470	625507	625545	625583	625621	625659	16
44	625697	625734	625772	625810	625848	625886	15
45	625923	625961	625999	626037	626075	626113	14
46	626150	626188	626226	626264	626301	626339	13
47	626377	626415	626453	626490	626528	626566	12
48	626604	626642	626679	626717	626755	626793	11
49	626830	626868	626906	626944	626982	627019	10
50	1.627057	627095	627133	627170	627208	627246	9
51	627284	627321	627359	627397	627435	627472	8
52	627510	627548	627586	627623	627661	627699	7
53	627737	627774	627812	627850	627888	627925	6
54	627963	628001	628039	628076	628114	628152	5
55	628189	628227	628265	628303	628340	628378	4
56	628416	628453	628491	628529	628567	628604	3
57	628642	628680	628717	628755	628793	628830	2
58	628868	628906	628944	628981	629019	629056	1
59	629094	629132	629170	629207	629245	629282	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 51 degrees, or Natural Co-sine of 51 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	8	11	15	19	23	27	30	34

Versed Sine of 129 degrees, or Natural Sine of 39 degrees.

Minutes	0′	10′	20′	30′	40′	50′	Minutes
0	1.629320	629358	629396	629433	629471	629509	59
1	629546	629584	629622	629659	629697	629735	58
2	629772	629810	629848	629885	629923	629961	57
3	629998	630036	630074	630111	630149	630187	56
4	630224	630262	630299	630337	630375	630412	55
5	630450	630488	630525	630563	630601	630638	54
6	630676	630713	630751	630789	630826	630864	53
7	630902	630939	630977	631014	631052	631090	52
8	631127	631165	631202	631240	631278	631315	51
9	631353	631390	631428	631466	631503	631541	50
10	1.631578	631616	631654	631691	631729	631766	49
11	631804	631841	631879	631916	631954	631992	48
12	632029	632067	632104	632142	632180	632217	47
13	632255	632292	632330	632367	632405	632442	46
14	632480	632518	632555	632593	632630	632668	45
15	632705	632743	632780	632818	632855	632893	44
16	632931	632968	633006	633043	633081	633118	43
17	633156	633193	633231	633268	633306	633343	42
18	633381	633418	633456	633493	633531	633568	41
19	633606	633643	633681	633718	633756	633793	40
20	1.633831	633868	633905	633943	633981	634018	39
21	634056	634093	634131	634168	634206	634243	38
22	634281	634318	634356	634393	634431	634468	37
23	634506	634543	634581	634618	634656	634693	36
24	634731	634768	634805	634843	634880	634918	35
25	634955	634993	635030	635068	635105	635143	34
26	635180	635217	635255	635292	635330	635367	33
27	635405	635442	635479	635517	635554	635592	32
28	635629	635667	635704	635741	635779	635816	31
29	635854	635891	635929	635966	636003	636041	30
30	1.636078	636116	636153	636190	636228	636265	29
31	636303	636340	636377	636415	636452	636490	28
32	636527	636564	636602	636639	636677	636714	27
33	636751	636789	636826	636863	636901	636938	26
34	636976	637013	637050	637088	637125	637162	25
35	637200	637237	637275	637312	637349	637387	24
36	637424	637461	637499	637536	637573	637611	23
37	637648	637685	637723	637760	637797	637835	22
38	637872	637909	637947	637984	638021	638059	21
39	638096	638133	638171	638208	638245	638283	20
40	1.638320	638357	638395	638432	638469	638507	19
41	638544	638581	638619	638656	638693	638731	18
42	638768	638805	638842	638880	638917	638954	17
43	638992	639029	639066	639103	639141	639178	16
44	639215	639253	639290	639327	639364	639402	15
45	639439	639476	639514	639551	639588	639625	14
46	639663	639700	639737	639774	639812	639849	13
47	639886	639923	639961	639998	640035	640072	12
48	640110	640147	640184	640221	640259	640296	11
49	640333	640370	640408	640445	640482	640519	10
50	1.640557	640594	640631	640668	640705	640743	9
51	640780	640817	640854	640892	640929	640966	8
52	641003	641040	641078	641115	641152	641189	7
53	641226	641264	641301	641338	641375	641412	6
54	641450	641487	641524	641561	641598	641636	5
55	641673	641710	641747	641784	641821	641859	4
56	641896	641933	641970	642007	642045	642082	3
57	642119	642156	642193	642230	642268	642305	2
58	642342	642379	642416	642453	642490	642528	1
59	642565	642602	642639	642676	642713	642750	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 50 degrees, or Natural Co-sine of 50 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9
	4	7	11	15	19	22	26	30	34

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 130 degrees, or Natural Sine of 40 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.642788	642825	642862	642899	642936	642973	59
1	643011	643048	643085	643122	643159	643196	58
2	643233	643270	643307	643345	643382	643419	57
3	643456	643493	643530	643567	643604	643641	56
4	643679	643716	643753	643790	643827	643864	55
5	643901	643938	643975	644012	644049	644087	54
6	644124	644161	644198	644235	644272	644309	53
7	644346	644383	644420	644457	644494	644531	52
8	644569	644606	644643	644680	644717	644754	51
9	644791	644828	644865	644902	644939	644976	50
10	1.645013	645050	645087	645124	645161	645198	49
11	645236	645273	645310	645347	645384	645421	48
12	645458	645495	645532	645569	645606	645643	47
13	645680	645717	645754	645791	645828	645865	46
14	645902	645939	645976	646013	646050	646087	45
15	646124	646161	646198	646235	646272	646309	44
16	646346	646383	646420	646457	646494	646531	43
17	646568	646605	646642	646679	646716	646753	42
18	646790	646827	646864	646901	646938	646975	41
19	647012	647049	647086	647122	647159	647196	40
20	1.647233	647270	647307	647344	647381	647418	39
21	647455	647492	647529	647566	647603	647640	38
22	647677	647714	647751	647788	647824	647861	37
23	647898	647935	647972	648009	648046	648083	36
24	648120	648157	648194	648231	648268	648304	35
25	648341	648378	648415	648452	648489	648526	34
26	648563	648600	648637	648674	648710	648747	33
27	648784	648821	648858	648895	648932	648969	32
28	649006	649042	649079	649116	649153	649190	31
29	649227	649264	649301	649337	649374	649411	30
30	1.649448	649485	649522	649559	649595	649632	29
31	649669	649706	649743	649780	649817	649853	28
32	649890	649927	649964	650001	650038	650075	27
33	650111	650148	650185	650222	650259	650296	26
34	650332	650369	650406	650443	650480	650517	25
35	650553	650590	650627	650664	650701	650737	24
36	650774	650811	650848	650885	650921	650958	23
37	650995	651032	651069	651105	651142	651179	22
38	651216	651253	651289	651326	651363	651400	21
39	651437	651473	651510	651547	651584	651620	20
40	1.651657	651694	651731	651768	651804	651841	19
41	651878	651915	651951	651988	652025	652062	18
42	652098	652135	652172	652209	652245	652282	17
43	652319	652356	652392	652429	652466	652503	16
44	652539	652576	652613	652650	652686	652723	15
45	652760	652796	652833	652870	652907	652943	14
46	652980	653017	653054	653090	653127	653164	13
47	653200	653237	653274	653310	653347	653384	12
48	653421	653457	653494	653531	653567	653604	11
49	653641	653677	653714	653751	653788	653824	10
50	1.653861	653898	653934	653971	654008	654044	9
51	654081	654118	654154	654191	654228	654264	8
52	654301	654338	654374	654411	654448	654484	7
53	654521	654558	654594	654631	654668	654704	6
54	654741	654777	654814	654851	654887	654924	5
55	654961	654997	655034	655071	655107	655144	4
56	655180	655217	655254	655290	655327	655364	3
57	655400	655437	655473	655510	655547	655583	2
58	655620	655656	655693	655730	655766	655803	1
59	655839	655876	655913	655949	655986	656022	0
Minutes	60″	50″	40″	30″	20	10″	Minutes

Versed Sine Supplement of 49 degrees, or Natural Co-sine of 49 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	15	18	22	26	29	33

Versed Sine of 131 degrees, or Natural Sine of 41 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.656059	656096	656132	656169	656205	656242	59
1	656279	656315	656352	656388	656425	656461	58
2	656498	656535	656571	656608	656644	656681	57
3	656717	656754	656791	656827	656864	656900	56
4	656937	656973	657010	657046	657083	657119	55
5	657156	657193	657229	657266	657302	657339	54
6	657375	657412	657448	657485	657521	657558	53
7	657594	657631	657667	657704	657741	657777	52
8	657814	657850	657887	657923	657960	657996	51
9	658033	658069	658106	658142	658179	658215	50
10	1.658252	658288	658325	658361	658398	658434	49
11	658471	658507	658544	658580	658617	658653	48
12	658689	658726	658762	658799	658835	658872	47
13	658908	658945	658981	659018	659054	659091	46
14	659127	659164	659200	659236	659273	659309	45
15	659346	659382	659419	659455	659492	659528	44
16	659565	659601	659637	659674	659710	659747	43
17	659783	659820	659856	659892	659929	659965	42
18	660002	660038	660075	660111	660147	660184	41
19	660220	660257	660293	660329	660366	660402	40
20	1.660439	660475	660511	660548	660584	660621	39
21	660657	660693	660730	660766	660803	660839	38
22	660875	660912	660948	660985	661021	661057	37
23	661094	661130	661166	661203	661239	661275	36
24	661312	661348	661385	661421	661457	661494	35
25	661530	661566	661603	661639	661675	661712	34
26	661748	661784	661821	661857	661894	661930	33
27	661966	662003	662039	662075	662112	662148	32
28	662184	662221	662257	662293	662330	662366	31
29	662402	662438	662475	662511	662547	662584	30
30	1.662620	662656	662693	662729	662765	662802	29
31	662838	662874	662910	662947	662983	663019	28
32	663056	663092	663128	663165	663201	663237	27
33	663273	663310	663346	663382	663418	663455	26
34	663491	663527	663564	663600	663636	663672	25
35	663709	663745	663781	663817	663854	663890	24
36	663926	663962	663999	664035	664071	664107	23
37	664144	664180	664216	664252	664289	664325	22
38	664361	664397	664434	664470	664506	664542	21
39	664579	664615	664651	664687	664723	664760	20
40	1.664796	664832	664868	664905	664941	664977	19
41	665013	665049	665086	665122	665158	665194	18
42	665230	665267	665303	665339	665375	665411	17
43	665448	665484	665520	665556	665592	665628	16
44	665665	665701	665737	665773	665809	665845	15
45	665882	665918	665954	665990	666026	666062	14
46	666099	666135	666171	666207	666243	666279	13
47	666316	666352	666388	666424	666460	666496	12
48	666532	666569	666605	666641	666677	666713	11
49	666749	666785	666822	666858	666894	666930	10
50	1.666966	667002	667038	667074	667111	667147	9
51	667183	667219	667255	667291	667327	667363	8
52	667399	667436	667472	667508	667544	667580	7
53	667616	667652	667688	667724	667760	667796	6
54	667833	667869	667905	667941	667977	668013	5
55	668049	668085	668121	668157	668193	668229	4
56	668265	668302	668338	668374	668410	668446	3
57	668482	668518	668554	668590	668626	668662	2
58	668698	668734	668770	668806	668842	668878	1
59	668914	668950	668986	669023	669059	669095	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 48 degrees, or Natural Co-sine of 48 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	15	18	22	26	29	33

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 132 degrees, or Natural Sine of 42 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.669131	669167	669203	669239	669275	669311	59
1	669347	669383	669419	669455	669491	669527	58
2	669563	669599	669635	669671	669707	669743	57
3	669779	669815	669851	669887	669923	669959	56
4	669995	670031	670067	670103	670139	670175	55
5	670211	670247	670283	670319	670355	670391	54
6	670427	670463	670499	670535	670570	670606	53
7	670642	670678	670714	670750	670786	670822	52
8	670858	670894	670930	670966	671002	671038	51
9	671074	671110	671146	671182	671218	671254	50
10	1.671289	671325	671361	671397	671433	671469	49
11	671505	671541	671577	671613	671649	671685	48
12	671721	671757	671792	671828	671864	671900	47
13	671936	671972	672008	672044	672080	672116	46
14	672151	672187	672223	672259	672295	672331	45
15	672367	672403	672439	672474	672510	672546	44
16	672582	672618	672654	672690	672726	672761	43
17	672797	672833	672869	672905	672941	672977	42
18	673013	673048	673084	673120	673156	673192	41
19	673228	673263	673299	673335	673371	673407	40
20	1.673443	673479	673514	673550	673586	673622	39
21	673658	673694	673729	673765	673801	673837	38
22	673873	673908	673944	673980	674016	674052	37
23	674088	674123	674159	674195	674231	674267	36
24	674302	674338	674374	674410	674446	674481	35
25	674517	674553	674589	674625	674660	674696	34
26	674732	674768	674803	674839	674875	674911	33
27	674947	674982	675018	675054	675090	675125	32
28	675161	675197	675233	675268	675304	675340	31
29	675376	675411	675447	675483	675519	675554	30
30	1.675590	675626	675662	675697	675733	675769	29
31	675805	675840	675876	675912	675948	675983	28
32	676019	676055	676090	676126	676162	676198	27
33	676233	676269	676305	676340	676376	676412	26
34	676448	676483	676519	676555	676590	676626	25
35	676662	676698	676733	676769	676805	676840	24
36	676876	676912	676947	676983	677019	677054	23
37	677090	677126	677161	677197	677233	677268	22
38	677304	677340	677376	677411	677447	677482	21
39	677518	677554	677589	677625	677661	677696	20
40	1.677732	677768	677803	677839	677875	677910	19
41	677946	677982	678017	678053	678088	678124	18
42	678160	678195	678231	678267	678302	678338	17
43	678373	678409	678445	678480	678516	678552	16
44	678587	678623	678658	678694	678730	678765	15
45	678801	678836	678872	678908	678943	678979	14
46	679014	679050	679086	679121	679157	679192	13
47	679228	679263	679299	679335	679370	679406	12
48	679441	679477	679512	679548	679584	679619	11
49	679655	679690	679726	679761	679797	679833	10
50	1.679868	679904	679939	679975	680010	680046	9
51	680081	680117	680152	680188	680224	680259	8
52	680295	680330	680366	680401	680437	680472	7
53	680508	680543	680579	680614	680650	680685	6
54	680721	680756	680792	680827	680863	680898	5
55	680934	680969	681005	681040	681076	681111	4
56	681147	681182	681218	681253	681289	681324	3
57	681360	681395	681431	681466	681502	681537	2
58	681573	681608	681644	681679	681715	681750	1
59	681786	681821	681857	681892	681927	681963	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 47 degrees, or Natural Co-sine of 47 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	14	18	21	25	29	32

Versed Sine of 133 degrees, or Natural Sine of 43 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.681998	682034	682069	682105	682140	682176	59
1	682211	682247	682282	682317	682353	682388	58
2	682424	682459	682495	682530	682565	682601	57
3	682636	682672	682707	682743	682778	682813	56
4	682849	682884	682920	682955	682991	683026	55
5	683061	683097	683132	683168	683203	683238	54
6	683274	683309	683345	683380	683415	683451	53
7	683486	683522	683557	683592	683628	683663	52
8	683698	683734	683769	683805	683840	683875	51
9	683911	683946	683981	684017	684052	684088	50
10	1.684123	684158	684194	684229	684264	684300	49
11	684335	684370	684406	684441	684476	684512	48
12	684547	684582	684618	684653	684688	684724	47
13	684759	684794	684830	684865	684900	684936	46
14	684971	685006	685042	685077	685112	685148	45
15	685183	685218	685254	685289	685324	685360	44
16	685395	685430	685465	685501	685536	685571	43
17	685607	685642	685677	685712	685748	685783	42
18	685818	685854	685889	685924	685959	685995	41
19	686030	686065	686101	686136	686171	686206	40
20	1.686242	686277	686312	686347	686383	686418	39
21	686453	686488	686524	686559	686594	686629	38
22	686665	686700	686735	686770	686806	686841	37
23	686876	686911	686947	686982	687017	687052	36
24	687088	687123	687158	687193	687228	687264	35
25	687299	687334	687369	687404	687440	687475	34
26	687510	687545	687581	687616	687651	687686	33
27	687721	687757	687792	687827	687862	687897	32
28	687932	687968	688003	688038	688073	688108	31
29	688144	688179	688214	688249	688284	688319	30
30	1.688355	688390	688425	688460	688495	688530	29
31	688566	688601	688636	688671	688706	688741	28
32	688776	688812	688847	688882	688917	688952	27
33	688987	689022	689058	689093	689128	689163	26
34	689198	689233	689268	689303	689339	689374	25
35	689409	689444	689479	689514	689549	689584	24
36	689620	689655	689690	689725	689760	689795	23
37	689830	689865	689900	689935	689971	690006	22
38	690041	690076	690111	690146	690181	690216	21
39	690251	690286	690321	690356	690392	690427	20
40	1.690462	690497	690532	690567	690602	690637	19
41	690672	690707	690742	690777	690812	690847	18
42	690882	690917	690953	690988	691023	691058	17
43	691093	691128	691163	691198	691233	691268	16
44	691303	691338	691373	691408	691443	691478	15
45	691513	691548	691583	691618	691653	691688	14
46	691723	691758	691793	691828	691863	691898	13
47	691933	691968	692003	692038	692073	692108	12
48	692143	692178	692213	692248	692283	692318	11
49	692353	692388	692423	692458	692493	692528	10
50	1.692563	692598	692633	692668	692703	692738	9
51	692773	692808	692843	692878	692913	692948	8
52	692983	693017	693052	693087	693122	693157	7
53	693192	693227	693262	693297	693332	693367	6
54	693402	693437	693472	693507	693542	693576	5
55	693611	693646	693681	693716	693751	693786	4
56	693821	693856	693891	693926	693961	693995	3
57	694030	694065	694100	694135	694170	694205	2
58	694240	694275	694310	694344	694379	694414	1
59	694449	694484	694519	694554	694589	694623	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 46 degrees, or Natural Co-sine of 46 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	4	7	11	14	18	21	25	28	32

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 134 degrees, or Natural Sine of 44 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.694658	694693	694728	694763	694798	694833	59
1	694868	694902	694937	694972	695007	695042	58
2	695077	695112	695146	695181	695216	695251	57
3	695286	695321	695356	695390	695425	695460	56
4	695495	695530	695565	695599	695634	695669	55
5	695704	695739	695774	695808	695843	695878	54
6	695913	695948	695982	696017	696052	696087	53
7	696122	696156	696191	696226	696261	696296	52
8	696330	696365	696400	696435	696470	696504	51
9	696539	696574	696609	696644	696678	696713	50
10	1.696748	696783	696817	696852	696887	696922	49
11	696957	696991	697026	697061	697096	697130	48
12	697165	697200	697235	697269	697304	697339	47
13	697374	697408	697443	697478	697513	697547	46
14	697582	697617	697652	697686	697721	697756	45
15	697790	697825	697860	697895	697929	697964	44
16	697999	698034	698068	698103	698138	698172	43
17	698207	698242	698276	698311	698346	698381	42
18	698415	698450	698485	698519	698554	698589	41
19	698623	698658	698693	698727	698762	698797	40
20	1.698832	698866	698901	698936	698970	699005	39
21	699040	699074	699109	699144	699178	699213	38
22	699248	699282	699317	699352	699386	699421	37
23	699455	699490	699525	699559	699594	699629	36
24	699663	699698	699733	699767	699802	699837	35
25	699871	699906	699940	699975	700010	700044	34
26	700079	700114	700148	700183	700217	700252	33
27	700287	700321	700356	700390	700425	700460	32
28	700494	700529	700563	700598	700633	700667	31
29	700702	700736	700771	700806	700840	700875	30
30	1.700909	700944	700978	701013	701048	701082	29
31	701117	701151	701186	701220	701255	701290	28
32	701324	701359	701393	701428	701462	701497	27
33	701531	701566	701601	701635	701670	701704	26
34	701739	701773	701808	701842	701877	701911	25
35	701946	701980	702015	702049	702084	702119	24
36	702153	702188	702222	702257	702291	702326	23
37	702360	702395	702429	702464	702498	702533	22
38	702567	702602	702636	702671	702705	702740	21
39	702774	702809	702843	702878	702912	702947	20
40	1.702981	703016	703050	703084	703119	703153	19
41	703188	703222	703257	703291	703326	703360	18
42	703395	703429	703464	703498	703533	703567	17
43	703601	703636	703670	703705	703739	703774	16
44	703808	703843	703877	703911	703946	703980	15
45	704015	704049	704084	704118	704152	704187	14
46	704221	704256	704290	704325	704359	704393	13
47	704428	704462	704497	704531	704565	704600	12
48	704634	704669	704703	704737	704772	704806	11
49	704841	704875	704909	704944	704978	705013	10
50	1.705047	705081	705116	705150	705184	705219	9
51	705253	705288	705322	705356	705391	705425	8
52	705459	705494	705528	705562	705597	705631	7
53	705665	705700	705734	705769	705803	705837	6
54	705872	705906	705940	705975	706009	706043	5
55	706078	706112	706146	706181	706215	706249	4
56	706284	706318	706352	706387	706421	706455	3
57	706489	706524	706558	706592	706627	706661	2
58	706695	706730	706764	706798	706832	706867	1
59	706921	706935	706970	707004	707038	707072	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 45 degrees, or Natural Co-sine of 45 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	14	17	21	24	28	31

Versed Sine of 135 degrees, or Natural Sine of 45 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.707107	707141	707175	707210	707244	707278	59
1	707312	707347	707381	707415	707450	707484	58
2	707518	707552	707587	707621	707655	707689	57
3	707723	707758	707792	707826	707861	707895	56
4	707929	707963	707998	708032	708066	708100	55
5	708134	708169	708203	708237	708271	708306	54
6	708340	708374	708408	708442	708477	708511	53
7	708545	708579	708614	708648	708682	708716	52
8	708750	708785	708819	708853	708887	708921	51
9	708956	708990	709024	709058	709092	709126	50
10	1.709161	709195	709229	709263	709297	709332	49
11	709366	709400	709434	709468	709502	709537	48
12	709571	709605	709639	709673	709707	709742	47
13	709776	709810	709844	709878	709912	709946	46
14	709981	710015	710049	710083	710117	710151	45
15	710185	710220	710254	710288	710322	710356	44
16	710390	710424	710458	710492	710527	710561	43
17	710595	710629	710663	710697	710731	710765	42
18	710799	710834	710868	710902	710936	710970	41
19	711004	711038	711072	711106	711140	711174	40
20	1.711209	711243	711277	711311	711345	711379	39
21	711413	711447	711481	711515	711549	711583	38
22	711617	711651	711686	711720	711754	711788	37
23	711822	711856	711890	711924	711958	711992	36
24	712026	712060	712094	712128	712162	712196	35
25	712230	712264	712298	712332	712366	712400	34
26	712434	712468	712502	712536	712570	712605	33
27	712639	712673	712707	712741	712775	712809	32
28	712843	712877	712911	712945	712979	713013	31
29	713047	713081	713115	713148	713182	713216	30
30	1.713250	713284	713318	713352	713386	713420	29
31	713454	713488	713522	713556	713590	713624	28
32	713658	713692	713726	713760	713794	713828	27
33	713862	713896	713930	713964	713998	714032	26
34	714066	714099	714133	714167	714201	714235	25
35	714269	714303	714337	714371	714405	714439	24
36	714473	714507	714541	714574	714608	714642	23
37	714676	714710	714744	714778	714812	714846	22
38	714880	714914	714947	714981	715015	715049	21
39	715083	715117	715151	715185	715219	715252	20
40	1.715286	715320	715354	715388	715422	715456	19
41	715490	715523	715557	715591	715625	715659	18
42	715693	715727	715760	715794	715828	715862	17
43	715896	715930	715964	715997	716031	716065	16
44	716099	716133	716167	716200	716234	716268	15
45	716302	716336	716370	716403	716437	716471	14
46	716505	716539	716573	716606	716640	716674	13
47	716708	716742	716775	716809	716843	716877	12
48	716911	716944	716978	717012	717046	717080	11
49	717113	717147	717181	717215	717249	717282	10
50	1.717316	717350	717384	717417	717451	717485	9
51	717519	717552	717586	717620	717654	717688	8
52	717721	717755	717789	717823	717856	717890	7
53	717924	717958	717991	718025	718059	718093	6
54	718126	718160	718194	718228	718261	718295	5
55	718329	718362	718396	718430	718464	718497	4
56	718531	718565	718598	718632	718666	718700	3
57	718733	718767	718801	718834	718868	718902	2
58	718936	718969	719003	719037	719070	719104	1
59	719138	719171	719205	719239	719272	719306	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 44 degrees, or Natural Co-sine of 44 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	14	17	20	24	27	31

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 136 degrees, or Natural Sine of 46 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1. 719340	719373	719407	719441	719475	719508	59
1	719542	719575	719609	719643	719676	719710	58
2	719744	719777	719811	719845	719878	719912	57
3	719946	719979	720013	720047	720080	720114	56
4	720148	720181	720215	720248	720282	720316	55
5	720349	720383	720417	720450	720484	720517	54
6	720551	720585	720618	720652	720686	720719	53
7	720753	720786	720820	720854	720887	720921	52
8	720954	720988	721022	721055	721089	721122	51
9	721156	721190	721223	721257	721290	721324	50
10	1. 721357	721391	721425	721458	721492	721525	49
11	721559	721592	721626	721660	721693	721727	48
12	721760	721794	721827	721861	721894	721928	47
13	721962	721995	722029	722062	722096	722129	46
14	722163	722196	722230	722264	722297	722330	45
15	722364	722397	722431	722465	722498	722532	44
16	722565	722599	722632	722666	722699	722733	43
17	722766	722800	722833	722867	722900	722934	42
18	722967	723001	723034	723068	723101	723135	41
19	723168	723202	723235	723269	723302	723335	40
20	1. 723369	723402	723436	723469	723503	723536	39
21	723570	723603	723637	723670	723704	723737	38
22	723771	723804	723837	723871	723904	723938	37
23	723971	724005	724038	724072	724105	724138	36
24	724172	724205	724239	724272	724306	724339	35
25	724372	724406	724439	724473	724506	724540	34
26	724573	724606	724640	724673	724707	724740	33
27	724773	724807	724840	724874	724907	724940	32
28	724974	725007	725041	725074	725107	725141	31
29	725174	725207	725241	725274	725308	725341	30
30	1. 725374	725408	725441	725474	725508	725541	29
31	725575	725608	725641	725675	725708	725741	28
32	725775	725808	725841	725875	725908	725941	27
33	725975	726008	726041	726075	726108	726141	26
34	726175	726208	726241	726275	726308	726341	25
35	726375	726408	726441	726475	726508	726541	24
36	726575	726608	726641	726675	726708	726741	23
37	726775	726808	726841	726874	726908	726941	22
38	726974	727008	727041	727074	727107	727141	21
39	727174	727207	727241	727274	727307	727340	20
40	1. 727374	727407	727440	727473	727507	727540	19
41	727573	727606	727640	727673	727706	727740	18
42	727773	727806	727839	727872	727906	727939	17
43	727972	728005	728039	728072	728105	728138	16
44	728171	728205	728238	728271	728305	728338	15
45	728371	728404	728437	728471	728504	728537	14
46	728570	728603	728637	728670	728703	728736	13
47	728769	728803	728836	728869	728902	728935	12
48	728969	729002	729035	729068	729101	729135	11
49	729168	729201	729234	729267	729300	729334	10
50	1. 729367	729400	729433	729466	729499	729533	9
51	729566	729599	729632	729665	729698	729731	8
52	729765	729798	729831	729864	729897	729930	7
53	729963	729997	730030	730063	730096	730129	6
54	730162	730195	730229	730262	730295	730328	5
55	730361	730394	730427	730460	730493	730527	4
56	730560	730593	730626	730659	730692	730725	3
57	730758	730791	730824	730858	730891	730924	2
58	730957	730990	731023	731056	731089	731122	1
59	731155	731188	731221	731255	731288	731321	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 43 degrees, or Natural Co-sine of 43 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	13	17	20	23	27	30

Versed Sine of 137 degrees, or Natural Sine of 47 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1. 731354	731387	731420	731453	731486	731519	59
1	731552	731585	731618	731651	731684	731717	58
2	731750	731783	731816	731849	731883	731916	57
3	731949	731982	732015	732048	732081	732114	56
4	732147	732180	732213	732246	732279	732312	55
5	732345	732378	732411	732444	732477	732510	54
6	732543	732576	732609	732642	732675	732708	53
7	732741	732774	732807	732840	732873	732906	52
8	732939	732972	733005	733038	733071	733104	51
9	733137	733170	733203	733236	733269	733301	50
10	1. 733334	733367	733400	733433	733466	733499	49
11	733532	733565	733598	733631	733664	733697	48
12	733730	733763	733796	733829	733862	733895	47
13	733927	733960	733993	734026	734059	734092	46
14	734125	734158	734191	734224	734257	734290	45
15	734323	734355	734388	734421	734454	734487	44
16	734520	734553	734586	734619	734652	734684	43
17	734717	734750	734783	734816	734849	734882	42
18	734915	734947	734980	735013	735046	735079	41
19	735112	735145	735178	735210	735243	735276	40
20	1. 735309	735342	735375	735408	735440	735473	39
21	735506	735539	735572	735605	735637	735670	38
22	735703	735736	735769	735802	735834	735867	37
23	735900	735933	735966	735999	736031	736064	36
24	736097	736130	736163	736196	736228	736261	35
25	736294	736327	736360	736392	736425	736458	34
26	736491	736524	736556	736589	736622	736655	33
27	736687	736720	736753	736786	736819	736851	32
28	736884	736917	736950	736982	737015	737048	31
29	737081	737114	737146	737179	737212	737245	30
30	1. 737277	737310	737343	737376	737408	737441	29
31	737474	737507	737539	737572	737605	737638	28
32	737670	737703	737736	737768	737801	737834	27
33	737867	737899	737932	737965	737997	738030	26
34	738063	738096	738128	738161	738194	738226	25
35	738259	738292	738325	738357	738390	738423	24
36	738455	738488	738521	738553	738586	738619	23
37	738651	738684	738717	738749	738782	738815	22
38	738848	738880	738913	738946	738978	739011	21
39	739043	739076	739109	739141	739174	739207	20
40	1. 739239	739272	739305	739337	739370	739403	19
41	739435	739468	739501	739533	739566	739598	18
42	739631	739664	739696	739729	739761	739794	17
43	739827	739859	739892	739925	739957	739990	16
44	740023	740055	740088	740120	740153	740186	15
45	740218	740251	740283	740316	740349	740381	14
46	740414	740446	740479	740511	740544	740577	13
47	740609	740642	740674	740707	740739	740772	12
48	740805	740837	740870	740902	740935	740967	11
49	741000	741033	741065	741098	741130	741163	10
50	1. 741195	741228	741260	741293	741325	741358	9
51	741391	741423	741456	741488	741521	741553	8
52	741586	741618	741651	741683	741716	741748	7
53	741781	741813	741846	741878	741911	741943	6
54	741976	742008	742041	742073	742106	742138	5
55	742171	742203	742236	742268	742301	742333	4
56	742366	742398	742431	742463	742496	742528	3
57	742561	742593	742626	742658	742690	742723	2
58	742755	742788	742820	742853	742885	742918	1
59	742950	742983	743015	743047	743080	743112	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 42 degrees, or Natural Co-sine of 42 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	7	10	13	17	20	23	26	29

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 138 degrees, or Natural Sine of 48 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.743145	743177	743210	743242	743275	743307	59
1	743339	743371	743404	743437	743469	743502	58
2	743534	743566	743599	743631	743664	743696	57
3	743728	743761	743793	743826	743858	743890	56
4	743923	743955	743988	744020	744052	744085	55
5	744117	744150	744182	744214	744247	744279	54
6	744312	744344	744376	744409	744441	744473	53
7	744506	744538	744571	744603	744635	744668	52
8	744700	744732	744765	744797	744829	744862	51
9	744894	744926	744959	744991	745023	745056	50
10	1.745088	745120	745153	745185	745217	745250	49
11	745282	745314	745347	745379	745411	745444	48
12	745476	745508	745541	745573	745605	745638	47
13	745670	745702	745734	745767	745799	745831	46
14	745864	745896	745928	745961	745993	746025	45
15	746057	746090	746122	746154	746186	746219	44
16	746251	746283	746316	746348	746380	746412	43
17	746445	746477	746509	746541	746574	746606	42
18	746638	746670	746703	746735	746767	746799	41
19	746832	746864	746896	746928	746961	746993	40
20	1.747025	747057	747090	747122	747154	747186	39
21	747218	747251	747283	747315	747347	747379	38
22	747412	747444	747476	747508	747541	747573	37
23	747605	747637	747669	747702	747734	747766	36
24	747798	747830	747862	747895	747927	747959	35
25	747991	748023	748056	748088	748120	748152	34
26	748184	748216	748248	748281	748313	748345	33
27	748377	748409	748441	748474	748506	748538	32
28	748570	748602	748634	748667	748699	748731	31
29	748763	748795	748827	748859	748891	748924	30
30	1.748956	748988	749020	749052	749084	749116	29
31	749148	749181	749213	749245	749277	749309	28
32	749341	749373	749405	749437	749469	749502	27
33	749534	749566	749598	749630	749662	749694	26
34	749726	749758	749790	749822	749855	749887	25
35	749919	749951	749983	750015	750047	750079	24
36	750111	750143	750175	750207	750239	750271	23
37	750303	750335	750368	750400	750432	750464	22
38	750496	750528	750560	750592	750624	750656	21
39	750688	750720	750752	750784	750816	750848	20
40	1.750880	750912	750944	750976	751008	751040	19
41	751072	751104	751136	751168	751200	751232	18
42	751264	751296	751328	751360	751392	751424	17
43	751456	751488	751520	751552	751584	751616	16
44	751648	751680	751712	751744	751776	751808	15
45	751840	751872	751904	751936	751968	752000	14
46	752032	752064	752095	752127	752159	752191	13
47	752223	752255	752287	752319	752351	752383	12
48	752415	752447	752479	752511	752543	752575	11
49	752606	752638	752670	752702	752734	752766	10
50	1.752798	752830	752862	752894	752926	752958	9
51	752989	753021	753053	753085	753117	753149	8
52	753181	753213	753245	753276	753308	753340	7
53	753372	753404	753436	753468	753500	753532	6
54	753563	753595	753627	753659	753691	753723	5
55	753755	753786	753818	753850	753882	753914	4
56	753946	753978	754009	754041	754073	754105	3
57	754137	754169	754200	754232	754264	754296	2
58	754328	754360	754391	754423	754455	754487	1
59	754519	754551	754582	754614	754646	754678	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 41 degrees, or Natural Co-sine of 41 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	10	13	16	19	22	26	29

Versed Sine of 139 degrees, or Natural Sine of 49 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.754710	754741	754773	754805	754837	754869	59
1	754900	754932	754964	754996	755028	755059	58
2	755091	755123	755155	755186	755218	755250	57
3	755282	755314	755345	755377	755409	755441	56
4	755472	755504	755536	755568	755599	755631	55
5	755663	755695	755726	755758	755790	755822	54
6	755853	755885	755917	755949	755980	756012	53
7	756044	756076	756107	756139	756171	756203	52
8	756234	756266	756298	756329	756361	756393	51
9	756425	756456	756488	756520	756551	756583	50
10	1.756615	756646	756678	756710	756742	756773	49
11	756805	756837	756868	756900	756932	756963	48
12	756995	757027	757058	757090	757122	757153	47
13	757185	757217	757248	757280	757312	757343	46
14	757375	757407	757438	757470	757502	757533	45
15	757565	757597	757628	757660	757692	757723	44
16	757755	757786	757818	757850	757881	757913	43
17	757945	757976	758008	758039	758071	758103	42
18	758134	758166	758198	758229	758261	758292	41
19	758324	758356	758387	758419	758450	758482	40
20	1.758514	758545	758577	758608	758640	758672	39
21	758703	758735	758766	758798	758829	758861	38
22	758893	758924	758956	758987	759019	759050	37
23	759082	759114	759145	759177	759208	759240	36
24	759271	759303	759334	759366	759397	759429	35
25	759461	759492	759524	759555	759587	759618	34
26	759650	759681	759713	759744	759776	759807	33
27	759839	759870	759902	759933	759965	759996	32
28	760028	760060	760091	760123	760154	760186	31
29	760217	760249	760280	760311	760343	760374	30
30	1.760406	760437	760469	760500	760532	760563	29
31	760595	760626	760658	760689	760721	760752	28
32	760784	760815	760847	760878	760910	760941	27
33	760972	761004	761035	761067	761098	761130	26
34	761161	761193	761224	761255	761287	761318	25
35	761350	761381	761413	761444	761475	761507	24
36	761538	761570	761601	761633	761664	761695	23
37	761727	761758	761790	761821	761852	761884	22
38	761915	761947	761978	762009	762041	762072	21
39	762104	762135	762166	762198	762229	762261	20
40	1.762292	762323	762355	762386	762417	762449	19
41	762481	762512	762543	762574	762606	762637	18
42	762668	762700	762731	762762	762794	762825	17
43	762856	762888	762919	762950	762982	763013	16
44	763044	763076	763107	763138	763170	763201	15
45	763232	763264	763295	763326	763358	763389	14
46	763420	763452	763483	763514	763546	763577	13
47	763608	763640	763671	763702	763733	763765	12
48	763796	763827	763859	763890	763921	763952	11
49	763984	764015	764046	764078	764109	764140	10
50	1.764171	764203	764234	764265	764296	764328	9
51	764359	764390	764422	764453	764484	764515	8
52	764547	764578	764609	764640	764672	764703	7
53	764734	764765	764796	764828	764859	764890	6
54	764921	764953	764984	765015	765046	765078	5
55	765109	765140	765171	765202	765234	765265	4
56	765296	765327	765358	765390	765421	765452	3
57	765483	765514	765546	765577	765608	765639	2
58	765670	765702	765733	765764	765795	765826	1
59	765857	765889	765920	765951	765982	766013	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 40 degrees, or Natural Co-sine of 40 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	13	16	19	22	25	28

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NATURAL VERSED SINES; O

Minutes	*Versed Sine of 136 degrees, o Natural Sine of 46 degrees.*				
	0″	10″	20″	30″	40″
0	1. 719340	719373	719407	719441	7194
1	719542	719575	719609	719643	7196
2	719744	719777	719811	719845	7198
3	719946	719979	720013	720047	7200
4	720148	720181	720215	720248	7202
5	720349	720383	720417	720450	720
6	720551	720585	720618	720652	720
7	720753	720786	720820	720854	720
8	720954	720988	721022	721055	721
9	721156	721190	721223	721257	721
10	1. 721357	721391	721425	721458	721
11	721559	721592	721626	721660	72
12	721760	721794	721827	721861	72
13	721962	721995	722029	722062	7
14	722163	722196	722230	722264	7
15	722364	722397	722431	722465	7
16	722565	722599	722632	722666	
17	722766	722800	722833	722867	
18	722967	723001	723034	723068	
19	723168	723202	723235	723269	
20	1. 723369	723402	723436	723469	
21	723570	723603	723637	723670	
22	723771	723804	723837	723871	
23	723971	724005	724038	724072	
24	724172	724205	724239	724272	
25	724372	724406	724439	724	
26	724573	724606	724640	724	
27	724773	724807	724840	724	
28	724974	725007	725041	725	
29	725174	725207	725241	72	
30	1. 725374	725408	725441	72	
31	725575	725608	725641	72	
32	725775	725808	725841	7	
33	725975	726008	726041	7	
34	726175	726208	726241	7	
35	726375	726408	726441	7	
36	726575	726608	726641		
37	726775	726808	726841		
38	726974	727008	727041		
39	727174	727207	727241		
40	1. 727374	727407	727440		
41	727573	727606	727640		
42	727773	727806	727839		
43	727972	728005	728039		
44	728171	728205	728239		
45	728371	728404	728438		
46	728570	728603	728638		
47	728769	728803	7288		
48	728969	729002	7290		
49	729168	729201	7292		
50	1. 729367	729400	7294		
51	729566	729599	7296		
52	729765	729798	7298		
53	729963	729997	7300		
54	730162	730195	7302		
55	730361	730394	7304		
56	730560	730593	7306		
57	730758	730791	7308		
58	730957	730990	7310		
59	731155	731188	7312		
Minutes	60″	50″	40		
	Versed Sine Supple Natural Co-s				

Proper. parts.	1″	2″	3″
	3	7	10

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D SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

of 142 degrees, or e of 52 degrees.

0′	10′	20′	Versed Sine of 1 / Natural Sine of 1
070	788100	788130	788160
249	788279	788309	788339
428	788458	788488	788518
607	788637	788667	788697
786	788816	788846	788876
965	788995	789025	789054
144	789173	789203	789233
322	789352	789382	789412
501	789531	789560	789590
679	789709	789739	789769
858	789888	789917	789947
036	790066	790096	790125
214	790244	790274	790304
393	790422	790452	790482
571	790601	790630	790660
749	790779	790808	790838
927	790957	790986	791016
105	791135	791164	791194
283	791312	791342	791372
461	791490	791520	791550
638	791668	791698	791727
816	791846	791875	791905
994	792023	792053	792082
171	792201	792230	792260
349	792378	792408	792438
526	792556	792585	792615
704	792733	792763	792792
881	792910	792940	792970
058	793088	793117	793147
235	793265	793294	793324
383	793442	793471	793501
560	793589	793619	793648
737	793766	793796	793825
914	793943	793973	794002
091	794120	794150	794179
267	794297	794326	794356
444	794474	794503	794532
621	794650	794680	794709
797	794827	794856	794886
974	795003	795033	795062
150	795180	795209	795238
327	795356	795386	795415
503	795532	795562	795591
679	795708	795738	795767
855	795885	795914	795943
031	796061	796090	796119
207	796237	796266	796295
383	796413	796442	796472
559	796589	796618	796647
735	796764	796794	796823
911	796940	796969	796999
087	797116	797145	797174
262	797291	797321	797350
438	797467	797496	797525
613	797642	797672	797701
789	797818	797847	797876
964	797993	798022	798052
139	798168	798198	798227
314	798344	798373	798402
490	798519	798548	798577
60′	50′	40′	30′

Versed Sine Supplement of 37 degrees, or Natural Co-sine of 37 degrees.

Propor. 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

Minutes	30′	40′	50′	Minutes
59	788130	788160	788190	59
58	788309	788339	788369	58
57	788488	788518	788548	57
56	788667	788697	788727	56
55	788846	788876	788906	55
54	789025	789054	789084	54
53	789203	789233	789263	53
52	789382	789412	789442	52
51	789560	789590	789620	51
50	789739	789769	789799	50
49	789917	789947	789977	49
48	790096	790125	790155	48
47	790274	790304	790334	47
46	790452	790482	790512	46
45	790630	790660	790690	45
44	790808	790838	790868	44
43	790986	791016	791046	43
42	791164	791194	791224	42
41	791342	791372	791402	41
40	791520	791550	791580	40
39	791698	791727	791757	39
38	791875	791905	791935	38
37	792053	792082	792112	37
36	792230	792260	792290	36
35	792408	792438	792468	35
34	792585	792615	792645	34
33	792763	792792	792822	33
32	792940	792970	793000	32
31	793117	793147	793177	31
30	793294	793324	793354	30
29	793471	793501	793531	29
28	793648	793678	793708	28
27	793825	793855	793885	27
26	794002	794032	794062	26
25	794179	794208	794238	25
24	794356	794385	794415	24
23	794532	794562	794592	23
22	794709	794738	794768	22
21	794886	794915	794945	21
20	795062	795091	795121	20
19	795238	795268	795298	19
18	795415	795444	795474	18
17	795591	795620	795650	17
16	795767	795797	795827	16
15	795943	795973	796003	15
14	796119	796149	796179	14
13	796295	796325	796355	13
12	796472	796501	796531	12
11	796647	796676	796706	11
10	796823	796852	796882	10
9	796999	797028	797058	9
8	797174	797204	797234	8
7	797350	797379	797409	7
6	797525	797555	797585	6
5	797701	797730	797760	5
4	797876	797906	797936	4
3	798052	798081	798111	3
2	798227	798256	798286	2
1	798402	798431	798461	1
0	798577	798606	798636	0
40′	30′	20′	10′	Minutes

Versed Sine of 143 degrees, or Natural Sine of 53 degrees.

Minutes	0′	10′	20′	30′	40′	50′	Minutes
0	1. 798636	798665	798694	798723	798752	798781	59
1	798811	798840	798869	798898	798927	798956	58
2	798985	799015	799044	799073	799102	799131	57
3	799160	799190	799219	799248	799277	799306	56
4	799335	799364	799393	799423	799452	799481	55
5	799510	799539	799568	799597	799626	799656	54
6	799685	799714	799743	799772	799801	799830	53
7	799859	799888	799917	799946	799976	800005	52
8	800034	800063	800092	800121	800150	800179	51
9	800208	800237	800266	800296	800325	800354	50
10	1. 800383	800412	800441	800470	800499	800528	49
11	800557	800586	800615	800644	800673	800702	48
12	800731	800760	800789	800819	800848	800877	47
13	800906	800935	800964	800993	801022	801051	46
14	801080	801109	801138	801167	801196	801225	45
15	801254	801283	801312	801341	801370	801399	44
16	801428	801457	801486	801515	801544	801573	43
17	801602	801631	801660	801689	801718	801747	42
18	801776	801805	801834	801863	801892	801920	41
19	801949	801978	802007	802036	802065	802094	40
20	1. 802123	802152	802181	802210	802239	802268	39
21	802297	802326	802355	802384	802413	802442	38
22	802470	802499	802528	802557	802586	802615	37
23	802644	802673	802702	802731	802760	802789	36
24	802817	802846	802875	802904	802933	802962	35
25	802991	803020	803049	803078	803106	803135	34
26	803164	803193	803222	803251	803280	803309	33
27	803337	803366	803395	803424	803453	803482	32
28	803511	803540	803568	803597	803626	803655	31
29	803684	803713	803741	803770	803799	803828	30
30	1. 803857	803886	803915	803943	803972	804001	29
31	804030	804059	804088	804116	804145	804174	28
32	804203	804232	804260	804289	804318	804347	27
33	804376	804404	804433	804462	804491	804520	26
34	804548	804577	804606	804635	804664	804692	25
35	804721	804750	804779	804807	804836	804865	24
36	804894	804923	804951	804980	805009	805038	23
37	805066	805095	805124	805153	805181	805210	22
38	805239	805268	805296	805325	805354	805383	21
39	805411	805440	805469	805498	805526	805555	20
40	1. 805584	805612	805641	805670	805699	805727	19
41	805756	805785	805813	805842	805871	805900	18
42	805928	805957	805986	806014	806043	806072	17
43	806100	806129	806158	806187	806215	806244	16
44	806273	806301	806330	806359	806387	806416	15
45	806445	806473	806502	806531	806559	806588	14
46	806617	806645	806674	806703	806731	806760	13
47	806788	806817	806846	806874	806903	806932	12
48	806960	806989	807018	807046	807075	807103	11
49	807132	807161	807189	807218	807247	807275	10
50	1. 807304	807332	807361	807390	807418	807447	9
51	807475	807504	807533	807561	807590	807618	8
52	807647	807676	807704	807733	807761	807790	7
53	807818	807847	807876	807904	807933	807961	6
54	807990	808018	808047	808076	808104	808133	5
55	808161	808190	808218	808247	808275	808304	4
56	808333	808361	808390	808418	808447	808475	3
57	808504	808532	808561	808589	808618	808646	2
58	808675	808703	808732	808760	808789	808817	1
59	808846	808874	808903	808931	808960	808988	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Versed Sine Supplement of 36 degrees, or Natural Co-sine of 36 degrees.

Propor. 1″ 2″ 3″ 4″ 5″ 6″ 7″

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 140 degrees, or Natural Sine of 50 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.766044	766076	766107	766138	766169	766200	59
1	766231	766263	766294	766325	766356	766387	58
2	766418	766449	766481	766512	766543	766574	57
3	766605	766636	766667	766698	766730	766761	56
4	766792	766823	766854	766885	766916	766947	55
5	766979	767010	767041	767072	767103	767134	54
6	767165	767196	767227	767258	767290	767321	53
7	767352	767383	767414	767445	767476	767507	52
8	767538	767569	767600	767631	767662	767694	51
9	767725	767756	767787	767818	767849	767880	50
10	1.767911	767942	767973	768004	768035	768066	49
11	768097	768128	768159	768190	768221	768252	48
12	768284	768315	768346	768377	768408	768439	47
13	768470	768501	768532	768563	768594	768625	46
14	768656	768687	768718	768749	768780	768811	45
15	768842	768873	768904	768935	768966	768997	44
16	769028	769059	769090	769121	769152	769183	43
17	769214	769245	769276	769307	769338	769369	42
18	769400	769431	769461	769492	769523	769554	41
19	769585	769616	769647	769678	769709	769740	40
20	1.769771	769802	769833	769864	769895	769926	39
21	769957	769988	770019	770049	770080	770111	38
22	770142	770173	770204	770235	770266	770297	37
23	770328	770359	770390	770421	770451	770482	36
24	770513	770544	770575	770606	770637	770668	35
25	770699	770730	770760	770791	770822	770853	34
26	770884	770915	770946	770977	771007	771038	33
27	771069	771100	771131	771162	771193	771224	32
28	771254	771285	771316	771347	771378	771409	31
29	771440	771470	771501	771532	771563	771594	30
30	1.771625	771655	771686	771717	771748	771779	29
31	771810	771840	771871	771902	771933	771964	28
32	771995	772025	772056	772087	772118	772149	27
33	772179	772210	772241	772272	772303	772333	26
34	772364	772395	772426	772457	772487	772518	25
35	772549	772580	772610	772641	772672	772703	24
36	772734	772764	772795	772826	772857	772887	23
37	772918	772949	772980	773010	773041	773072	22
38	773103	773133	773164	773195	773226	773256	21
39	773287	773318	773349	773379	773410	773441	20
40	1.773472	773502	773533	773564	773594	773625	19
41	773656	773687	773717	773748	773779	773810	18
42	773840	773871	773902	773932	773963	773994	17
43	774024	774055	774086	774117	774147	774178	16
44	774209	774239	774270	774301	774331	774362	15
45	774393	774423	774454	774485	774515	774546	14
46	774577	774607	774638	774669	774699	774730	13
47	774761	774791	774822	774853	774883	774914	12
48	774944	774975	775006	775036	775067	775098	11
49	775128	775159	775190	775220	775251	775281	10
50	1.775312	775343	775373	775404	775435	775465	9
51	775496	775526	775557	775588	775618	775649	8
52	775679	775710	775741	775771	775802	775832	7
53	775863	775894	775924	775955	775985	776016	6
54	776046	776077	776108	776138	776169	776199	5
55	776230	776260	776291	776322	776352	776383	4
56	776413	776444	776474	776505	776535	776566	3
57	776596	776627	776658	776688	776719	776749	2
58	776780	776810	776841	776871	776902	776932	1
59	776963	776993	777024	777054	777085	777115	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 39 degrees, or Natural Co-sine of 39 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	19	22	25	28

Versed Sine of 141 degrees, or Natural Sine of 51 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.777146	777176	777207	777237	777268	777298	59
1	777329	777359	777390	777420	777451	777481	58
2	777512	777542	777573	777603	777634	777664	57
3	777695	777725	777756	777786	777817	777847	56
4	777878	777908	777939	777969	778000	778030	55
5	778060	778091	778121	778152	778182	778213	54
6	778243	778274	778304	778334	778365	778395	53
7	778426	778456	778487	778517	778548	778578	52
8	778608	778639	778669	778700	778730	778760	51
9	778791	778821	778852	778882	778912	778943	50
10	1.778973	779004	779034	779064	779095	779125	49
11	779156	779186	779216	779247	779277	779308	48
12	779338	779368	779399	779429	779459	779490	47
13	779520	779551	779581	779611	779642	779672	46
14	779702	779733	779763	779793	779824	779854	45
15	779884	779915	779945	779976	780006	780036	44
16	780067	780097	780127	780158	780188	780218	43
17	780249	780279	780309	780339	780370	780400	42
18	780430	780461	780491	780521	780552	780582	41
19	780612	780643	780673	780703	780733	780764	40
20	1.780794	780824	780855	780885	780915	780945	39
21	780976	781006	781036	781067	781097	781127	38
22	781157	781188	781218	781248	781278	781309	37
23	781339	781369	781399	781430	781460	781490	36
24	781520	781551	781581	781611	781641	781672	35
25	781702	781732	781762	781793	781823	781853	34
26	781883	781914	781944	781974	782004	782034	33
27	782065	782095	782125	782155	782185	782216	32
28	782246	782276	782306	782336	782367	782397	31
29	782427	782457	782487	782518	782548	782578	30
30	1.782608	782638	782669	782699	782729	782759	29
31	782789	782819	782850	782880	782910	782940	28
32	782970	783000	783031	783061	783091	783121	27
33	783151	783181	783211	783242	783272	783302	26
34	783332	783362	783392	783422	783452	783483	25
35	783513	783543	783573	783603	783633	783663	24
36	783693	783724	783754	783784	783814	783844	23
37	783874	783904	783934	783964	783995	784025	22
38	784055	784085	784115	784145	784175	784205	21
39	784235	784265	784295	784325	784356	784386	20
40	1.784416	784446	784476	784506	784536	784566	19
41	784596	784626	784656	784686	784716	784746	18
42	784776	784806	784836	784867	784897	784927	17
43	784957	784987	785017	785047	785077	785107	16
44	785137	785167	785197	785227	785257	785287	15
45	785317	785347	785377	785407	785437	785467	14
46	785497	785527	785557	785587	785617	785647	13
47	785677	785707	785737	785767	785797	785827	12
48	785857	785887	785917	785947	785977	786007	11
49	786037	786067	786097	786127	786157	786187	10
50	1.786217	786246	786276	786306	786336	786366	9
51	786396	786426	786456	786486	786516	786546	8
52	786576	786606	786636	786666	786696	786726	7
53	786756	786785	786815	786845	786875	786905	6
54	786935	786965	786995	787025	787055	787085	5
55	787114	787144	787174	787204	787234	787264	4
56	787294	787324	787354	787384	787413	787443	3
57	787473	787503	787533	787563	787593	787623	2
58	787652	787682	787712	787742	787772	787802	1
59	787832	787861	787891	787921	787951	787981	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 38 degrees, or Natural Co-sine of 38 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 142 degrees, or Natural Sine of 52 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.788011	788041	788070	788100	788130	788160	59
1	788190	788220	788249	788279	788309	788339	58
2	788369	788399	788428	788458	788488	788518	57
3	788548	788578	788607	788637	788667	788697	56
4	788727	788756	788786	788816	788846	788876	55
5	788905	788935	788965	788995	789025	789054	54
6	789084	789114	789144	789173	789203	789233	53
7	789263	789293	789322	789352	789382	789412	52
8	789441	789471	789501	789531	789560	789590	51
9	789620	789650	789679	789709	789739	789769	50
10	1.789798	789828	789858	789888	789917	789947	49
11	789977	790006	790036	790066	790096	790125	48
12	790155	790185	790214	790244	790274	790304	47
13	790333	790363	790393	790422	790452	790482	46
14	790511	790541	790571	790601	790630	790660	45
15	790690	790719	790749	790779	790808	790838	44
16	790868	790897	790927	790957	790986	791016	43
17	791046	791075	791105	791135	791164	791194	42
18	791224	791253	791283	791312	791342	791372	41
19	791401	791431	791461	791490	791520	79155c	40
20	1.791579	791609	791638	791668	791698	791727	39
21	791757	791787	791816	791846	791875	791905	38
22	791935	791964	791994	792023	792053	792083	37
23	792112	792142	792171	792201	792230	79226c	36
24	792290	792319	792349	792378	792408	792438	35
25	792467	792497	792526	792556	792585	792615	34
26	792644	792674	792704	792733	792763	792792	33
27	792822	792851	792881	792910	792940	792970	32
28	792999	793029	793058	793088	793117	793147	31
29	793176	793206	793235	793265	793294	793324	30
30	1.793353	793383	793412	793442	793471	793501	29
31	793530	793560	793589	793619	793648	793678	28
32	793707	793737	793766	793796	793825	793855	27
33	793884	793914	793943	793973	794002	794032	26
34	794061	794091	794120	794150	794179	794208	25
35	794238	794267	794297	794326	794356	794385	24
36	794415	794444	794474	794503	794532	794562	23
37	794591	794621	794650	794680	794709	794738	22
38	794768	794797	794827	794856	794886	794915	21
39	794944	794974	795003	795033	795062	795091	20
40	1.795121	795150	795180	795209	795238	795268	19
41	795297	795327	795356	795385	795415	795444	18
42	795473	795503	795532	795562	795591	795620	17
43	795650	795679	795708	795738	795767	795797	16
44	795826	795855	795885	795914	795943	795973	15
45	796002	796031	796061	796090	796119	796149	14
46	796178	796207	796237	796266	796295	796325	13
47	796354	796383	796413	796442	796472	796501	12
48	796530	796559	796589	796618	796647	796676	11
49	796706	796735	796764	796794	796823	796852	10
50	1.796882	796911	796940	796969	796999	797028	9
51	797057	797087	797116	797145	797174	797204	8
52	797233	797262	797291	797321	797350	797379	7
53	797408	797438	797467	797496	797525	797555	6
54	797584	797613	797642	797672	797701	797730	5
55	797759	797789	797818	797847	797876	797906	4
56	797935	797964	797993	798022	798052	798081	3
57	798110	798139	798168	798198	798227	798256	2
58	798285	798314	798344	798373	798402	798431	1
59	798460	798490	798519	798548	798577	798606	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 37 degrees, or Natural Co-sine of 37 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

Versed Sine of 143 degrees, or Natural Sine of 53 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.798636	798665	798694	798723	798752	798781	59
1	798811	798840	798869	798898	798927	798956	58
2	798985	799015	799044	799073	799102	799131	57
3	799160	799190	799219	799248	799277	799306	56
4	799335	799364	799393	799423	799452	799481	55
5	799510	799539	799568	799597	799626	799656	54
6	799685	799714	799743	799772	799801	799830	53
7	799859	799888	799917	799946	799976	800005	52
8	800034	800063	800092	800121	800150	800179	51
9	800208	800237	800266	800296	800325	800354	50
10	1.800383	800412	800441	800470	800499	800528	49
11	800557	800586	800615	800644	800673	800702	48
12	800731	800760	800789	800819	800848	800877	47
13	800906	800935	800964	800993	801022	801051	46
14	801080	801109	801138	801167	801196	801225	45
15	801254	801283	801312	801341	801370	801399	44
16	801428	801457	801486	801515	801544	801573	43
17	801602	801631	801660	801689	801718	801747	42
18	801776	801805	801834	801863	801892	801920	41
19	801949	801978	802007	802036	802065	802094	40
20	1.802123	802152	802181	802210	802239	802268	39
21	802297	802326	802355	802384	802413	802442	38
22	802470	802499	802528	802557	802586	802615	37
23	802644	802673	802702	802731	802760	802789	36
24	802817	802846	802875	802904	802933	802962	35
25	802991	803020	803049	803078	803106	803135	34
26	803164	803193	803222	803251	803280	803309	33
27	803337	803366	803395	803424	803453	803482	32
28	803511	803540	803568	803597	803626	803655	31
29	803684	803713	803741	803770	803799	803828	30
30	1.803857	803886	803915	803943	803972	804001	29
31	804030	804059	804088	804116	804145	804174	28
32	804203	804232	804260	804289	804318	804347	27
33	804376	804404	804433	804462	804491	804520	26
34	804548	804577	804606	804635	804664	804692	25
35	804721	804750	804779	804807	804836	804865	24
36	804894	804923	804951	804980	805009	805038	23
37	805066	805095	805124	805153	805181	805210	22
38	805239	805268	805296	805325	805354	805383	21
39	805411	805440	805469	805498	805526	805555	20
40	1.805584	805612	805641	805670	805699	805727	19
41	805756	805785	805813	805842	805871	805900	18
42	805928	805957	805986	806014	806043	806072	17
43	806100	806129	806158	806187	806215	806244	16
44	806273	806301	806330	806359	806387	806416	15
45	806445	806473	806502	806531	806559	806588	14
46	806617	806645	806674	806703	806731	806760	13
47	806788	806817	806846	806874	806903	806932	12
48	806960	806989	807018	807046	807075	807103	11
49	807132	807161	807189	807218	807247	807275	10
50	1.807304	807332	807361	807390	807418	807447	9
51	807475	807504	807533	807561	807590	807618	8
52	807647	807676	807704	807733	807761	807790	7
53	807818	807847	807876	807904	807933	807961	6
54	807990	808018	808047	808076	808104	808133	5
55	808161	808190	808218	808247	808275	808304	4
56	808333	808361	808390	808418	808447	808475	3
57	808504	808532	808561	808589	808618	808646	2
58	808675	808703	808732	808760	808789	808817	1
59	808846	808874	808903	808931	808960	808988	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 36 degrees, or Natural Co-sine of 36 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 144 degrees, or Natural Sine of 54 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.809017	809045	809074	809102	809131	809159	59
1	809188	809216	809245	809273	809302	809330	58
2	809359	809387	809416	809444	809473	809501	57
3	809530	809558	809587	809615	809643	809672	56
4	809700	809729	809757	809786	809814	809843	55
5	809871	809899	809928	809956	809985	810013	54
6	810042	810070	810098	810127	810155	810184	53
7	810212	810241	810269	810297	810326	810354	52
8	810383	810411	810439	810468	810496	810525	51
9	810553	810581	810610	810638	810667	810695	50
10	1.810723	810752	810780	810809	810837	810865	49
11	810894	810922	810950	810979	811007	811035	48
12	811064	811092	811121	811149	811177	811206	47
13	811234	811262	811291	811319	811347	811376	46
14	811404	811432	811461	811489	811517	811546	45
15	811574	811602	811631	811659	811687	811716	44
16	811744	811772	811801	811829	811857	811885	43
17	811914	811942	811970	811999	812027	812055	42
18	812084	812112	812140	812168	812197	812225	41
19	812253	812282	812310	812338	812366	812395	40
20	1.812423	812451	812479	812508	812536	812564	39
21	812592	812621	812649	812677	812705	812734	38
22	812762	812790	812818	812847	812875	812903	37
23	812931	812960	812988	813016	813044	813073	36
24	813101	813129	813157	813185	813214	813242	35
25	813270	813298	813326	813355	813383	813411	34
26	813439	813467	813496	813524	813552	813580	33
27	813608	813637	813665	813693	813721	813749	32
28	813778	813806	813834	813862	813890	813918	31
29	813947	813975	814003	814031	814059	814087	30
30	1.814116	814144	814172	814200	814228	814256	29
31	814284	814313	814341	814369	814397	814425	28
32	814453	814481	814509	814538	814566	814594	27
33	814622	814650	814678	814706	814734	814763	26
34	814791	814819	814847	814875	814903	814931	25
35	814959	814987	815015	815044	815072	815100	24
36	815128	815156	815184	815212	815240	815268	23
37	815296	815324	815352	815380	815409	815437	22
38	815465	815493	815521	815549	815577	815605	21
39	815633	815661	815689	815717	815745	815773	20
40	1.815801	815829	815857	815885	815913	815941	19
41	815969	815997	816026	816054	816082	816110	18
42	816138	816166	816194	816222	816250	816278	17
43	816306	816334	816362	816390	816418	816446	16
44	816474	816502	816530	816558	816586	816614	15
45	816642	816670	816698	816725	816753	816781	14
46	816809	816837	816865	816893	816921	816949	13
47	816977	817005	817033	817061	817089	817117	12
48	817145	817173	817201	817229	817257	817285	11
49	817313	817340	817368	817396	817424	817452	10
50	1.817480	817508	817536	817564	817592	817620	9
51	817648	817676	817703	817731	817759	817787	8
52	817815	817843	817871	817899	817927	817955	7
53	817982	818010	818038	818066	818094	818122	6
54	818150	818178	818205	818233	818261	818289	5
55	818317	818345	818373	818401	818428	818456	4
56	818484	818512	818540	818568	818596	818623	3
57	818651	818679	818707	818735	818763	818790	2
58	818818	818846	818874	818902	818930	818957	1
59	818985	819013	819041	819069	819096	819124	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 35 degrees, or Natural Co-sine of 35 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	8	11	14	17	20	22	25

Versed Sine of 145 degrees, or Natural Sine of 55 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.819152	819180	819208	819235	819263	819291	59
1	819319	819347	819374	819402	819430	819458	58
2	819486	819513	819541	819569	819597	819624	57
3	819652	819680	819708	819736	819763	819791	56
4	819819	819847	819874	819902	819930	819958	55
5	819985	820013	820041	820069	820096	820124	54
6	820152	820180	820207	820235	820263	820291	53
7	820318	820346	820374	820401	820429	820457	52
8	820485	820512	820540	820568	820595	820623	51
9	820651	820679	820706	820734	820762	820789	50
10	1.820817	820845	820872	820900	820928	820955	49
11	820983	821011	821039	821066	821094	821122	48
12	821149	821177	821205	821232	821260	821288	47
13	821315	821343	821370	821398	821426	821453	46
14	821481	821509	821536	821564	821592	821619	45
15	821647	821675	821702	821730	821757	821785	44
16	821813	821840	821868	821896	821923	821951	43
17	821978	822006	822034	822061	822089	822116	42
18	822144	822172	822199	822227	822254	822281	41
19	822310	822337	822365	822392	822420	822448	40
20	1.822475	822503	822530	822558	822585	822613	39
21	822641	822668	822696	822723	822751	822778	38
22	822806	822833	822861	822889	822916	822944	37
23	822971	822999	823026	823054	823081	823109	36
24	823136	823164	823191	823219	823246	823274	35
25	823302	823329	823357	823384	823412	823439	34
26	823467	823494	823522	823549	823577	823604	33
27	823632	823659	823687	823714	823742	823769	32
28	823797	823824	823851	823879	823906	823934	31
29	823961	823989	824016	824044	824071	824099	30
30	1.824126	824154	824181	824209	824236	824263	29
31	824291	824318	824346	824373	824401	824428	28
32	824456	824483	824510	824538	824565	824593	27
33	824620	824648	824675	824702	824730	824757	26
34	824785	824812	824839	824867	824894	824922	25
35	824949	824977	825004	825031	825059	825086	24
36	825113	825141	825168	825196	825223	825250	23
37	825278	825305	825333	825360	825387	825415	22
38	825442	825469	825497	825524	825551	825579	21
39	825606	825634	825661	825688	825716	825743	20
40	1.825770	825798	825825	825852	825880	825907	19
41	825934	825962	825989	826016	826044	826071	18
42	826098	826126	826153	826180	826208	826235	17
43	826262	826289	826317	826344	826371	826399	16
44	826426	826453	826481	826508	826535	826562	15
45	826590	826617	826644	826672	826699	826726	14
46	826753	826781	826808	826835	826862	826890	13
47	826917	826944	826972	826999	827026	827053	12
48	827080	827108	827135	827162	827190	827217	11
49	827244	827271	827299	827326	827353	827380	10
50	1.827407	827435	827462	827489	827516	827544	9
51	827571	827598	827625	827652	827680	827707	8
52	827734	827761	827788	827816	827843	827870	7
53	827897	827924	827952	827979	828006	828033	6
54	828060	828088	828115	828142	828169	828196	5
55	828223	828251	828278	828305	828332	828359	4
56	828386	828414	828441	828468	828495	828522	3
57	828549	828576	828604	828631	828658	828685	2
58	828712	828739	828766	828793	828821	828848	1
59	828875	828902	828929	828956	828983	829010	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 34 degrees, or Natural Co-sine of 34 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	11	14	16	19	22	25

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 146 degrees, or Natural Sine of 56 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.829038	829065	829092	829119	829146	829173	59
1	829200	829227	829254	829281	829309	829336	58
2	829363	829390	829417	829444	829471	829498	57
3	829525	829552	829579	829606	829634	829661	56
4	829688	829715	829742	829769	829796	829823	55
5	829850	829877	829904	829931	829958	829985	54
6	830012	830039	830066	830093	830120	830147	53
7	830174	830202	830229	830256	830283	830310	52
8	830337	830364	830391	830418	830445	830472	51
9	830499	830526	830553	830580	830607	830634	50
10	1.830661	830688	830715	830742	830769	830796	49
11	830823	830850	830877	830904	830931	830957	48
12	830984	831011	831038	831065	831092	831119	47
13	831146	831173	831200	831227	831254	831281	46
14	831308	831335	831362	831389	831416	831443	45
15	831470	831497	831523	831550	831577	831604	44
16	831631	831658	831685	831712	831739	831766	43
17	831793	831820	831847	831873	831900	831927	42
18	831954	831981	832008	832035	832062	832089	41
19	832115	832142	832169	832196	832223	832250	40
20	1.832277	832304	832331	832357	832384	832411	39
21	832438	832465	832492	832518	832545	832572	38
22	832599	832626	832653	832680	832707	832733	37
23	832760	832787	832814	832841	832868	832894	36
24	832921	832948	832975	833002	833029	833055	35
25	833082	833109	833136	833163	833189	833216	34
26	833243	833270	833297	833323	833350	833377	33
27	833404	833431	833457	833484	833511	833538	32
28	833565	833591	833618	833645	833671	833698	31
29	833725	833752	833779	833806	833832	833859	30
30	1.833886	833913	833939	833966	833993	834020	29
31	834046	834073	834100	834127	834153	834180	28
32	834207	834234	834260	834287	834314	834340	27
33	834367	834394	834421	834447	834474	834501	26
34	834527	834554	834581	834608	834634	834661	25
35	834688	834714	834741	834768	834794	834821	24
36	834848	834875	834901	834928	834955	834981	23
37	835008	835035	835061	835088	835115	835141	22
38	835168	835195	835221	835248	835275	835301	21
39	835328	835355	835381	835408	835435	835461	20
40	1.835488	835514	835541	835568	835594	835621	19
41	835648	835674	835701	835728	835754	835781	18
42	835807	835834	835861	835887	835914	835940	17
43	835967	835994	836020	836047	836073	836100	16
44	836127	836153	836180	836206	836233	836260	15
45	836286	836313	836339	836366	836392	836419	14
46	836446	836472	836499	836525	836552	836578	13
47	836605	836632	836658	836685	836711	836738	12
48	836764	836791	836817	836844	836870	836897	11
49	836924	836950	836977	837003	837030	837056	10
50	1.837082	837109	837136	837162	837189	837215	9
51	837242	837268	837295	837321	837348	837374	8
52	837401	837427	837454	837480	837507	837533	7
53	837560	837586	837613	837639	837666	837692	6
54	837719	837745	837772	837798	837825	837851	5
55	837878	837904	837930	837957	837983	838010	4
56	838036	838063	838089	838116	838142	838169	3
57	838195	838221	838248	838274	838301	838327	2
58	838354	838380	838406	838433	838459	838486	1
59	838512	838539	838565	838591	838618	838644	0
Minutes	60′	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 33 degrees, or Natural Co-sine of 33 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	11	13	16	19	22	24

Versed Sine of 147 degrees, or Natural Sine of 57 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.838671	838697	838723	838750	838776	838803	59
1	838829	838855	838882	838908	838935	838961	58
2	838987	839014	839040	839066	839093	839119	57
3	839146	839172	839198	839225	839251	839277	56
4	839304	839330	839356	839383	839409	839435	55
5	839462	839488	839515	839541	839567	839594	54
6	839620	839646	839673	839699	839725	839752	53
7	839778	839804	839830	839857	839883	839909	52
8	839936	839962	839988	840015	840041	840067	51
9	840094	840120	840146	840172	840199	840225	50
10	1.840251	840278	840304	840330	840356	840383	49
11	840409	840435	840462	840488	840514	840540	48
12	840567	840593	840619	840645	840672	840698	47
13	840724	840750	840777	840803	840829	840855	46
14	840882	840908	840934	840960	840987	841013	45
15	841039	841065	841091	841118	841144	841170	44
16	841196	841223	841249	841275	841301	841327	43
17	841354	841380	841406	841432	841458	841485	42
18	841511	841537	841563	841589	841616	841642	41
19	841668	841694	841720	841746	841773	841799	40
20	1.841825	841851	841877	841903	841930	841956	39
21	841982	842008	842034	842060	842087	842113	38
22	842139	842165	842191	842217	842243	842270	37
23	842296	842322	842348	842374	842400	842426	36
24	842452	842479	842505	842531	842557	842583	35
25	842609	842635	842661	842687	842714	842740	34
26	842766	842792	842818	842844	842870	842896	33
27	842922	842948	842974	843000	843027	843053	32
28	843079	843105	843131	843157	843183	843209	31
29	843235	843261	843287	843313	843339	843365	30
30	1.843391	843417	843444	843470	843496	843522	29
31	843548	843574	843600	843626	843652	843678	28
32	843704	843730	843756	843782	843808	843834	27
33	843860	843886	843912	843938	843964	843990	26
34	844016	844042	844068	844094	844120	844146	25
35	844172	844198	844224	844250	844276	844302	24
36	844328	844354	844380	844406	844432	844458	23
37	844484	844510	844536	844562	844588	844614	22
38	844640	844665	844691	844717	844743	844769	21
39	844795	844821	844847	844873	844899	844925	20
40	1.844951	844977	845003	845029	845055	845080	19
41	845106	845132	845158	845184	845210	845236	18
42	845262	845288	845314	845340	845365	845391	17
43	845417	845443	845469	845495	845521	845547	16
44	845573	845598	845624	845650	845676	845702	15
45	845728	845754	845780	845805	845831	845857	14
46	845883	845909	845935	845961	845986	846012	13
47	846038	846064	846090	846116	846141	846167	12
48	846193	846219	846245	846271	846296	846322	11
49	846348	846374	846400	846426	846451	846477	10
50	1.846503	846529	846555	846580	846606	846632	9
51	846658	846684	846709	846735	846761	846787	8
52	846813	846838	846864	846890	846916	846942	7
53	846967	846993	847019	847045	847070	847096	6
54	847122	847148	847174	847199	847225	847251	5
55	847276	847302	847328	847354	847379	847405	4
56	847431	847456	847482	847508	847534	847560	3
57	847585	847611	847637	847663	847688	847714	2
58	847740	847765	847791	847817	847843	847868	1
59	847894	847920	847945	847971	847997	848022	0
Minutes	60′	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 32 degrees, or Natural Co-sine of 32 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	10	13	16	18	21	23

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Minutes	Versed Sine of 148 degrees, or Natural Sine of 58 degrees.						Minutes
	0″	10″	20″	30″	40″	50″	
0	1.848048	848074	848099	848125	848151	848177	59
1	848202	848228	848254	848279	848305	848331	58
2	848356	848382	848408	848433	848459	848485	57
3	848510	848536	848562	848587	848613	848638	56
4	848664	848690	848715	848741	848767	848792	55
5	848818	848844	848869	848895	848920	848946	54
6	848972	848997	849023	849049	849074	849100	53
7	849125	849151	849177	849202	849228	849253	52
8	849279	849305	849330	849356	849381	849407	51
9	849433	849458	849484	849509	849535	849560	50
10	1.849586	849612	849637	849663	849688	849714	49
11	849739	849765	849790	849816	849842	849867	48
12	849893	849918	849944	849969	849995	850020	47
13	850046	850071	850097	850123	850148	850174	46
14	850199	850225	850250	850276	850301	850327	45
15	850352	850378	850403	850429	850454	850480	44
16	850505	850531	850556	850582	850607	850633	43
17	850658	850684	850709	850735	850760	850786	42
18	850811	850837	850862	850888	850913	850938	41
19	850964	850989	851015	851040	851066	851091	40
20	1.851117	851142	851168	851193	851218	851244	39
21	851269	851295	851320	851346	851371	851397	38
22	851422	851447	851473	851498	851524	851549	37
23	851575	851600	851625	851651	851676	851702	36
24	851727	851752	851778	851803	851829	851854	35
25	851879	851905	851930	851955	851981	852006	34
26	852032	852057	852082	852108	852133	852159	33
27	852184	852209	852235	852260	852285	852311	32
28	852336	852362	852387	852412	852437	852463	31
29	852488	852513	852539	852564	852589	852615	30
30	1.852640	852665	852691	852716	852741	852767	29
31	852792	852817	852843	852868	852893	852919	28
32	852944	852969	852995	853020	853045	853071	27
33	853096	853121	853146	853172	853197	853222	26
34	853248	853273	853298	853323	853349	853374	25
35	853399	853424	853450	853475	853500	853526	24
36	853551	853576	853601	853627	853652	853677	23
37	853702	853728	853753	853778	853803	853829	22
38	853854	853879	853904	853929	853955	853980	21
39	854005	854030	854056	854081	854106	854131	20
40	1.854156	854182	854207	854232	854257	854282	19
41	854308	854333	854358	854383	854408	854434	18
42	854459	854484	854509	854534	854560	854585	17
43	854610	854635	854660	854685	854711	854736	16
44	854761	854786	854811	854836	854862	854887	15
45	854912	854937	854962	854987	855012	855038	14
46	855063	855088	855113	855138	855163	855188	13
47	855214	855239	855264	855289	855314	855339	12
48	855364	855389	855415	855440	855465	855490	11
49	855515	855540	855565	855590	855615	855640	10
50	1.855665	855691	855716	855741	855766	855791	9
51	855816	855841	855866	855891	855916	855941	8
52	855966	855991	856017	856042	856067	856092	7
53	856117	856142	856167	856192	856217	856242	6
54	856267	856292	856317	856342	856367	856392	5
55	856417	856442	856467	856492	856517	856542	4
56	856567	856592	856617	856642	856668	856693	3
57	856718	856743	856768	856793	856818	856843	2
58	856868	856893	856918	856942	856967	856992	1
59	857017	857042	857067	857092	857117	857142	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 31 degrees, or Natural Co-sine of 31 degrees.						
Propor.	1″	2″	3″	4″	5″	6″	7″	8″	9″

Minutes	Versed Sine of 149 degrees, or Natural Sine of 59 degrees.						Minutes
	0″	10″	20″	30″	40″	50″	
0	1.857167	857192	857217	857242	857267	857292	[illegible]
1	857317	857342	857367	857392	857417	857442	[illegible]
2	857467	857492	857517	857541	857566	857591	[illegible]
3	857616	857641	857666	857691	857716	857741	[illegible]
4	857766	857791	857816	857841	857866	857891	[illegible]
5	857915	857940	857965	857990	858015	858040	[illegible]
6	858065	858090	858115	858140	858164	858189	[illegible]
7	858214	858239	858264	858289	858314	858339	[illegible]
8	858364	858388	858413	858438	858463	858488	[illegible]
9	858513	858538	858562	858587	858612	858637	[illegible]
10	1.858662	858687	858712	858736	858761	858786	[illegible]
11	858811	858836	858860	858885	858910	858935	[illegible]
12	858960	858985	859009	859034	859059	859084	[illegible]
13	859109	859134	859158	859183	859208	859233	[illegible]
14	859258	859283	859308	859332	859357	859382	[illegible]
15	859406	859431	859456	859481	859506	859530	[illegible]
16	859555	859580	859605	859629	859654	859679	[illegible]
17	859704	859728	859753	859778	859803	859828	[illegible]
18	859852	859877	859902	859927	859951	859976	[illegible]
19	860001	860025	860050	860075	860100	860124	[illegible]
20	1.860149	860174	860199	860223	860248	860273	[illegible]
21	860297	860322	860347	860372	860396	860421	[illegible]
22	860446	860470	860495	860520	860545	860569	[illegible]
23	860594	860619	860643	860668	860693	860717	[illegible]
24	860742	860767	860791	860816	860841	860865	[illegible]
25	860890	860915	860939	860964	860989	861013	[illegible]
26	861038	861063	861087	861112	861137	861161	[illegible]
27	861186	861210	861235	861260	861284	861309	[illegible]
28	861334	861358	861383	861408	861432	861457	[illegible]
29	861481	861506	861531	861555	861580	861605	[illegible]
30	1.861629	861654	861678	861703	861728	861752	[illegible]
31	861777	861801	861826	861851	861875	861900	[illegible]
32	861924	861949	861973	861998	862023	862047	[illegible]
33	862072	862096	862121	862145	862170	862195	[illegible]
34	862219	862244	862268	862293	862317	862342	[illegible]
35	862366	862391	862416	862440	862465	862489	[illegible]
36	862514	862538	862563	862587	862612	862636	[illegible]
37	862661	862685	862710	862734	862759	862783	[illegible]
38	862808	862832	862857	862881	862906	862930	[illegible]
39	862955	862979	863004	863028	863053	863077	[illegible]
40	1.863102	863126	863151	863175	863200	863224	[illegible]
41	863249	863273	863298	863322	863347	863371	[illegible]
42	863396	863420	863444	863469	863493	863518	[illegible]
43	863542	863567	863591	863616	863640	863664	[illegible]
44	863689	863713	863738	863762	863787	863811	[illegible]
45	863836	863860	863884	863909	863933	863958	[illegible]
46	863982	864006	864031	864055	864080	864104	[illegible]
47	864128	864153	864177	864202	864226	864250	[illegible]
48	864275	864299	864324	864348	864372	864397	[illegible]
49	864421	864445	864470	864494	864519	864543	[illegible]
50	1.864567	864592	864616	864640	864665	864689	[illegible]
51	864713	864738	864762	864787	864811	864835	[illegible]
52	864860	864884	864908	864933	864957	864981	[illegible]
53	865006	865030	865054	865078	865103	865127	[illegible]
54	865151	865176	865200	865224	865249	865273	[illegible]
55	865297	865322	865346	865370	865394	865419	[illegible]
56	865443	865467	865492	865516	865540	865564	[illegible]
57	865589	865613	865637	865662	865686	865710	[illegible]
58	865734	865759	865783	865807	865831	865856	[illegible]
59	865880	865904	865928	865953	865977	866001	[illegible]
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 30 degrees, or Natural Co-sine of 30 degrees.						
Propor.	1″	2″	3″	4″	5″	6″	7″	8″	9″

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTE

Versed Sine of 150 degrees, or Natural Sine of 60 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.866025	866050	866074	866098	866122	866147	59
1	866171	866195	866219	866244	866268	866292	58
2	866316	866340	866365	866389	866413	866437	57
3	866461	866486	866510	866534	866558	866582	56
4	866607	866631	866655	866679	866703	866728	55
5	866752	866776	866800	866824	866848	866873	54
6	866897	866921	866945	866969	866993	867018	53
7	867042	867066	867090	867114	867138	867162	52
8	867187	867211	867235	867259	867283	867307	51
9	867331	867356	867380	867404	867428	867452	50
10	1.867476	867500	867524	867549	867573	867597	49
11	867621	867645	867669	867693	867717	867741	48
12	867765	867790	867814	867838	867862	867886	47
13	867910	867934	867958	867982	868006	868030	46
14	868054	868079	868103	868127	868151	868175	45
15	868199	868223	868247	868271	868295	868319	44
16	868343	868367	868391	868415	868439	868463	43
17	868487	868511	868535	868559	868583	868607	42
18	868632	868656	868680	868704	868728	868752	41
19	868776	868800	868824	868848	868872	868896	40
20	1.868920	868944	868968	868992	869016	869040	39
21	869064	869088	869112	869135	869159	869183	38
22	869207	869231	869255	869279	869303	869327	37
23	869351	869375	869399	869423	869447	869471	36
24	869495	869519	869543	869567	869591	869615	35
25	869639	869663	869686	869710	869734	869758	34
26	869782	869806	869830	869854	869878	869902	33
27	869926	869950	869973	869997	870021	870045	32
28	870069	870093	870117	870141	870165	870189	31
29	870212	870236	870260	870284	870308	870332	30
30	1.870356	870380	870403	870427	870451	870475	29
31	870499	870523	870547	870570	870594	870618	28
32	870642	870666	870690	870714	870737	870761	27
33	870785	870809	870833	870857	870880	870904	26
34	870928	870952	870976	871000	871023	871047	25
35	871071	871095	871119	871142	871166	871190	24
36	871214	871238	871261	871285	871309	871333	23
37	871357	871380	871404	871428	871452	871475	22
38	871499	871523	871547	871571	871594	871618	21
39	871642	871666	871689	871713	871737	871761	20
40	1.871784	871808	871832	871856	871879	871903	19
41	871927	871951	871974	871998	872022	872046	18
42	872069	872093	872117	872140	872164	872188	17
43	872212	872235	872259	872283	872306	872330	16
44	872354	872378	872401	872425	872449	872472	15
45	872496	872520	872543	872567	872591	872614	14
46	872638	872662	872685	872709	872733	872756	13
47	872780	872804	872827	872851	872875	872898	12
48	872922	872946	872969	872993	873017	873040	11
49	873064	873088	873111	873135	873158	873182	10
50	1.873206	873229	873253	873277	873300	873324	9
51	873347	873371	873395	873418	873442	873466	8
52	873489	873513	873536	873560	873584	873607	7
53	873631	873654	873678	873701	873725	873749	6
54	873772	873796	873819	873843	873867	873890	5
55	873914	873937	873961	873984	874008	874031	4
56	874055	874079	874102	874126	874149	874173	3
57	874196	874220	874243	874267	874290	874314	2
58	874338	874361	874385	874408	874432	874455	1
59	874479	874502	874526	874549	874573	874596	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 29 degrees, or Natural Co-sine of 29 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	10	12	14	17	19	22

Versed Sine of 151 degrees, or Natural Sine of 61 degrees.

Minutes	0″	10″	20″	30″	40″	50″
0	1.874620	874643	874667	874690	874714	874737
1	874761	874784	874808	874831	874855	874878
2	874902	874925	874949	874972	874996	875019
3	875042	875066	875089	875113	875136	875160
4	875183	875207	875230	875254	875277	875300
5	875324	875347	875371	875394	875418	875441
6	875465	875488	875511	875535	875558	875582
7	875605	875628	875652	875675	875699	875722
8	875746	875769	875792	875816	875839	875863
9	875886	875909	875933	875956	875979	876003
10	1.876026	876050	876073	876096	876120	876143
11	876167	876190	876213	876237	876260	876283
12	876307	876330	876353	876377	876400	876423
13	876447	876470	876493	876517	876540	876563
14	876587	876610	876633	876657	876680	876703
15	876727	876750	876773	876797	876820	876843
16	876867	876890	876913	876937	876960	876983
17	877006	877030	877053	877076	877100	877123
18	877146	877169	877193	877216	877239	877263
19	877286	877309	877332	877356	877379	877402
20	1.877425	877449	877472	877495	877518	877542
21	877565	877588	877611	877635	877658	877681
22	877704	877728	877751	877774	877797	877820
23	877844	877867	877890	877913	877937	877960
24	877983	878006	878029	878053	878076	878099
25	878122	878145	878169	878192	878215	878238
26	878261	878285	878308	878331	878354	878377
27	878400	878424	878447	878470	878493	878516
28	878539	878563	878586	878609	878632	878655
29	878678	878701	878725	878748	878771	878794
30	1.878817	878840	878863	878887	878910	878933
31	878956	878979	879002	879025	879048	879071
32	879095	879118	879141	879164	879187	879210
33	879233	879256	879279	879302	879326	879349
34	879372	879395	879418	879441	879464	879487
35	879510	879533	879556	879579	879602	879626
36	879649	879672	879695	879718	879741	879764
37	879787	879810	879833	879856	879879	879902
38	879925	879948	879971	879994	880017	880040
39	880063	880086	880109	880132	880155	880178
40	1.880201	880224	880247	880270	880293	880316
41	880339	880362	880385	880408	880431	880454
42	880477	880500	880523	880546	880569	880592
43	880615	880638	880661	880684	880707	880730
44	880753	880776	880799	880822	880845	880868
45	880891	880914	880937	880960	880983	881005
46	881028	881051	881074	881097	881120	881143
47	881166	881189	881212	881235	881258	881281
48	881303	881326	881349	881372	881395	881418
49	881441	881464	881487	881510	881532	881555
50	1.881578	881601	881624	881647	881670	881693
51	881716	881738	881761	881784	881807	881830
52	881853	881876	881898	881921	881944	881967
53	881990	882013	882036	882058	882081	882104
54	882127	882150	882173	882195	882218	882241
55	882264	882287	882309	882332	882355	882378
56	882401	882424	882446	882469	882492	882515
57	882538	882560	882583	882606	882629	882651
58	882674	882697	882720	882743	882765	882788
59	882811	882834	882857	882879	882902	882925
Minutes	60″	50″	40″	30″	20″	10″

Versed Sine Supplement of 28 degrees, or Natural Co-sine of 28 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	9	12	14	16	18	21

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 152 degrees, or Natural Sine of 62 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.882948	882970	882993	883016	883039	883061	59
1	883084	883107	883130	883152	883175	883198	58
2	883221	883243	883266	883289	883311	883334	57
3	883357	883380	883402	883425	883448	883471	56
4	883493	883516	883539	883561	883584	883607	55
5	883629	883652	883675	883698	883720	883743	54
6	883766	883788	883811	883834	883856	883879	53
7	883902	883924	883947	883970	883992	884015	52
8	884038	884060	884083	884106	884128	884151	51
9	884174	884196	884219	884242	884264	884287	50
10	1.884309	884332	884355	884377	884400	884423	49
11	884445	884468	884491	884513	884536	884558	48
12	884581	884604	884626	884649	884671	884694	47
13	884717	884739	884762	884784	884807	884830	46
14	884852	884875	884897	884920	884942	884965	45
15	884988	885010	885033	885055	885078	885100	44
16	885123	885146	885168	885191	885213	885236	43
17	885258	885281	885303	885326	885349	885371	42
18	885394	885416	885439	885461	885484	885506	41
19	885529	885551	885574	885596	885619	885641	40
20	1.885664	885686	885709	885731	885754	885776	39
21	885799	885821	885844	885866	885889	885911	38
22	885934	885956	885979	886001	886024	886046	37
23	886069	886091	886114	886136	886159	886181	36
24	886204	886226	886248	886271	886293	886316	35
25	886338	886361	886383	886406	886428	886451	34
26	886473	886495	886518	886540	886563	886585	33
27	886608	886630	886652	886675	886697	886720	32
28	886742	886764	886787	886809	886832	886854	31
29	886876	886899	886921	886944	886966	886988	30
30	1.887011	887033	887056	887078	887100	887123	29
31	887145	887167	887190	887212	887235	887257	28
32	887279	887302	887324	887346	887369	887391	27
33	887413	887436	887458	887480	887503	887525	26
34	887548	887570	887592	887615	887637	887659	25
35	887681	887704	887726	887748	887771	887793	24
36	887815	887838	887860	887882	887905	887927	23
37	887949	887972	887994	888016	888038	888061	22
38	888083	888105	888128	888150	888172	888194	21
39	888217	888239	888261	888283	888306	888328	20
40	1.888350	888373	888395	888417	888439	888462	19
41	888484	888506	888528	888551	888573	888595	18
42	888617	888639	888662	888684	888706	888728	17
43	888751	888773	888795	888817	888839	888862	16
44	888884	888906	888928	888951	888973	888995	15
45	889017	889039	889062	889084	889106	889128	14
46	889150	889172	889195	889217	889239	889261	13
47	889283	889306	889328	889350	889372	889394	12
48	889416	889439	889461	889483	889505	889527	11
49	889549	889571	889594	889616	889638	889660	10
50	1.889682	889704	889726	889749	889771	889793	9
51	889815	889837	889859	889881	889903	889926	8
52	889948	889970	889992	890014	890036	890058	7
53	890080	890102	890124	890146	890169	890191	6
54	890213	890235	890257	890279	890301	890323	5
55	890345	890367	890389	890411	890433	890456	4
56	890478	890500	890522	890544	890566	890588	3
57	890610	890632	890654	890676	890698	890720	2
58	890742	890764	890786	890808	890830	890852	1
59	890874	890896	890918	890940	890962	890985	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 27 degrees, or Natural Co-sine of 27 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	7	9	11	13	16	18	20

Versed Sine of 153 degrees, or Natural Sine of 63 degrees.

Minutes	0′	10″	20″	30″	40″	50″	Minutes
0	1.891007	891029	891051	891073	891095	891117	59
1	891139	891161	891183	891205	891227	891249	58
2	891270	891292	891314	891336	891358	891380	57
3	891402	891424	891446	891468	891490	891512	56
4	891534	891556	891578	891600	891622	891644	55
5	891666	891688	891710	891732	891754	891776	54
6	891798	891819	891841	891863	891885	891907	53
7	891929	891951	891973	891995	892017	892039	52
8	892061	892083	892104	892126	892148	892170	51
9	892192	892214	892236	892258	892280	892301	50
10	1.892323	892345	892367	892389	892411	892433	49
11	892455	892476	892498	892520	892542	892564	48
12	892586	892608	892630	892651	892673	892695	47
13	892717	892739	892761	892782	892804	892826	46
14	892848	892870	892892	892913	892935	892957	45
15	892979	893001	893022	893044	893066	893088	44
16	893110	893132	893153	893175	893197	893219	43
17	893241	893262	893284	893306	893328	893350	42
18	893371	893393	893415	893437	893459	893480	41
19	893502	893524	893546	893567	893589	893611	40
20	1.893633	893654	893676	893698	893720	893741	39
21	893763	893785	893807	893828	893850	893872	38
22	893894	893915	893937	893959	893981	894002	37
23	894024	894046	894067	894089	894111	894133	36
24	894154	894176	894198	894219	894241	894263	35
25	894284	894306	894328	894350	894371	894393	34
26	894415	894436	894458	894480	894501	894523	33
27	894545	894566	894588	894610	894631	894653	32
28	894675	894696	894718	894740	894761	894783	31
29	894805	894826	894848	894869	894891	894913	30
30	1.894934	894956	894978	894999	895021	895042	29
31	895064	895086	895107	895129	895151	895172	28
32	895194	895215	895237	895259	895280	895302	27
33	895323	895345	895367	895388	895410	895431	26
34	895453	895475	895496	895518	895539	895561	25
35	895582	895604	895626	895647	895669	895690	24
36	895712	895733	895755	895776	895798	895820	23
37	895841	895863	895884	895906	895927	895949	22
38	895970	895992	896013	896035	896056	896078	21
39	896099	896121	896142	896164	896185	896207	20
40	1.896229	896250	896272	896293	896315	896336	19
41	896358	896379	896400	896422	896443	896465	18
42	896486	896508	896529	896551	896572	896594	17
43	896615	896637	896658	896680	896701	896723	16
44	896744	896766	896787	896808	896830	896851	15
45	896873	896894	896916	896937	896958	896980	14
46	897001	897023	897044	897066	897087	897108	13
47	897130	897151	897173	897194	897216	897237	12
48	897258	897280	897301	897323	897344	897365	11
49	897387	897408	897430	897451	897472	897494	10
50	1.897515	897536	897558	897579	897601	897622	9
51	897643	897665	897686	897707	897729	897750	8
52	897771	897793	897814	897836	897857	897878	7
53	897900	897921	897942	897964	897985	898006	6
54	898028	898049	898070	898092	898113	898134	5
55	898156	898177	898198	898219	898241	898262	4
56	898283	898305	898326	898347	898369	898390	3
57	898411	898432	898454	898475	898496	898518	2
58	898539	898560	898581	898603	898624	898645	1
59	898666	898688	898709	898730	898752	898773	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 26 degrees, or Natural Co-sine of 26 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	9	11	13	15	17	19

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 154 degrees, or Natural Sine of 64 degrees.

	0″	10″	20″	30″	40″	50″	Minutes
1.	898794	898815	898837	898858	898879	898900	59
	898922	898943	898964	898985	899006	899028	58
	899049	899070	899091	899113	899134	899155	57
	899176	899197	899219	899240	899261	899282	56
	899304	899325	899346	899367	899388	899409	55
	899431	899452	899473	899494	899515	899537	54
	899558	899579	899600	899621	899642	899664	53
	899685	899706	899727	899748	899769	899791	52
	899812	899833	899854	899875	899896	899917	51
	899939	899960	899981	900002	900023	900044	50
1.	900065	900087	900108	900129	900150	900171	49
	900192	900213	900234	900255	900277	900298	48
	900319	900340	900361	900382	900403	900424	47
	900445	900466	900488	900509	900530	900551	46
	900572	900593	900614	900635	900656	900677	45
	900698	900719	900740	900761	900782	900804	44
	900825	900846	900867	900888	900909	900930	43
	900951	900972	900993	901014	901035	901056	42
	901077	901098	901119	901140	901161	901182	41
	901203	901224	901245	901266	901287	901308	40
1.	901329	901350	901371	901392	901413	901434	39
	901455	901476	901497	901518	901539	901560	38
	901581	901602	901623	901644	901665	901686	37
	901707	901728	901749	901770	901791	901812	36
	901833	901853	901874	901895	901916	901937	35
	901958	901979	902000	902021	902042	902063	34
	902084	902105	902126	902147	902167	902188	33
	902209	902230	902251	902272	902293	902314	32
	902335	902356	902376	902397	902418	902439	31
	902460	902481	902502	902523	902544	902564	30
1.	902585	902606	902627	902648	902669	902690	29
	902710	902731	902752	902773	902794	902815	28
	902836	902856	902877	902898	902919	902940	27
	902961	902981	903002	903023	903044	903065	26
	903086	903106	903127	903148	903169	903190	25
	903210	903231	903252	903273	903294	903314	24
	903335	903356	903377	903398	903418	903439	23
	903460	903481	903502	903522	903543	903564	22
	903585	903605	903626	903647	903668	903689	21
	903709	903730	903751	903772	903792	903813	20
1.	903834	903855	903875	903896	903917	903937	19
	903958	903979	904000	904020	904041	904062	18
	904083	904103	904123	904145	904165	904186	17
	904207	904228	904248	904269	904290	904310	16
	904331	904352	904372	904393	904414	904434	15
	904455	904476	904497	904517	904538	904559	14
	904579	904600	904621	904641	904662	904683	13
	904703	904724	904744	904765	904786	904806	12
	904827	904848	904868	904889	904910	904930	11
	904951	904971	904992	905013	905033	905054	10
1.	905075	905095	905116	905136	905157	905178	9
	905198	905219	905240	905260	905281	905301	8
	905322	905342	905363	905384	905404	905425	7
	905445	905466	905487	905507	905528	905548	6
	905569	905589	905610	905631	905651	905672	5
	905692	905713	905733	905754	905774	905795	4
	905815	905836	905857	905877	905898	905918	3
	905939	905959	905980	906000	906021	906041	2
	906062	906082	906103	906123	906144	906164	1
	906185	906205	906226	906246	906267	906287	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 25 degrees, or Natural Co-sine of 25 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	13	15	17	19

Versed Sine of 155 degrees, or Natural Sine of 65 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1. 906308	906328	906349	906369	906390	906410	59
1	906431	906451	906472	906492	906513	906533	58
2	906554	906574	906594	906615	906635	906656	57
3	906676	906697	906717	906738	906758	906778	56
4	906799	906819	906840	906860	906881	906901	55
5	906922	906942	906962	906983	907003	907024	54
6	907044	907064	907085	907105	907126	907146	53
7	907166	907187	907207	907228	907248	907268	52
8	907289	907309	907330	907350	907370	907391	51
9	907411	907431	907452	907472	907493	907513	50
10	1. 907533	907554	907574	907594	907615	907635	49
11	907655	907676	907696	907716	907737	907757	48
12	907777	907798	907818	907838	907859	907879	47
13	907899	907920	907940	907960	907981	908001	46
14	908021	908042	908062	908082	908103	908123	45
15	908143	908163	908184	908204	908224	908245	44
16	908265	908285	908305	908326	908346	908366	43
17	908387	908407	908427	908447	908468	908488	42
18	908508	908528	908549	908569	908589	908609	41
19	908630	908650	908670	908690	908711	908731	40
20	1. 908751	908771	908792	908812	908832	908852	39
21	908872	908893	908913	908933	908953	908974	38
22	908994	909014	909034	909054	909075	909095	37
23	909115	909135	909155	909176	909196	909216	36
24	909236	909256	909276	909297	909317	909337	35
25	909357	909377	909397	909418	909438	909458	34
26	909478	909498	909518	909539	909559	909579	33
27	909599	909619	909639	909659	909680	909700	32
28	909720	909740	909760	909780	909800	909820	31
29	909841	909861	909881	909901	909921	909941	30
30	1. 909961	909981	910001	910022	910042	910062	29
31	910082	910102	910122	910142	910162	910182	28
32	910202	910222	910243	910263	910283	910303	27
33	910323	910343	910363	910383	910403	910423	26
34	910443	910463	910483	910503	910523	910543	25
35	910563	910583	910604	910624	910644	910664	24
36	910684	910704	910724	910744	910764	910784	23
37	910804	910824	910844	910864	910884	910904	22
38	910924	910944	910964	910984	911004	911024	21
39	911044	911064	911084	911104	911124	911144	20
40	1. 911164	911184	911204	911224	911244	911264	19
41	911284	911303	911323	911343	911363	911383	18
42	911403	911423	911443	911463	911483	911503	17
43	911523	911543	911563	911583	911603	911623	16
44	911643	911662	911682	911702	911722	911742	15
45	911762	911782	911802	911822	911842	911862	14
46	911881	911901	911921	911941	911961	911981	13
47	912001	912021	912041	912060	912080	912100	12
48	912120	912140	912160	912180	912200	912219	11
49	912239	912259	912279	912299	912319	912339	10
50	1. 912358	912378	912398	912418	912438	912458	9
51	912477	912497	912517	912537	912557	912577	8
52	912596	912616	912636	912656	912676	912696	7
53	912715	912735	912755	912775	912795	912814	6
54	912834	912854	912874	912894	912913	912933	5
55	912953	912973	912992	913012	913032	913052	4
56	913072	913091	913111	913131	913151	913170	3
57	913190	913210	913230	913249	913269	913289	2
58	913309	913328	913348	913368	913388	913407	1
59	913427	913447	913467	913486	913506	913526	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 24 degrees, or Natural Co-sine of 24 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	12	14	16	18

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 140 degrees, or Natural Sine of 50 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.766044	766076	766107	766138	766169	766200	59
1	766231	766263	766294	766325	766356	766387	58
2	766418	766449	766481	766512	766543	766574	57
3	766605	766636	766667	766698	766730	766761	56
4	766792	766823	766854	766885	766916	766947	55
5	766979	767010	767041	767072	767103	767134	54
6	767165	767196	767227	767258	767290	767321	53
7	767352	767383	767414	767445	767476	767507	52
8	767538	767569	767600	767631	767662	767694	51
9	767725	767756	767787	767818	767849	767880	50
10	1.767911	767942	767973	768004	768035	768066	49
11	768097	768128	768159	768190	768221	768252	48
12	768284	768315	768346	768377	768408	768439	47
13	768470	768501	768532	768563	768594	768625	46
14	768656	768687	768718	768749	768780	768811	45
15	768842	768873	768904	768935	768966	768997	44
16	769028	769059	769090	769121	769152	769183	43
17	769214	769245	769276	769307	769338	769369	42
18	769400	769431	769461	769492	769523	769554	41
19	769585	769616	769647	769678	769709	769740	40
20	1.769771	769802	769833	769864	769895	769926	39
21	769957	769988	770019	770049	770080	770111	38
22	770142	770173	770204	770235	770266	770297	37
23	770328	770359	770390	770421	770451	770482	36
24	770513	770544	770575	770606	770637	770668	35
25	770699	770730	770760	770791	770822	770853	34
26	770884	770915	770946	770977	771007	771038	33
27	771069	771100	771131	771162	771193	771224	32
28	771254	771285	771316	771347	771378	771409	31
29	771440	771470	771501	771532	771563	771594	30
30	1.771625	771655	771686	771717	771748	771779	29
31	771810	771840	771871	771902	771933	771964	28
32	771995	772025	772056	772087	772118	772149	27
33	772179	772210	772241	772272	772303	772333	26
34	772364	772395	772426	772457	772487	772518	25
35	772549	772580	772610	772641	772672	772703	24
36	772734	772764	772795	772826	772857	772887	23
37	772918	772949	772980	773010	773041	773072	22
38	773103	773133	773164	773195	773226	773256	21
39	773287	773318	773349	773379	773410	773441	20
40	1.773472	773502	773533	773564	773594	773625	19
41	773656	773687	773717	773748	773779	773810	18
42	773840	773871	773902	773932	773963	773994	17
43	774024	774055	774086	774117	774147	774178	16
44	774209	774239	774270	774301	774331	774362	15
45	774393	774423	774454	774485	774515	774546	14
46	774577	774607	774638	774669	774699	774730	13
47	774761	774791	774822	774853	774883	774914	12
48	774944	774975	775006	775036	775067	775098	11
49	775128	775159	775190	775220	775251	775281	10
50	1.775312	775343	775373	775404	775435	775465	9
51	775496	775526	775557	775588	775618	775649	8
52	775679	775710	775741	775771	775802	775832	7
53	775863	775894	775924	775955	775985	776016	6
54	776046	776077	776108	776138	776169	776199	5
55	776230	776260	776291	776322	776352	776383	4
56	776413	776444	776474	776505	776535	776566	3
57	776596	776627	776658	776688	776719	776749	2
58	776780	776810	776841	776871	776902	776932	1
59	776963	776993	777024	777054	777085	777115	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 39 degrees, or Natural Co-sine of 39 degrees.

	2″	3″	4″	5″	6″	7″	8″	9″
	6	9	12	15	19	22	25	28

Versed Sine of 141 degrees, or Natural Sine of 51 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.777146	777176	777207	777237	777268	777298	59
1	777329	777359	777390	777420	777451	777481	58
2	777512	777542	777573	777603	777634	777664	57
3	777695	777725	777756	777786	777817	777847	56
4	777878	777908	777939	777969	778000	778030	55
5	778060	778091	778121	778152	778182	778213	54
6	778243	778274	778304	778334	778365	778395	53
7	778426	778456	778487	778517	778548	778578	52
8	778608	778639	778669	778700	778730	778760	51
9	778791	778821	778852	778882	778912	778943	50
10	1.778973	779004	779034	779064	779095	779125	49
11	779156	779186	779216	779247	779277	779308	48
12	779338	779368	779399	779429	779459	779490	47
13	779520	779551	779581	779611	779642	779672	46
14	779702	779733	779763	779793	779824	779854	45
15	779884	779915	779945	779976	780006	780036	44
16	780067	780097	780127	780158	780188	780218	43
17	780249	780279	780309	780339	780370	780400	42
18	780430	780461	780491	780521	780552	780582	41
19	780612	780643	780673	780703	780733	780764	40
20	1.780794	780824	780855	780885	780915	780945	39
21	780976	781006	781036	781067	781097	781127	38
22	781157	781188	781218	781248	781278	781309	37
23	781339	781369	781399	781430	781460	781490	36
24	781520	781551	781581	781611	781641	781672	35
25	781702	781732	781762	781793	781823	781853	34
26	781883	781914	781944	781974	782004	782034	33
27	782065	782095	782125	782155	782185	782216	32
28	782246	782276	782306	782336	782367	782397	31
29	782427	782457	782487	782518	782548	782578	30
30	1.782608	782638	782669	782699	782729	782759	29
31	782789	782819	782850	782880	782910	782940	28
32	782970	783000	783031	783061	783091	783121	27
33	783151	783181	783211	783242	783272	783302	26
34	783332	783362	783392	783422	783452	783483	25
35	783513	783543	783573	783603	783633	783663	24
36	783693	783724	783754	783784	783814	783844	23
37	783874	783904	783934	783964	783995	784025	22
38	784055	784085	784115	784145	784175	784205	21
39	784235	784265	784295	784325	784356	784386	20
40	1.784416	784446	784476	784506	784536	784566	19
41	784596	784626	784656	784686	784716	784746	18
42	784776	784806	784836	784867	784897	784927	17
43	784957	784987	785017	785047	785077	785107	16
44	785137	785167	785197	785227	785257	785287	15
45	785317	785347	785377	785407	785437	785467	14
46	785497	785527	785557	785587	785617	785647	13
47	785677	785707	785737	785767	785797	785827	12
48	785857	785887	785917	785947	785977	786007	11
49	786037	786067	786097	786127	786157	786187	10
50	1.786217	786246	786276	786306	786336	786366	9
51	786396	786426	786456	786486	786516	786546	8
52	786576	786606	786636	786666	786696	786726	7
53	786756	786785	786815	786845	786875	786905	6
54	786935	786965	786995	787025	787055	787085	5
55	787114	787144	787174	787204	787234	787264	4
56	787294	787324	787354	787384	787413	787443	3
57	787473	787503	787533	787563	787593	787623	2
58	787652	787682	787712	787742	787772	787802	1
59	787832	787861	787891	787921	787951	787981	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 38 degrees, or Natural Co-sine of 38 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECT

Versed Sine of 142 degrees, or Natural Sine of 52 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.788011	788041	788070	788100	788130	788160	59
1	788190	788220	788249	788279	788309	788339	58
2	788369	788399	788428	788458	788488	788518	57
3	788548	788578	788607	788637	788667	788697	56
4	788727	788756	788786	788816	788846	788876	55
5	788905	788935	788965	788995	789025	789054	54
6	789084	789114	789144	789173	789203	789233	53
7	789263	789293	789322	789352	789382	789412	52
8	789441	789471	789501	789531	789560	789590	51
9	789620	789650	789679	789709	789739	789769	50
10	1.789798	789828	789858	789888	789917	789947	49
11	789977	790006	790036	790066	790096	790125	48
12	790155	790185	790214	790244	790274	790304	47
13	790333	790363	790393	790422	790452	790482	46
14	790511	790541	790571	790601	790630	790660	45
15	790690	790719	790749	790779	790808	790838	44
16	790868	790897	790927	790957	790986	791016	43
17	791046	791075	791105	791135	791164	791194	42
18	791224	791253	791283	791312	791342	791372	41
19	791401	791431	791461	791490	791520	791550	40
20	1.791579	791609	791638	791668	791698	791727	39
21	791757	791787	791816	791846	791875	791905	38
22	791935	791964	791994	792023	792053	792083	37
23	792112	792142	792171	792201	792230	792260	36
24	792290	792319	792349	792378	792408	792438	35
25	792467	792497	792526	792556	792585	792615	34
26	792644	792674	792704	792733	792763	792792	33
27	792822	792851	792881	792910	792940	792970	32
28	792999	793029	793058	793088	793117	793147	31
29	793176	793206	793235	793265	793294	793324	30
30	1.793353	793383	793412	793442	793471	793501	29
31	793530	793560	793589	793619	793648	793678	28
32	793707	793737	793766	793796	793825	793855	27
33	793884	793914	793943	793973	794002	794032	26
34	794061	794091	794120	794150	794179	794208	25
35	794238	794267	794297	794326	794356	794385	24
36	794415	794444	794474	794503	794532	794562	23
37	794591	794621	794650	794680	794709	794738	22
38	794768	794797	794827	794856	794886	794915	21
39	794944	794974	795003	795033	795062	795091	20
40	1.795121	795150	795180	795209	795238	795268	19
41	795297	795327	795356	795385	795415	795444	18
42	795473	795503	795532	795562	795591	795620	17
43	795650	795679	795708	795738	795767	795797	16
44	795826	795855	795885	795914	795943	795973	15
45	796002	796031	796061	796090	796119	796149	14
46	796178	796207	796237	796266	796295	796325	13
47	796354	796383	796413	796442	796472	796501	12
48	796530	796559	796589	796618	796647	796676	11
49	796706	796735	796764	796794	796823	796852	10
50	1.796882	796911	796940	796969	796999	797028	9
51	797057	797087	797116	797145	797174	797204	8
52	797233	797262	797291	797321	797350	797379	7
53	797408	797438	797467	797496	797525	797555	6
54	797584	797613	797642	797672	797701	797730	5
55	797759	797789	797818	797847	797876	797906	4
56	797935	797964	797993	798022	798052	798081	3
57	798110	798139	798168	798198	798227	798256	2
58	798285	798314	798344	798373	798402	798431	1
59	798460	798490	798519	798548	798577	798606	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 37 degrees, or Natural Co-sine of 37 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	9	12	15	18	21	24	27

Versed Sine of 143 degrees, or Natural Sine of 53 degrees.

Minutes	0″	10″	20″	30″	40″	50
0	1.798636	798665	798694	798723	798752	7987
1	798811	798840	798869	798898	798927	7989
2	798985	799015	799044	799073	799102	7991
3	799160	799190	799219	799248	799277	7993
4	799335	799364	799393	799423	799452	7994
5	799510	799539	799568	799597	799626	7996
6	799685	799714	799743	799772	799801	7998
7	799859	799888	799917	799946	799976	8000
8	800034	800063	800092	800121	800150	8001
9	800208	800237	800266	800296	800325	8003
10	1.800383	800412	800441	800470	800499	8005
11	800557	800586	800615	800644	800673	8007
12	800731	800760	800789	800819	800848	8008
13	800906	800935	800964	800993	801022	8010
14	801080	801109	801138	801167	801196	8012
15	801254	801283	801312	801341	801370	8013
16	801428	801457	801486	801515	801544	8015
17	801602	801631	801660	801689	801718	8017
18	801776	801805	801834	801863	801892	8019
19	801949	801978	802007	802036	802065	8020
20	1.802123	802152	802181	802210	802239	8022
21	802297	802326	802355	802384	802413	8024
22	802470	802499	802528	802557	802586	8026
23	802644	802673	802702	802731	802760	8027
24	802817	802846	802875	802904	802933	8029
25	802991	803020	803049	803078	803106	8031
26	803164	803193	803222	803251	803280	8033
27	803337	803366	803395	803424	803453	8034
28	803511	803540	803568	803597	803626	8036
29	803684	803713	803741	803770	803799	8038
30	1.803857	803886	803915	803943	803972	8040
31	804030	804059	804088	804116	804145	8041
32	804203	804232	804260	804289	804318	8043
33	804376	804404	804433	804462	804491	8045
34	804548	804577	804606	804635	804664	8046
35	804721	804750	804779	804807	804836	8048
36	804894	804923	804951	804980	805009	8050
37	805066	805095	805124	805153	805181	8052
38	805239	805268	805296	805325	805354	8053
39	805411	805440	805469	805498	805526	8055
40	1.805584	805612	805641	805670	805699	8057
41	805756	805785	805813	805842	805871	8059
42	805928	805957	805986	806014	806043	8060
43	806100	806129	806158	806187	806215	8062
44	806273	806301	806330	806359	806387	8064
45	806445	806473	806502	806531	806559	8065
46	806617	806645	806674	806703	806731	8067
47	806788	806817	806846	806874	806903	8069
48	806960	806989	807018	807046	807075	8071
49	807132	807161	807189	807218	807247	8072
50	1.807304	807332	807361	807390	807418	8074
51	807475	807504	807533	807561	807590	8076
52	807647	807676	807704	807733	807761	8079
53	807818	807847	807876	807904	807933	8079
54	807990	808018	808047	808076	808104	8081
55	808161	808190	808218	808247	808275	8083
56	808333	808361	808390	808418	808447	8084
57	808504	808532	808561	808589	808618	8086
58	808675	808703	808732	808760	808789	8088
59	808846	808874	808903	808931	808960	8089
	60″	50″	40″	30″	20″	10″

Versed Sine Supplement of 36 degrees, or Natural Co-sine of 36 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9
	3	6	9	12	14	17	20	23	26

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 144 degrees, or Natural Sine of 54 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.809017	809045	809074	809102	809131	809159	59
1	809188	809216	809245	809273	809302	809330	58
2	809359	809387	809416	809444	809473	809501	57
3	809530	809558	809587	809615	809643	809672	56
4	809700	809729	809757	809786	809814	809843	55
5	809871	809899	809928	809956	809985	810013	54
6	810042	810070	810098	810127	810155	810184	53
7	810212	810241	810269	810297	810326	810354	52
8	810383	810411	810439	810468	810496	810525	51
9	810553	810581	810610	810638	810667	810695	50
10	1.810723	810752	810780	810809	810837	810865	49
11	810894	810922	810950	810979	811007	811035	48
12	811064	811092	811121	811149	811177	811206	47
13	811234	811262	811291	811319	811347	811376	46
14	811404	811432	811461	811489	811517	811546	45
15	811574	811602	811631	811659	811687	811716	44
16	811744	811772	811801	811829	811857	811885	43
17	811914	811942	811970	811999	812027	812055	42
18	812084	812112	812140	812168	812197	812225	41
19	812253	812282	812310	812338	812366	812395	40
20	1.812423	812451	812479	812508	812536	812564	39
21	812592	812621	812649	812677	812705	812734	38
22	812762	812790	812818	812847	812875	812903	37
23	812931	812960	812988	813016	813044	813073	36
24	813101	813129	813157	813185	813214	813242	35
25	813270	813298	813326	813355	813383	813411	34
26	813439	813467	813496	813524	813552	813580	33
27	813608	813637	813665	813693	813721	813749	32
28	813778	813806	813834	813862	813890	813918	31
29	813947	813975	814003	814031	814059	814087	30
30	1.814116	814144	814172	814200	814228	814256	29
31	814284	814313	814341	814369	814397	814425	28
32	814453	814481	814509	814538	814566	814594	27
33	814622	814650	814678	814706	814734	814763	26
34	814791	814819	814847	814875	814903	814931	25
35	814959	814987	815015	815044	815072	815100	24
36	815128	815156	815184	815212	815240	815268	23
37	815296	815324	815352	815380	815409	815437	22
38	815465	815493	815521	815549	815577	815605	21
39	815633	815661	815689	815717	815745	815773	20
40	1.815801	815829	815857	815885	815913	815941	19
41	815969	815997	816026	816054	816082	816110	18
42	816138	816166	816194	816222	816250	816278	17
43	816306	816334	816362	816390	816418	816446	16
44	816474	816502	816530	816558	816586	816614	15
45	816642	816670	816698	816725	816753	816781	14
46	816809	816837	816865	816893	816921	816949	13
47	816977	817005	817033	817061	817089	817117	12
48	817145	817173	817201	817229	817257	817285	11
49	817313	817340	817368	817396	817424	817452	10
50	1.817480	817508	817536	817564	817592	817620	9
51	817648	817676	817703	817731	817759	817787	8
52	817815	817843	817871	817899	817927	817955	7
53	817982	818010	818038	818066	818094	818122	6
54	818150	818178	818205	818233	818261	818289	5
55	818317	818345	818373	818401	818428	818456	4
56	818484	818512	818540	818568	818596	818623	3
57	818651	818679	818707	818735	818763	818790	2
58	818818	818846	818874	818902	818930	818957	1
59	818985	819013	819041	819069	819096	819124	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 35 degrees, or Natural Co-sine of 35 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	6	8	11	14	17	20	22	25

Versed Sine of 145 degrees, or Natural Sine of 55 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.819152	819180	819208	819235	819263	819291	59
1	819319	819347	819374	819402	819430	819458	58
2	819486	819513	819541	819569	819597	819624	57
3	819652	819680	819708	819736	819763	819791	56
4	819819	819847	819874	819902	819930	819958	55
5	819985	820013	820041	820069	820096	820124	54
6	820152	820180	820207	820235	820263	820291	53
7	820318	820346	820374	820401	820429	820457	52
8	820485	820512	820540	820568	820595	820623	51
9	820651	820679	820706	820734	820762	820789	50
10	1.820817	820845	820872	820900	820928	820955	49
11	820983	821011	821039	821066	821094	821122	48
12	821149	821177	821205	821232	821260	821288	47
13	821315	821343	821370	821398	821426	821453	46
14	821481	821509	821536	821564	821592	821619	45
15	821647	821675	821702	821730	821757	821785	44
16	821813	821840	821868	821896	821923	821951	43
17	821978	822006	822034	822061	822089	822116	42
18	822144	822172	822199	822227	822254	822282	41
19	822310	822337	822365	822392	822420	822448	40
20	1.822475	822503	822530	822558	822585	822613	39
21	822641	822668	822696	822723	822751	822778	38
22	822806	822833	822861	822889	822916	822944	37
23	822971	822999	823026	823054	823081	823109	36
24	823136	823164	823191	823219	823246	823274	35
25	823302	823329	823357	823384	823412	823439	34
26	823467	823494	823522	823549	823577	823604	33
27	823632	823659	823687	823714	823742	823769	32
28	823797	823824	823851	823879	823906	823934	31
29	823961	823989	824016	824044	824071	824099	30
30	1.824126	824154	824181	824209	824236	824263	29
31	824291	824318	824346	824373	824401	824428	28
32	824456	824483	824510	824538	824565	824593	27
33	824620	824648	824675	824702	824730	824757	26
34	824785	824812	824839	824867	824894	824922	25
35	824949	824977	825004	825031	825059	825086	24
36	825113	825141	825168	825196	825223	825250	23
37	825278	825305	825333	825360	825387	825415	22
38	825442	825469	825497	825524	825551	825579	21
39	825606	825634	825661	825688	825716	825743	20
40	1.825770	825798	825825	825852	825880	825907	19
41	825934	825962	825989	826016	826044	826071	18
42	826098	826126	826153	826180	826208	826235	17
43	826262	826289	826317	826344	826371	826399	16
44	826426	826453	826481	826508	826535	826562	15
45	826590	826617	826644	826672	826699	826726	14
46	826753	826781	826808	826835	826863	826890	13
47	826917	826944	826972	826999	827026	827053	12
48	827080	827108	827135	827162	827190	827217	11
49	827244	827271	827299	827326	827353	827380	10
50	1.827407	827435	827462	827489	827516	827544	9
51	827571	827598	827625	827652	827680	827707	8
52	827734	827761	827788	827816	827843	827870	7
53	827897	827924	827952	827979	828006	828033	6
54	828060	828088	828115	828142	828169	828196	5
55	828223	828251	828278	828305	828332	828359	4
56	828386	828414	828441	828468	828495	828522	3
57	828549	828576	828604	828631	828658	828685	2
58	828712	828739	828766	828793	828821	828848	1
59	828875	828902	828929	828956	828983	829010	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 34 degrees, or Natural Co-sine of 34 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	11	14	16	19	22	25

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ATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECT

Versed Sine of 146 degrees, or Natural Sine of 56 degrees.

0′	10′	20′	30′	40′	50′	Minutes
1.829038	829065	829092	829119	829146	829173	59
829200	829227	829254	829281	829309	829336	58
829363	829390	829417	829444	829471	829498	57
829525	829552	829579	829606	829634	829661	56
829688	829715	829742	829769	829796	829823	55
829850	829877	829904	829931	829958	829985	54
830012	830039	830066	830093	830120	830147	53
830174	830202	830229	830256	830283	830310	52
830337	830364	830391	830418	830445	830472	51
830499	830526	830553	830580	830607	830634	50
1.830661	830688	830715	830742	830769	830796	49
830823	830850	830877	830904	830931	830957	48
830984	831011	831038	831065	831092	831119	47
831146	831173	831200	831227	831254	831281	46
831308	831335	831362	831389	831416	831443	45
831470	831497	831523	831550	831577	831604	44
831631	831658	831685	831712	831739	831766	43
831793	831820	831847	831873	831900	831927	42
831954	831981	832008	832035	832062	832089	41
832115	832142	832169	832196	832223	832250	40
1.832277	832304	832331	832357	832384	832411	39
832438	832465	832492	832518	832545	832572	38
832599	832626	832653	832680	832707	832733	37
832760	832787	832814	832841	832868	832894	36
832921	832948	832975	833002	833029	833055	35
833082	833109	833136	833163	833189	833216	34
833243	833270	833297	833323	833350	833377	33
833404	833431	833457	833484	833511	833538	32
833565	833591	833618	833645	833671	833698	31
833725	833752	833779	833806	833832	833859	30
1.833886	833913	833939	833966	833993	834020	29
834046	834073	834100	834127	834153	834180	28
834207	834234	834260	834287	834314	834340	27
834367	834394	834421	834447	834474	834501	26
834527	834554	834581	834608	834634	834661	25
834688	834714	834741	834768	834794	834821	24
834848	834875	834901	834928	834955	834981	23
835008	835035	835061	835088	835115	835141	22
835168	835195	835221	835248	835275	835301	21
835328	835355	835381	835408	835435	835461	20
1.835488	835514	835541	835568	835594	835621	19
835648	835674	835701	835728	835754	835781	18
835807	835834	835861	835887	835914	835940	17
835967	835994	836020	836047	836073	836100	16
836127	836153	836180	836206	836233	836260	15
836286	836313	836339	836366	836392	836419	14
836446	836472	836499	836525	836552	836578	13
836605	836632	836658	836685	836711	836738	12
836764	836791	836817	836844	836870	836897	11
836924	836950	836977	837003	837030	837056	10
1.837082	837109	837136	837162	837189	837215	9
837242	837268	837295	837321	837348	837374	8
837401	837427	837454	837480	837507	837533	7
837560	837586	837613	837639	837666	837692	6
837719	837745	837772	837798	837825	837851	5
837878	837904	837930	837957	837983	838010	4
838036	838063	838089	838116	838142	838169	3
838195	838221	838248	838274	838301	838327	2
838354	838380	838406	838433	838459	838486	1
838512	838539	838565	838591	838618	838644	0
60′	50′	40′	30′	20′	10′	Minutes

Versed Sine Supplement of 33 degrees, or Natural Co-sine of 33 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	11	13	16	19	22	24

Versed Sine of 147 degrees, or Natural Sine of 57 degrees.

Minutes	0″	10″	20″	30″	40″	50″
0	1.838671	838697	838723	838750	838776	8388c
1	838829	838855	838882	838908	838935	83896
2	838987	839014	839040	839066	839093	83911
3	839146	839172	839198	839225	839251	83927
4	839304	839330	839356	839383	839409	83943
5	839462	839488	839515	839541	839567	83959
6	839620	839646	839673	839699	839725	83975
7	839778	839804	839830	839857	839883	83990
8	839936	839962	839988	840015	840041	84006
9	840094	840120	840146	840172	840199	84022
10	1.840251	840278	840304	840330	840356	84038
11	840409	840435	840462	840488	840514	84054
12	840567	840593	840619	840645	840672	84069
13	840724	840750	840777	840803	840829	84085
14	840882	840908	840934	840960	840987	84101
15	841039	841065	841091	841118	841144	84117
16	841196	841223	841249	841275	841301	84132
17	841354	841380	841406	841432	841458	84148
18	841511	841537	841563	841589	841616	84164
19	841668	841694	841720	841746	841773	84179
20	1.841825	841851	841877	841903	841930	84195
21	841982	842008	842034	842060	842087	84211
22	842139	842165	842191	842217	842243	84227
23	842296	842322	842348	842374	842400	84242
24	842452	842479	842505	842531	842557	84258
25	842609	842635	842661	842687	842714	84274
26	842766	842792	842818	842844	842870	84289
27	842922	842948	842974	843000	843027	84305
28	843079	843105	843131	843157	843183	84320
29	843235	843261	843287	843313	843339	84336
30	1.843391	843417	843444	843470	843496	84352
31	843548	843574	843600	843626	843652	84367
32	843704	843730	843756	843782	843808	84383
33	843860	843886	843912	843938	843964	84399
34	844016	844042	844068	844094	844120	84414
35	844172	844198	844224	844250	844276	84430
36	844328	844354	844380	844406	844432	84445
37	844484	844510	844536	844562	844588	84461
38	844640	844665	844691	844717	844743	84476
39	844795	844821	844847	844873	844899	84492
40	1.844951	844977	845003	845029	845055	84508
41	845106	845132	845158	845184	845210	84523
42	845262	845288	845314	845340	845365	84539
43	845417	845443	845469	845495	845521	84554
44	845573	845598	845624	845650	845676	84570
45	845728	845754	845780	845805	845831	84585
46	845883	845909	845935	845961	845986	84601
47	846038	846064	846090	846116	846141	84616
48	846193	846219	846245	846271	846296	84632
49	846348	846374	846400	846426	846451	84647
50	1.846503	846529	846555	846580	846606	84663
51	846658	846684	846709	846735	846761	84678
52	846813	846838	846864	846890	846916	84694
53	846967	846993	847019	847045	847070	84709
54	847122	847148	847174	847199	847225	84725
55	847276	847302	847328	847354	847379	84740
56	847431	847456	847482	847508	847534	84756
57	847585	847611	847637	847663	847688	84771
58	847740	847765	847791	847817	847843	84786
59	847894	847920	847945	847971	847997	84802
Minutes	60″	50″	40″	30″	20″	10″

Versed Sine Supplement of 32 degrees, or Natural Co-sine of 32 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″
	3	5	8	10	13	16	18	21

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 148 degrees, or Natural Sine of 58 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.848048	848074	848099	848125	848151	848177	59
1	848202	848228	848254	848279	848305	848331	58
2	848356	848382	848408	848433	848459	848485	57
3	848510	848536	848562	848587	848613	848638	56
4	848664	848690	848715	848741	848767	848792	55
5	848818	848844	848869	848895	848920	848946	54
6	848972	848997	849023	849049	849074	849100	53
7	849125	849151	849177	849202	849228	849253	52
8	849279	849305	849330	849356	849381	849407	51
9	849433	849458	849484	849509	849535	849560	50
10	1.849586	849612	849637	849663	849688	849714	49
11	849739	849765	849790	849816	849842	849867	48
12	849893	849918	849944	849969	849995	850020	47
13	850046	850071	850097	850123	850148	850174	46
14	850199	850225	850250	850276	850301	850327	45
15	850352	850378	850403	850429	850454	850480	44
16	850505	850531	850556	850582	850607	850633	43
17	850658	850684	850709	850735	850760	850786	42
18	850811	850837	850862	850888	850913	850938	41
19	850964	850989	851015	851040	851066	851091	40
20	1.851117	851142	851168	851193	851218	851244	39
21	851269	851295	851320	851346	851371	851397	38
22	851422	851447	851473	851498	851524	851549	37
23	851575	851600	851625	851651	851676	851702	36
24	851727	851752	851778	851803	851829	851854	35
25	851879	851905	851930	851955	851981	852006	34
26	852032	852057	852082	852108	852133	852159	33
27	852184	852209	852235	852260	852285	852311	32
28	852336	852362	852387	852412	852437	852463	31
29	852488	852513	852539	852564	852589	852615	30
30	1.852640	852665	852691	852716	852741	852767	29
31	852792	852817	852843	852868	852893	852919	28
32	852944	852969	852995	853020	853045	853071	27
33	853096	853121	853146	853172	853197	853222	26
34	853248	853273	853298	853323	853349	853374	25
35	853399	853424	853450	853475	853500	853526	24
36	853551	853576	853601	853627	853652	853677	23
37	853702	853728	853753	853778	853803	853829	22
38	853854	853879	853904	853929	853955	853980	21
39	854005	854030	854056	854081	854106	854131	20
40	1.854156	854182	854207	854232	854257	854282	19
41	854308	854333	854358	854383	854408	854434	18
42	854459	854484	854509	854534	854560	854585	17
43	854610	854635	854660	854685	854711	854736	16
44	854761	854786	854811	854836	854862	854887	15
45	854912	854937	854962	854987	855012	855038	14
46	855063	855088	855113	855138	855163	855188	13
47	855214	855239	855264	855289	855314	855339	12
48	855364	855389	855415	855440	855465	855490	11
49	855515	855540	855565	855590	855615	855640	10
50	1.855665	855691	855716	855741	855766	855791	9
51	855816	855841	855866	855891	855916	855941	8
52	855966	855991	856017	856042	856067	856092	7
53	856117	856142	856167	856192	856217	856242	6
54	856267	856292	856317	856342	856367	856392	5
55	856417	856442	856467	856492	856517	856542	4
56	856567	856592	856617	856642	856668	856693	3
57	856718	856743	856768	856793	856818	856843	2
58	856868	856893	856918	856942	856967	856992	1
59	857017	857042	857067	857092	857117	857142	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 31 degrees, or Natural Co-sine of 31 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	3	5	8	10	13	15	18	20	23

Versed Sine of 149 degrees, or Natural Sine of 59 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.857167	857192	857217	857242	857267	857292	59
1	857317	857342	857367	857392	857417	857442	58
2	857467	857492	857517	857541	857566	857591	57
3	857616	857641	857666	857691	857716	857741	56
4	857766	857791	857816	857841	857866	857891	55
5	857915	857940	857965	857990	858015	858040	54
6	858065	858090	858115	858140	858164	858189	53
7	858214	858239	858264	858289	858314	858339	52
8	858364	858388	858413	858438	858463	858488	51
9	858513	858538	858562	858587	858612	858637	50
10	1.858662	858687	858712	858736	858761	858786	49
11	858811	858836	858860	858885	858910	858935	48
12	858960	858985	859009	859034	859059	859084	47
13	859109	859134	859158	859183	859208	859233	46
14	859258	859283	859308	859332	859357	859382	45
15	859406	859431	859456	859481	859506	859530	44
16	859555	859580	859605	859629	859654	859679	43
17	859704	859728	859753	859778	859803	859828	42
18	859852	859877	859902	859927	859951	859976	41
19	860001	860025	860050	860075	860100	860124	40
20	1.860149	860174	860199	860223	860248	860273	39
21	860297	860322	860347	860372	860396	860421	38
22	860446	860470	860495	860520	860545	860569	37
23	860594	860619	860643	860668	860693	860717	36
24	860742	860767	860791	860816	860841	860865	35
25	860890	860915	860939	860964	860989	861013	34
26	861038	861063	861087	861112	861137	861161	33
27	861186	861210	861235	861260	861284	861309	32
28	861334	861358	861383	861408	861432	861457	31
29	861481	861506	861531	861555	861580	861605	30
30	1.861629	861654	861678	861703	861728	861752	29
31	861777	861801	861826	861851	861875	861900	28
32	861924	861949	861973	861998	862023	862047	27
33	862072	862096	862121	862145	862170	862195	26
34	862219	862244	862268	862293	862317	862342	25
35	862366	862391	862416	862440	862465	862489	24
36	862514	862538	862563	862587	862612	862636	23
37	862661	862685	862710	862734	862759	862783	22
38	862808	862832	862857	862881	862906	862930	21
39	862955	862979	863004	863028	863053	863077	20
40	1.863102	863126	863151	863175	863200	863224	19
41	863249	863273	863298	863322	863347	863371	18
42	863396	863420	863444	863469	863493	863518	17
43	863542	863567	863591	863616	863640	863664	16
44	863689	863713	863738	863762	863787	863811	15
45	863836	863860	863884	863909	863933	863958	14
46	863982	864006	864031	864055	864080	864104	13
47	864128	864153	864177	864202	864226	864250	12
48	864275	864299	864324	864348	864372	864397	11
49	864421	864445	864470	864494	864519	864543	10
50	1.864567	864592	864616	864640	864665	864689	9
51	864713	864738	864762	864787	864811	864835	8
52	864860	864884	864908	864933	864957	864981	7
53	865006	865030	865054	865078	865103	865127	6
54	865151	865176	865200	865224	865249	865273	5
55	865297	865322	865346	865370	865394	865419	4
56	865443	865467	865492	865516	865540	865564	3
57	865589	865613	865637	865662	865686	865710	2
58	865734	865759	865783	865807	865831	865856	1
59	865880	865904	865928	865953	865977	866001	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 30 degrees, or Natural Co-sine of 30 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	10	12	15	17	20	22

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 150 degrees, or Natural Sine of 60 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.866025	866050	866074	866098	866122	866147	59
1	866171	866195	866219	866244	866268	866292	58
2	866316	866340	866365	866389	866413	866437	57
3	866461	866486	866510	866534	866558	866582	56
4	866607	866631	866655	866679	866703	866728	55
5	866752	866776	866800	866824	866848	866873	54
6	866897	866921	866945	866969	866993	867018	53
7	867042	867066	867090	867114	867138	867162	52
8	867187	867211	867235	867259	867283	867307	51
9	867331	867356	867380	867404	867428	867452	50
10	1.867476	867500	867524	867549	867573	867597	49
11	867621	867645	867669	867693	867717	867741	48
12	867765	867790	867814	867838	867862	867886	47
13	867910	867934	867958	867982	868006	868030	46
14	868054	868079	868103	868127	868151	868175	45
15	868199	868223	868247	868271	868295	868319	44
16	868343	868367	868391	868415	868439	868463	43
17	868487	868511	868535	868559	868583	868607	42
18	868632	868656	868680	868704	868728	868752	41
19	868776	868800	868824	868848	868872	868896	40
20	1.868920	868944	868968	868992	869016	869040	39
21	869064	869088	869112	869135	869159	869183	38
22	869207	869231	869255	869279	869303	869327	37
23	869351	869375	869399	869423	869447	869471	36
24	869495	869519	869543	869567	869591	869615	35
25	869639	869663	869686	869710	869734	869758	34
26	869782	869806	869830	869854	869878	869902	33
27	869926	869950	869973	869997	870021	870045	32
28	870069	870093	870117	870141	870165	870189	31
29	870212	870236	870260	870284	870308	870332	30
30	1.870356	870380	870403	870427	870451	870475	29
31	870499	870523	870547	870570	870594	870618	28
32	870642	870666	870690	870714	870737	870761	27
33	870785	870809	870833	870857	870880	870904	26
34	870928	870952	870976	871000	871023	871047	25
35	871071	871095	871119	871142	871166	871190	24
36	871214	871238	871261	871285	871309	871333	23
37	871357	871380	871404	871428	871452	871475	22
38	871499	871523	871547	871571	871594	871618	21
39	871642	871666	871689	871713	871737	871761	20
40	1.871784	871808	871832	871856	871879	871903	19
41	871927	871951	871974	871998	872022	872046	18
42	872069	872093	872117	872140	872164	872188	17
43	872212	872235	872259	872283	872306	872330	16
44	872354	872378	872401	872425	872449	872472	15
45	872496	872520	872543	872567	872591	872614	14
46	872638	872662	872685	872709	872733	872756	13
47	872780	872804	872827	872851	872875	872898	12
48	872922	872946	872969	872993	873017	873040	11
49	873064	873088	873111	873135	873158	873182	10
50	1.873206	873229	873253	873277	873300	873324	9
51	873347	873371	873395	873418	873442	873466	8
52	873489	873513	873536	873560	873584	873607	7
53	873631	873654	873678	873701	873725	873749	6
54	873772	873796	873819	873843	873867	873890	5
55	873914	873937	873961	873984	874008	874031	4
56	874055	874079	874102	874126	874149	874173	3
57	874196	874220	874243	874267	874290	874314	2
58	874338	874361	874385	874408	874432	874455	1
59	874479	874502	874526	874549	874573	874596	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 29 degrees, or Natural Co-sine of 29 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	10	12	14	17	19	22

Versed Sine of 151 degrees, or Natural Sine of 61 degrees.

Minutes	0′	10″	20″	30′	40′	50″	Minutes
0	1.874620	874643	874667	874690	874714	874737	59
1	874761	874784	874808	874831	874855	874878	58
2	874902	874925	874949	874972	874996	875019	57
3	875042	875066	875089	875113	875136	875160	56
4	875183	875207	875230	875254	875277	875300	55
5	875324	875347	875371	875394	875418	875441	54
6	875465	875488	875511	875535	875558	875582	53
7	875605	875628	875652	875675	875699	875722	52
8	875746	875769	875792	875816	875839	875863	51
9	875886	875909	875933	875956	875979	876003	50
10	1.876026	876050	876073	876096	876120	876143	49
11	876167	876190	876213	876237	876260	876283	48
12	876307	876330	876353	876377	876400	876423	47
13	876447	876470	876493	876517	876540	876563	46
14	876587	876610	876633	876657	876680	876703	45
15	876727	876750	876773	876797	876820	876843	44
16	876867	876890	876913	876937	876960	876983	43
17	877006	877030	877053	877076	877100	877123	42
18	877146	877169	877193	877216	877239	877263	41
19	877286	877309	877332	877356	877379	877402	40
20	1.877425	877449	877472	877495	877518	877542	39
21	877565	877588	877611	877635	877658	877681	38
22	877704	877728	877751	877774	877797	877820	37
23	877844	877867	877890	877913	877937	877960	36
24	877983	878006	878029	878053	878076	878099	35
25	878122	878145	878169	878192	878215	878238	34
26	878261	878285	878308	878331	878354	878377	33
27	878400	878424	878447	878470	878493	878516	32
28	878539	878563	878586	878609	878632	878655	31
29	878678	878701	878725	878748	878771	878794	30
30	1.878817	878840	878863	878887	878910	878933	29
31	878956	878979	879002	879025	879048	879071	28
32	879095	879118	879141	879164	879187	879210	27
33	879233	879256	879279	879302	879326	879349	26
34	879372	879395	879418	879441	879464	879487	25
35	879510	879533	879556	879579	879602	879626	24
36	879649	879672	879695	879718	879741	879764	23
37	879787	879810	879833	879856	879879	879902	22
38	879925	879948	879971	879994	880017	880040	21
39	880063	880086	880109	880132	880155	880178	20
40	1.880201	880224	880247	880270	880293	880316	19
41	880339	880362	880385	880408	880431	880454	18
42	880477	880500	880523	880546	880569	880592	17
43	880615	880638	880661	880684	880707	880730	16
44	880753	880776	880799	880822	880845	880868	15
45	880891	880914	880937	880960	880983	881005	14
46	881028	881051	881074	881097	881120	881143	13
47	881166	881189	881212	881235	881258	881281	12
48	881303	881326	881349	881372	881395	881418	11
49	881441	881464	881487	881510	881532	881555	10
50	1.881578	881601	881624	881647	881670	881693	9
51	881716	881738	881761	881784	881807	881830	8
52	881853	881876	881898	881921	881944	881967	7
53	881990	882013	882036	882058	882081	882104	6
54	882127	882150	882173	882195	882218	882241	5
55	882264	882287	882309	882332	882355	882378	4
56	882401	882424	882446	882469	882492	882515	3
57	882538	882560	882583	882606	882629	882651	2
58	882674	882697	882720	882743	882765	882788	1
59	882811	882834	882857	882879	882902	882925	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 28 degrees, or Natural Co-sine of 28 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	5	7	9	12	14	16	18	21

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 152 degrees, or Natural Sine of 62 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.882948	882970	882993	883016	883039	883061	59
1	883084	883107	883130	883152	883175	883198	58
2	883221	883243	883266	883289	883311	883334	57
3	883357	883380	883402	883425	883448	883471	56
4	883493	883516	883539	883561	883584	883607	55
5	883629	883652	883675	883698	883720	883743	54
6	883766	883788	883811	883834	883856	883879	53
7	883902	883924	883947	883970	883992	884015	52
8	884038	884060	884083	884106	884128	884151	51
9	884174	884196	884219	884242	884264	884287	50
10	1.884309	884332	884355	884377	884400	884423	49
11	884445	884468	884491	884513	884536	884558	48
12	884581	884604	884626	884649	884671	884694	47
13	884717	884739	884762	884784	884807	884830	46
14	884852	884875	884897	884920	884942	884965	45
15	884988	885010	885033	885055	885078	885100	44
16	885123	885146	885168	885191	885213	885236	43
17	885258	885281	885303	885326	885349	885371	42
18	885394	885416	885439	885461	885484	885506	41
19	885529	885551	885574	885596	885619	885641	40
20	1.885664	885686	885709	885731	885754	885776	39
21	885799	885821	885844	885866	885889	885911	38
22	885934	885956	885979	886001	886024	886046	37
23	886069	886091	886114	886136	886159	886181	36
24	886204	886226	886248	886271	886293	886316	35
25	886338	886361	886383	886406	886428	886451	34
26	886473	886495	886518	886540	886563	886585	33
27	886608	886630	886652	886675	886697	886720	32
28	886742	886764	886787	886809	886832	886854	31
29	886876	886899	886921	886944	886966	886988	30
30	1.887011	887033	887056	887078	887100	887123	29
31	887145	887167	887190	887212	887235	887257	28
32	887279	887302	887324	887346	887369	887391	27
33	887413	887436	887458	887480	887503	887525	26
34	887548	887570	887592	887615	887637	887659	25
35	887681	887704	887726	887748	887771	887793	24
36	887815	887838	887860	887882	887905	887927	23
37	887949	887972	887994	888016	888038	888061	22
38	888083	888105	888128	888150	888172	888194	21
39	888217	888239	888261	888283	888306	888328	20
40	1.888350	888373	888395	888417	888439	888462	19
41	888484	888506	888528	888551	888573	888595	18
42	888617	888639	888662	888684	888706	888728	17
43	888751	888773	888795	888817	888839	888862	16
44	888884	888906	888928	888951	888973	888995	15
45	889017	889039	889062	889084	889106	889128	14
46	889150	889172	889195	889217	889239	889261	13
47	889283	889306	889328	889350	889372	889394	12
48	889416	889439	889461	889483	889505	889527	11
49	889549	889571	889594	889616	889638	889660	10
50	1.889682	889704	889726	889749	889771	889793	9
51	889815	889837	889859	889881	889903	889926	8
52	889948	889970	889992	890014	890036	890058	7
53	890080	890102	890124	890146	890169	890191	6
54	890213	890235	890257	890279	890301	890323	5
55	890345	890367	890389	890411	890433	890456	4
56	890478	890500	890522	890544	890566	890588	3
57	890610	890632	890654	890676	890698	890720	2
58	890742	890764	890786	890808	890830	890852	1
59	890874	890896	890918	890940	890962	890985	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 27 degrees, or Natural Co-sine of 27 degrees.

Propor. | 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

Versed Sine of 153 degrees, or Natural Sine of 63 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.891007	891029	891051	891073	891095	891117	59
1	891139	891161	891183	891205	891227	891249	58
2	891270	891292	891314	891336	891358	891380	57
3	891402	891424	891446	891468	891490	891512	56
4	891534	891556	891578	891600	891622	891644	55
5	891666	891688	891710	891732	891754	891776	54
6	891798	891819	891841	891863	891885	891907	53
7	891929	891951	891973	891995	892017	892039	52
8	892061	892083	892104	892126	892148	892170	51
9	892192	892214	892236	892258	892280	892301	50
10	1.892323	892345	892367	892389	892411	892433	49
11	892455	892476	892498	892520	892542	892564	48
12	892586	892608	892630	892651	892673	892695	47
13	892717	892739	892761	892782	892804	892826	46
14	892848	892870	892892	892913	892935	892957	45
15	892979	893001	893022	893044	893066	893088	44
16	893110	893132	893153	893175	893197	893219	43
17	893241	893262	893284	893306	893328	893350	42
18	893371	893393	893415	893437	893459	893480	41
19	893502	893524	893546	893567	893589	893611	40
20	1.893633	893654	893676	893698	893720	893741	39
21	893763	893785	893807	893828	893850	893872	38
22	893894	893915	893937	893959	893981	894002	37
23	894024	894046	894067	894089	894111	894133	36
24	894154	894176	894198	894219	894241	894263	35
25	894284	894306	894328	894350	894371	894393	34
26	894415	894436	894458	894480	894501	894523	33
27	894545	894566	894588	894610	894631	894653	32
28	894675	894696	894718	894740	894761	894783	31
29	894805	894826	894848	894869	894891	894913	30
30	1.894934	894956	894978	894999	895021	895042	29
31	895064	895086	895107	895129	895151	895172	28
32	895194	895215	895237	895259	895280	895302	27
33	895323	895345	895367	895388	895410	895431	26
34	895453	895475	895496	895518	895539	895561	25
35	895582	895604	895626	895647	895669	895690	24
36	895712	895733	895755	895776	895798	895820	23
37	895841	895863	895884	895906	895927	895949	22
38	895970	895992	896013	896035	896056	896078	21
39	896099	896121	896142	896164	896185	896207	20
40	1.896229	896250	896272	896293	896315	896336	19
41	896358	896379	896400	896422	896443	896465	18
42	896486	896508	896529	896551	896572	896594	17
43	896615	896637	896658	896680	896701	896723	16
44	896744	896766	896787	896808	896830	896851	15
45	896873	896894	896916	896937	896958	896980	14
46	897001	897023	897044	897066	897087	897108	13
47	897130	897151	897173	897194	897216	897237	12
48	897258	897280	897301	897323	897344	897365	11
49	897387	897408	897430	897451	897472	897494	10
50	1.897515	897536	897558	897579	897601	897622	9
51	897643	897665	897686	897707	897729	897750	8
52	897771	897793	897814	897836	897857	897878	7
53	897900	897921	897942	897964	897985	898006	6
54	898028	898049	898070	898092	898113	898134	5
55	898156	898177	898198	898219	898241	898262	4
56	898283	898305	898326	898347	898369	898390	3
57	898411	898432	898454	898475	898496	898518	2
58	898539	898560	898581	898603	898624	898645	1
59	898666	898688	898709	898730	898752	898773	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 26 degrees, or Natural Co-sine of 26 degrees.

Propor. | 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 154 degrees, or Natural Sine of 64 degrees.						Minutes
0″	10″	20″	30″	40″	50″	
1.898794	898815	898837	898858	898879	898900	59
898922	898943	898964	898985	899006	899028	58
899049	899070	899091	899113	899134	899155	57
899176	899197	899219	899240	899261	899282	56
899304	899325	899346	899367	899388	899409	55
899431	899452	899473	899494	899515	899537	54
899558	899579	899600	899621	899642	899664	53
899685	899706	899727	899748	899769	899791	52
899812	899833	899854	899875	899896	899917	51
899939	899960	899981	900002	900023	900044	50
1.900065	900087	900108	900129	900150	900171	49
900192	900213	900234	900255	900277	900298	48
900319	900340	900361	900382	900403	900424	47
900445	900466	900488	900509	900530	900551	46
900572	900593	900614	900635	900656	900677	45
900698	900719	900740	900761	900782	900804	44
900825	900846	900867	900888	900909	900930	43
900951	900972	900993	901014	901035	901056	42
901077	901098	901119	901140	901161	901182	41
901203	901224	901245	901266	901287	901308	40
1.901329	901350	901371	901392	901413	901434	39
901455	901476	901497	901518	901539	901560	38
901581	901602	901623	901644	901665	901686	37
901707	901728	901749	901770	901791	901812	36
901833	901853	901874	901895	901916	901937	35
901958	901979	902000	902021	902042	902063	34
902084	902105	902126	902147	902167	902188	33
902209	902230	902251	902272	902293	902314	32
902335	902356	902376	902397	902418	902439	31
902460	902481	902502	902523	902544	902564	30
1.902585	902606	902627	902648	902669	902690	29
902710	902731	902752	902773	902794	902815	28
902836	902856	902877	902898	902919	902940	27
902961	902981	903002	903023	903044	903065	26
903086	903106	903127	903148	903169	903190	25
903210	903231	903252	903273	903294	903314	24
903335	903356	903377	903398	903418	903439	23
903460	903481	903502	903522	903543	903564	22
903585	903605	903626	903647	903668	903689	21
903709	903730	903751	903772	903792	903813	20
1.903834	903855	903875	903896	903917	903937	19
903958	903979	904000	904020	904041	904062	18
904083	904103	904123	904145	904165	904186	17
904207	904228	904248	904269	904290	904310	16
904331	904352	904372	904393	904414	904434	15
904455	904476	904497	904517	904538	904559	14
904579	904600	904621	904641	904662	904683	13
904703	904724	904744	904765	904786	904806	12
904827	904848	904868	904889	904910	904930	11
904951	904971	904992	905013	905033	905054	10
1.905075	905095	905116	905136	905157	905178	9
905198	905219	905240	905260	905281	905301	8
905322	905342	905363	905384	905404	905425	7
905445	905466	905487	905507	905528	905548	6
905569	905589	905610	905631	905651	905672	5
905692	905713	905733	905754	905774	905795	4
905815	905836	905857	905877	905898	905918	3
905939	905959	905980	906000	906021	906041	2
906062	906082	906103	906123	906144	906164	1
906185	906205	906226	906246	906267	906287	0
60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 25 degrees, or Natural Co-sine of 25 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	13	15	17	19

Minutes	Versed Sine of 155 degrees, or Natural Sine of 65 degrees.						Minutes
	0″	10″	20″	30″	40″	50″	
0	1.906308	906328	906349	906369	906390	906410	59
1	906431	906451	906472	906492	906513	906533	58
2	906554	906574	906594	906615	906635	906656	57
3	906676	906697	906717	906738	906758	906778	56
4	906799	906819	906840	906860	906881	906901	55
5	906922	906942	906962	906983	907003	907024	54
6	907044	907064	907085	907105	907126	907146	53
7	907166	907187	907207	907228	907248	907268	52
8	907289	907309	907330	907350	907370	907391	51
9	907411	907431	907452	907472	907493	907513	50
10	1.907533	907554	907574	907594	907615	907635	49
11	907655	907676	907696	907716	907737	907757	48
12	907777	907798	907818	907838	907859	907879	47
13	907899	907920	907940	907960	907981	908001	46
14	908021	908042	908062	908082	908103	908123	45
15	908143	908163	908184	908204	908224	908245	44
16	908265	908285	908305	908326	908346	908366	43
17	908387	908407	908427	908447	908468	908488	42
18	908508	908528	908549	908569	908589	908609	41
19	908630	908650	908670	908690	908711	908731	40
20	1.908751	908771	908792	908812	908832	908852	39
21	908872	908893	908913	908933	908953	908974	38
22	908994	909014	909034	909054	909075	909095	37
23	909115	909135	909155	909176	909196	909216	36
24	909236	909256	909276	909297	909317	909337	35
25	909357	909377	909397	909418	909438	909458	34
26	909478	909498	909518	909539	909559	909579	33
27	909599	909619	909639	909659	909680	909700	32
28	909720	909740	909760	909780	909800	909820	31
29	909841	909861	909881	909901	909921	909941	30
30	1.909961	909981	910001	910022	910042	910062	29
31	910082	910102	910122	910142	910162	910182	28
32	910202	910222	910243	910263	910283	910303	27
33	910323	910343	910363	910383	910403	910423	26
34	910443	910463	910483	910503	910523	910543	25
35	910563	910583	910604	910624	910644	910664	24
36	910684	910704	910724	910744	910764	910784	23
37	910804	910824	910844	910864	910884	910904	22
38	910924	910944	910964	910984	911004	911024	21
39	911044	911064	911084	911104	911124	911144	20
40	1.911164	911184	911204	911224	911244	911264	19
41	911284	911303	911323	911343	911363	911383	18
42	911403	911423	911443	911463	911483	911503	17
43	911523	911543	911563	911583	911603	911623	16
44	911643	911662	911682	911702	911722	911742	15
45	911762	911782	911802	911822	911842	911862	14
46	911881	911901	911921	911941	911961	911981	13
47	912001	912021	912041	912060	912080	912100	12
48	912120	912140	912160	912180	912200	912219	11
49	912239	912259	912279	912299	912319	912339	10
50	1.912358	912378	912398	912418	912438	912458	9
51	912477	912497	912517	912537	912557	912577	8
52	912596	912616	912636	912656	912676	912696	7
53	912715	912735	912755	912775	912795	912814	6
54	912834	912854	912874	912894	912913	912933	5
55	912953	912973	912992	913012	913032	913052	4
56	913072	913091	913111	913131	913151	913170	3
57	913190	913210	913230	913249	913269	913289	2
58	913309	913328	913348	913368	913388	913407	1
59	913427	913447	913467	913486	913506	913526	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 24 degrees, or Natural Co-sine of 24 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	12	14	16	18

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTE

Versed Sine of 156 degrees, or Natural Sine of 66 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.913545	913565	913585	913605	913624	913644	59
1	913664	913683	913703	913723	913743	913762	58
2	913782	913802	913821	913841	913861	913880	57
3	913900	913920	913939	913959	913979	913998	56
4	914018	914038	914057	914077	914097	914116	55
5	914136	914156	914175	914195	914215	914234	54
6	914254	914274	914293	914313	914333	914352	53
7	914372	914391	914411	914431	914450	914470	52
8	914490	914509	914529	914548	914568	914588	51
9	914607	914627	914646	914666	914686	914705	50
10	1.914725	914744	914764	914784	914803	914823	49
11	914842	914862	914881	914901	914921	914940	48
12	914960	914979	914999	915018	915038	915057	47
13	915077	915096	915116	915136	915155	915175	46
14	915194	915214	915233	915253	915272	915292	45
15	915311	915331	915351	915370	915390	915409	44
16	915429	915448	915468	915487	915507	915526	43
17	915546	915565	915585	915604	915624	915643	42
18	915663	915682	915702	915721	915741	915760	41
19	915779	915799	915818	915838	915857	915877	40
20	1.915896	915916	915935	915955	915974	915994	39
21	916013	916032	916052	916071	916091	916110	38
22	916130	916149	916169	916188	916207	916227	37
23	916246	916266	916285	916304	916324	916343	36
24	916363	916382	916402	916421	916440	916460	35
25	916479	916499	916518	916537	916557	916576	34
26	916595	916615	916634	916654	916673	916692	33
27	916712	916731	916751	916770	916789	916809	32
28	916828	916847	916867	916886	916905	916925	31
29	916944	916963	916983	917002	917021	917041	30
30	1.917060	917079	917099	917118	917137	917157	29
31	917176	917195	917215	917234	917253	917273	28
32	917292	917311	917331	917350	917369	917388	27
33	917408	917427	917446	917466	917485	917504	26
34	917523	917543	917562	917581	917601	917620	25
35	917639	917658	917678	917697	917716	917735	24
36	917755	917774	917793	917812	917832	917851	23
37	917870	917889	917909	917928	917947	917966	22
38	917986	918005	918024	918043	918062	918082	21
39	918101	918120	918139	918158	918178	918197	20
40	1.918216	918235	918255	918274	918293	918312	19
41	918331	918350	918370	918389	918408	918427	18
42	918446	918466	918485	918504	918523	918542	17
43	918561	918581	918600	918619	918638	918657	16
44	918676	918695	918715	918734	918753	918772	15
45	918791	918810	918830	918849	918868	918887	14
46	918906	918925	918944	918963	918982	919002	13
47	919021	919040	919059	919078	919097	919116	12
48	919135	919154	919174	919193	919212	919231	11
49	919250	919269	919288	919307	919326	919345	10
50	1.919364	919383	919403	919422	919441	919460	9
51	919479	919498	919517	919536	919555	919574	8
52	919593	919612	919631	919650	919669	919688	7
53	919707	919726	919745	919764	919783	919802	6
54	919821	919841	919860	919879	919898	919917	5
55	919936	919955	919974	919993	920012	920031	4
56	920050	920069	920088	920107	920126	920145	3
57	920164	920183	920201	920220	920239	920258	2
58	920277	920296	920315	920334	920353	920372	1
59	920391	920410	920429	920448	920467	920486	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 23 degrees, or Natural Co-sine of 23 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	8	10	12	14	16	18

Versed Sine of 157 degrees, or Natural Sine of 67 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.920505	920524	920543	920562	920581	920600	
1	920618	920637	920656	920675	920694	920713	
2	920732	920751	920770	920789	920808	920827	
3	920846	920864	920883	920902	920921	920940	
4	920959	920978	920997	921016	921034	921053	
5	921072	921091	921110	921129	921148	921167	
6	921185	921204	921223	921242	921261	921280	
7	921299	921317	921336	921355	921374	921393	
8	921412	921430	921449	921468	921487	921506	
9	921525	921543	921562	921581	921600	921619	
10	1.921638	921656	921675	921694	921713	921732	
11	921750	921769	921788	921807	921826	921844	
12	921863	921882	921901	921920	921938	921957	
13	921976	921995	922013	922032	922051	922070	
14	922088	922107	922126	922145	922163	922182	
15	922201	922220	922238	922257	922276	922295	
16	922313	922332	922351	922370	922388	922407	
17	922426	922445	922463	922482	922501	922519	
18	922538	922557	922576	922594	922613	922632	
19	922650	922669	922688	922706	922725	922744	
20	1.922762	922781	922800	922818	922837	922856	
21	922874	922893	922912	922931	922949	922968	
22	922986	923005	923024	923042	923061	923080	
23	923098	923117	923136	923154	923173	923192	
24	923210	923229	923247	923266	923285	923303	
25	923322	923341	923359	923378	923396	923415	
26	923434	923452	923471	923489	923508	923527	
27	923545	923564	923582	923601	923620	923638	
28	923657	923675	923694	923712	923731	923750	
29	923768	923787	923805	923824	923842	923861	
30	1.923880	923898	923917	923935	923954	923972	
31	923991	924009	924028	924046	924065	924084	
32	924102	924121	924139	924158	924176	924195	
33	924213	924232	924250	924269	924287	924306	
34	924324	924343	924361	924380	924398	924417	
35	924435	924454	924472	924491	924509	924528	
36	924546	924565	924583	924601	924620	924638	
37	924657	924675	924694	924712	924731	924749	
38	924768	924786	924804	924823	924841	924860	
39	924878	924897	924915	924934	924952	924970	
40	1.924989	925007	925026	925044	925062	925081	
41	925099	925118	925136	925155	925173	925191	
42	925210	925228	925247	925265	925283	925302	
43	925320	925338	925357	925375	925394	925412	
44	925430	925449	925467	925485	925504	925522	
45	925541	925559	925577	925596	925614	925632	
46	925651	925669	925687	925706	925724	925742	
47	925761	925779	925797	925816	925834	925852	
48	925871	925889	925907	925926	925944	925962	
49	925980	925999	926017	926035	926054	926072	
50	1.926090	926109	926127	926145	926163	926181	
51	926200	926218	926237	926255	926273	926291	
52	926310	926328	926346	926364	926383	926401	
53	926419	926437	926456	926474	926492	926510	
54	926529	926547	926565	926583	926602	926620	
55	926638	926656	926674	926693	926711	926729	
56	926747	926766	926784	926802	926820	926838	
57	926857	926875	926893	926911	926929	926948	
58	926966	926984	927002	927020	927038	927057	
59	927075	927093	927111	927129	927148	927166	
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 22 degrees, or Natural Co-sine of 22 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	6	7	9	11	13	15	17

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	Versed Sine of 158 degrees, or Natural Sine of 68 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.927184	927202	927220	927238	927256	927275	59
	927293	927311	927329	927347	927365	927383	58
	927402	927420	927438	927456	927474	927492	57
	927510	927529	927547	927565	927583	927601	56
	927619	927637	927655	927673	927692	927710	55
	927728	927746	927764	927782	927800	927818	54
	927836	927854	927872	927890	927909	927927	53
	927945	927963	927981	927999	928017	928035	52
	928053	928071	928089	928107	928125	928143	51
	928161	928179	928197	928216	928234	928252	50
	1.928270	928288	928306	928324	928342	928360	49
	928378	928396	928414	928432	928450	928468	48
	928486	928504	928522	928540	928558	928576	47
	928594	928612	928630	928648	928666	928684	46
	928702	928720	928738	928756	928774	928792	45
	928810	928828	928845	928863	928881	928899	44
	928917	928935	928953	928971	928989	929007	43
	929025	929043	929061	929079	929097	929115	42
	929133	929150	929168	929186	929204	929222	41
	929240	929258	929276	929294	929312	929330	40
	1.929348	929365	929383	929401	929419	929437	39
	929455	929473	929491	929509	929526	929544	38
	929562	929580	929598	929616	929634	929652	37
	929669	929687	929705	929723	929741	929759	36
	929776	929794	929812	929830	929848	929866	35
	929884	929901	929919	929937	929955	929973	34
	929990	930008	930026	930044	930062	930080	33
	930097	930115	930133	930151	930169	930186	32
	930204	930222	930240	930258	930275	930293	31
	930311	930329	930346	930364	930382	930400	30
	1.930418	930435	930453	930471	930489	930506	29
	930524	930542	930560	930577	930595	930613	28
	930631	930648	930666	930684	930702	930719	27
	930737	930755	930773	930790	930808	930826	26
	930843	930861	930879	930897	930914	930932	25
	930950	930967	930985	931003	931020	931038	24
	931056	931074	931091	931109	931127	931144	23
	931162	931180	931197	931215	931233	931250	22
	931268	931286	931303	931321	931339	931356	21
	931374	931392	931409	931427	931444	931462	20
	1.931480	931497	931515	931533	931550	931568	19
	931586	931603	931621	931638	931656	931674	18
	931691	931709	931726	931744	931762	931779	17
	931797	931814	931832	931850	931867	931885	16
	931902	931920	931938	931955	931973	931990	15
	932008	932025	932043	932061	932078	932096	14
	932113	932131	932148	932166	932183	932201	13
	932219	932236	932254	932271	932289	932306	12
	932324	932341	932359	932376	932394	932411	11
	932429	932446	932464	932482	932499	932517	10
	1.932534	932552	932569	932587	932604	932622	9
	932639	932657	932674	932691	932709	932726	8
	932744	932761	932779	932796	932814	932831	7
	932849	932866	932884	932901	932919	932936	6
	932954	932971	932988	933006	933023	933041	5
	933058	933076	933093	933110	933128	933145	4
	933163	933180	933198	933215	933232	933250	3
	933267	933285	933302	933320	933337	933354	2
	933372	933389	933407	933424	933441	933459	1
	933476	933494	933511	933528	933546	933563	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 21 degrees, or Natural Co-sine of 21 degrees.

Propor. parts	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	4	5	7	9	11	13	14	16

Minutes	Versed Sine of 159 degrees, or Natural Sine of 69 degrees. 0″	10″	20″	30″	40″	50″	Minutes
0	1.933580	933598	933615	933633	933650	933667	59
1	933685	933702	933719	933737	933754	933771	58
2	933789	933806	933823	933841	933858	933875	57
3	933893	933910	933927	933945	933962	933979	56
4	933997	934014	934031	934049	934066	934083	55
5	934101	934118	934135	934153	934170	934187	54
6	934204	934222	934239	934256	934274	934291	53
7	934308	934325	934343	934360	934377	934395	52
8	934412	934429	934446	934464	934481	934498	51
9	934515	934533	934550	934567	934584	934602	50
10	1.934619	934636	934653	934671	934688	934705	49
11	934722	934740	934757	934774	934791	934808	48
12	934826	934843	934860	934877	934895	934912	47
13	934929	934946	934963	934981	934998	935015	46
14	935032	935049	935066	935084	935101	935118	45
15	935135	935152	935170	935187	935204	935221	44
16	935238	935255	935273	935290	935307	935324	43
17	935341	935358	935375	935393	935410	935427	42
18	935444	935461	935478	935495	935513	935530	41
19	935547	935564	935581	935598	935615	935632	40
20	1.935650	935667	935684	935701	935718	935735	39
21	935752	935769	935786	935803	935821	935838	38
22	935855	935872	935889	935906	935923	935940	37
23	935957	935974	935991	936008	936025	936042	36
24	936060	936077	936094	936111	936128	936145	35
25	936162	936179	936196	936213	936230	936247	34
26	936264	936281	936298	936315	936332	936349	33
27	936366	936383	936400	936417	936434	936451	32
28	936468	936485	936502	936519	936536	936553	31
29	936570	936587	936604	936621	936638	936655	30
30	1.936672	936689	936706	936723	936740	936757	29
31	936774	936791	936808	936825	936842	936859	28
32	936876	936893	936910	936927	936944	936961	27
33	936977	936994	937011	937028	937045	937062	26
34	937079	937096	937113	937130	937147	937164	25
35	937181	937197	937214	937231	937248	937265	24
36	937282	937299	937316	937333	937350	937366	23
37	937383	937400	937417	937434	937451	937468	22
38	937485	937501	937518	937535	937552	937569	21
39	937586	937603	937620	937636	937653	937670	20
40	1.937687	937704	937721	937737	937754	937771	19
41	937788	937805	937822	937838	937855	937872	18
42	937889	937906	937923	937939	937956	937973	17
43	937990	938007	938023	938040	938057	938074	16
44	938091	938107	938124	938141	938158	938175	15
45	938191	938208	938225	938242	938258	938275	14
46	938292	938309	938326	938342	938359	938376	13
47	938393	938409	938426	938443	938460	938476	12
48	938493	938510	938526	938543	938560	938577	11
49	938591	938610	938627	938644	938660	938677	10
50	1.938694	938710	938727	938744	938761	938777	9
51	938794	938811	938827	938844	938861	938877	8
52	938894	938911	938928	938944	938961	938978	7
53	938994	939011	939028	939044	939061	939078	6
54	939094	939111	939128	939144	939161	939178	5
55	939194	939211	939227	939244	939261	939277	4
56	939294	939311	939327	939344	939361	939377	3
57	939394	939410	939427	939444	939460	939477	2
58	939493	939510	939527	939543	939560	939576	1
59	939593	939610	939626	939643	939659	939676	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 20 degrees, or Natural Co-sine of 20 degrees.

Propor. parts	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	3	5	7	8	10	12	14	15

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 160 degrees, or Natural Sine of 70 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.939693	939709	939726	939742	939759	939776	59
1	939792	939809	939825	939842	939858	939875	58
2	939891	939908	939925	939941	939958	939974	57
3	939991	940007	940024	940040	940057	940073	56
4	940090	940106	940123	940140	940156	940173	55
5	940189	940206	940222	940239	940255	940272	54
6	940288	940305	940321	940338	940354	940371	53
7	940387	940404	940420	940437	940453	940470	52
8	940486	940502	940519	940535	940552	940568	51
9	940585	940601	940618	940634	940651	940667	50
10	1.940684	940700	940716	940733	940749	940766	49
11	940782	940799	940815	940831	940848	940864	48
12	940881	940897	940914	940930	940946	940963	47
13	940979	940996	941012	941028	941045	941061	46
14	941078	941094	941110	941127	941143	941160	45
15	941176	941192	941209	941225	941242	941258	44
16	941274	941291	941307	941323	941340	941356	43
17	941372	941389	941405	941422	941438	941454	42
18	941471	941487	941503	941520	941536	941552	41
19	941569	941585	941601	941618	941634	941650	40
20	1.941666	941683	941699	941715	941732	941748	39
21	941764	941781	941797	941813	941830	941846	38
22	941862	941878	941895	941911	941927	941944	37
23	941960	941976	941992	942009	942025	942041	36
24	942057	942074	942090	942106	942122	942139	35
25	942155	942171	942187	942204	942220	942236	34
26	942252	942269	942285	942301	942317	942334	33
27	942350	942366	942382	942398	942415	942431	32
28	942447	942463	942480	942496	942512	942528	31
29	942544	942561	942577	942593	942609	942625	30
30	1.942641	942658	942674	942690	942706	942722	29
31	942739	942755	942771	942787	942803	942819	28
32	942836	942852	942868	942884	942900	942916	27
33	942932	942949	942965	942981	942997	943013	26
34	943029	943045	943062	943078	943094	943110	25
35	943126	943142	943158	943174	943190	943207	24
36	943223	943239	943255	943271	943287	943303	23
37	943319	943335	943351	943368	943384	943400	22
38	943416	943432	943448	943464	943480	943496	21
39	943512	943528	943544	943560	943576	943592	20
40	1.943609	943625	943641	943657	943673	943689	19
41	943705	943721	943737	943753	943769	943785	18
42	943801	943817	943833	943849	943865	943881	17
43	943897	943913	943929	943945	943961	943977	16
44	943993	944009	944025	944041	944057	944073	15
45	944089	944105	944121	944137	944153	944169	14
46	944185	944201	944217	944233	944249	944265	13
47	944281	944297	944313	944329	944344	944360	12
48	944376	944392	944408	944424	944440	944456	11
49	944472	944488	944504	944520	944536	944552	10
50	1.944568	944583	944599	944615	944631	944647	9
51	944663	944679	944695	944711	944727	944742	8
52	944758	944774	944790	944806	944822	944838	7
53	944854	944870	944885	944901	944917	944933	6
54	944949	944965	944981	944996	945012	945028	5
55	945044	945060	945076	945092	945107	945123	4
56	945139	945155	945171	945187	945202	945218	3
57	945234	945250	945266	945282	945297	945313	2
58	945329	945345	945361	945376	945392	945408	1
59	945424	945440	945455	945471	945487	945503	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 19 degrees, or Natural Co-sine of 19 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	3	5	6	8	10	11	13	14

Versed Sine of 161 degrees, or Natural Sine of 71 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.945519	945534	945550	945566	945582	945597	59
1	945613	945629	945645	945661	945676	945692	58
2	945708	945724	945739	945755	945771	945787	57
3	945802	945818	945834	945850	945865	945881	56
4	945897	945912	945928	945944	945960	945975	55
5	945991	946007	946023	946038	946054	946070	54
6	946085	946101	946117	946132	946148	946164	53
7	946180	946195	946211	946227	946242	946258	52
8	946274	946289	946305	946321	946336	946352	51
9	946368	946383	946399	946415	946430	946446	50
10	1.946462	946477	946493	946509	946524	946540	49
11	946555	946571	946587	946602	946618	946634	48
12	946649	946665	946681	946696	946712	946727	47
13	946743	946759	946774	946790	946805	946821	46
14	946837	946852	946868	946883	946899	946915	45
15	946930	946946	946961	946977	946992	947008	44
16	947024	947039	947055	947070	947086	947101	43
17	947117	947133	947148	947164	947179	947195	42
18	947210	947226	947241	947257	947272	947288	41
19	947304	947319	947335	947350	947366	947381	40
20	1.947397	947412	947428	947443	947459	947474	39
21	947490	947505	947521	947536	947552	947567	38
22	947583	947598	947614	947629	947645	947660	37
23	947676	947691	947707	947722	947737	947753	36
24	947768	947784	947799	947815	947830	947846	35
25	947861	947877	947892	947907	947923	947938	34
26	947954	947969	947985	948000	948016	948031	33
27	948046	948062	948077	948093	948108	948123	32
28	948139	948154	948170	948185	948201	948216	31
29	948231	948247	948262	948277	948293	948308	30
30	1.948324	948339	948354	948370	948385	948401	29
31	948416	948431	948447	948462	948477	948493	28
32	948508	948523	948539	948554	948570	948585	27
33	948600	948616	948631	948646	948662	948677	26
34	948692	948708	948723	948738	948754	948769	25
35	948784	948799	948815	948830	948845	948861	24
36	948876	948891	948907	948922	948937	948952	23
37	948968	948983	948998	949014	949029	949044	22
38	949059	949075	949090	949105	949121	949136	21
39	949151	949166	949182	949197	949212	949227	20
40	1.949243	949258	949273	949288	949304	949319	19
41	949334	949349	949365	949380	949395	949410	18
42	949425	949441	949456	949471	949486	949502	17
43	949517	949532	949547	949562	949578	949593	16
44	949608	949623	949638	949654	949669	949684	15
45	949699	949714	949729	949745	949760	949775	14
46	949790	949805	949821	949836	949851	949866	13
47	949881	949896	949911	949927	949942	949957	12
48	949972	949987	950002	950018	950033	950048	11
49	950063	950078	950093	950108	950123	950138	10
50	1.950154	950169	950184	950199	950214	950229	9
51	950244	950259	950274	950290	950305	950320	8
52	950335	950350	950365	950380	950395	950410	7
53	950425	950440	950455	950471	950486	950501	6
54	950516	950531	950546	950561	950576	950591	5
55	950606	950621	950636	950651	950666	950681	4
56	950696	950711	950726	950741	950756	950771	3
57	950786	950802	950817	950832	950847	950862	2
58	950877	950892	950907	950922	950937	950952	1
59	950967	950982	950997	951012	951027	951042	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 18 degrees, or Natural Co-sine of 18 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	3	5	6	8	9	11	12	14

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 162 degrees, or Natural Sine of 72 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.951057	951071	951086	951101	951116	951131	59
1	951146	951161	951176	951191	951206	951221	58
2	951236	951251	951266	951281	951296	951311	57
3	951326	951341	951356	951371	951386	951401	56
4	951415	951430	951445	951460	951475	951490	55
5	951505	951520	951535	951550	951565	951580	54
6	951594	951609	951624	951639	951654	951669	53
7	951684	951699	951714	951728	951743	951758	52
8	951773	951788	951803	951818	951833	951847	51
9	951862	951877	951892	951907	951922	951937	50
10	1.951951	951966	951981	951996	952011	952026	49
11	952040	952055	952070	952085	952100	952115	48
12	952129	952144	952159	952174	952189	952203	47
13	952218	952233	952248	952263	952277	952292	46
14	952307	952322	952337	952351	952366	952381	45
15	952396	952411	952425	952440	952455	952470	44
16	952484	952499	952514	952529	952543	952558	43
17	952573	952588	952603	952617	952632	952647	42
18	952661	952676	952691	952706	952720	952735	41
19	952750	952765	952779	952794	952809	952823	40
20	1.952838	952853	952868	952882	952897	952912	39
21	952926	952941	952956	952971	952985	953000	38
22	953015	953029	953044	953059	953073	953088	37
23	953103	953117	953132	953147	953161	953176	36
24	953191	953205	953220	953235	953249	953264	35
25	953279	953293	953308	953323	953337	953352	34
26	953366	953381	953396	953410	953425	953440	33
27	953454	953469	953483	953498	953513	953527	32
28	953542	953556	953571	953586	953600	953615	31
29	953629	953644	953659	953673	953688	953702	30
30	1.953717	953732	953746	953761	953775	953790	29
31	953804	953819	953834	953848	953863	953877	28
32	953892	953906	953921	953935	953950	953964	27
33	953979	953994	954008	954023	954037	954052	26
34	954066	954081	954095	954110	954124	954139	25
35	954153	954168	954182	954197	954211	954226	24
36	954240	954255	954269	954284	954298	954313	23
37	954327	954342	954356	954371	954385	954400	22
38	954414	954429	954443	954458	954472	954486	21
39	954501	954515	954530	954544	954559	954573	20
40	1.954588	954602	954617	954631	954645	954660	19
41	954674	954689	954703	954718	954732	954746	18
42	954761	954775	954790	954804	954818	954833	17
43	954847	954862	954876	954890	954905	954919	16
44	954934	954948	954962	954977	954991	955006	15
45	955020	955034	955049	955063	955077	955092	14
46	955106	955121	955135	955149	955164	955178	13
47	955192	955207	955221	955235	955250	955264	12
48	955278	955293	955307	955321	955336	955350	11
49	955364	955379	955393	955407	955422	955436	10
50	1.955450	955465	955479	955493	955507	955522	9
51	955536	955550	955565	955579	955593	955608	8
52	955622	955636	955650	955665	955679	955693	7
53	955707	955722	955736	955750	955764	955778	6
54	955793	955807	955822	955836	955850	955864	5
55	955879	955893	955907	955921	955935	955950	4
56	955964	955978	955992	956007	956021	956035	3
57	956049	956063	956078	956092	956106	956120	2
58	956134	956149	956163	956177	956191	956205	1
59	956220	956234	956248	956262	956276	956291	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 17 degrees, or Natural Co-sine of 17 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	3	4	6	7	9	10	12	13

Versed Sine of 163 degrees, or Natural Sine of 73 degrees.

Minutes	0″	10″	20″	30″	40″	50	Minutes
0	1.956305	956319	956333	956347	956361	956376	59
1	956390	956404	956418	956432	956446	956461	58
2	956475	956489	956503	956517	956531	956545	57
3	956560	956574	956588	956602	956616	956630	56
4	956644	956658	956673	956687	956701	956715	55
5	956729	956743	956757	956771	956785	956799	54
6	956814	956828	956842	956856	956870	956884	53
7	956898	956912	956926	956940	956954	956968	52
8	956983	956997	957011	957025	957039	957053	51
9	957067	957081	957095	957109	957123	957137	50
10	1.957151	957165	957179	957193	957207	957221	49
11	957235	957249	957263	957277	957291	957305	48
12	957319	957334	957348	957362	957376	957390	47
13	957404	957418	957432	957446	957460	957474	46
14	957487	957501	957515	957529	957543	957557	45
15	957571	957585	957599	957613	957627	957641	44
16	957655	957669	957683	957697	957711	957725	43
17	957739	957753	957767	957781	957795	957809	42
18	957822	957836	957850	957864	957878	957892	41
19	957906	957920	957934	957948	957962	957976	40
20	1.957990	958003	958017	958031	958045	958059	39
21	958073	958087	958101	958115	958128	958142	38
22	958156	958170	958184	958198	958212	958226	37
23	958239	958253	958267	958281	958295	958309	36
24	958323	958336	958350	958364	958378	958392	35
25	958406	958419	958433	958447	958461	958475	34
26	958489	958502	958516	958530	958544	958558	33
27	958572	958585	958599	958613	958627	958641	32
28	958654	958668	958682	958696	958710	958723	31
29	958737	958751	958765	958778	958792	958806	30
30	1.958820	958834	958847	958861	958875	958889	29
31	958902	958916	958930	958944	958957	958971	28
32	958985	958999	959012	959026	959040	959053	27
33	959067	959081	959095	959108	959122	959136	26
34	959150	959163	959177	959191	959204	959218	25
35	959232	959246	959259	959273	959287	959300	24
36	959314	959328	959341	959355	959369	959382	23
37	959396	959410	959423	959437	959451	959464	22
38	959478	959492	959505	959519	959533	959546	21
39	959560	959574	959587	959601	959615	959628	20
40	1.959642	959655	959669	959683	959696	959710	19
41	959724	959737	959751	959764	959778	959792	18
42	959805	959819	959833	959846	959860	959873	17
43	959887	959900	959914	959928	959941	959955	16
44	959968	959982	959996	960009	960023	960036	15
45	960050	960063	960077	960091	960104	960118	14
46	960131	960145	960158	960172	960185	960199	13
47	960212	960226	960240	960253	960267	960280	12
48	960294	960307	960321	960334	960348	960361	11
49	960375	960388	960402	960415	960429	960442	10
50	1.960456	960469	960483	960496	960510	960523	9
51	960537	960550	960564	960577	960591	960604	8
52	960618	960631	960645	960658	960672	960685	7
53	960698	960712	960725	960739	960752	960766	6
54	960779	960793	960806	960819	960833	960846	5
55	960860	960873	960887	960900	960913	960927	4
56	960940	960954	960967	960981	960994	961007	3
57	961021	961034	961048	961061	961074	961088	2
58	961101	961115	961128	961141	961155	961168	1
59	961181	961195	961208	961222	961235	961248	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 16 degrees, or Natural Co-sine of 16 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	3	4	6	7	8	10	11	13

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 164 degrees, or Natural Sine of 74 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.961262	961275	961288	961302	961315	961328	59
1	961342	961355	961369	961382	961395	961409	58
2	961422	961435	961449	961462	961475	961489	57
3	961502	961515	961529	961542	961555	961568	56
4	961582	961595	961608	961622	961635	961648	55
5	961662	961675	961688	961701	961715	961728	54
6	961741	961755	961768	961781	961794	961808	53
7	961821	961834	961847	961861	961874	961887	52
8	961901	961914	961927	961940	961954	961967	51
9	961980	961993	962006	962020	962033	962046	50
10	1.962059	962073	962086	962099	962112	962126	49
11	962139	962152	962165	962178	962192	962205	48
12	962218	962231	962244	962258	962271	962284	47
13	962297	962310	962324	962337	962350	962363	46
14	962376	962389	962403	962416	962429	962442	45
15	962455	962468	962482	962495	962508	962521	44
16	962534	962547	962560	962574	962587	962600	43
17	962613	962626	962639	962652	962666	962679	42
18	962692	962705	962718	962731	962744	962757	41
19	962770	962784	962797	962810	962823	962836	40
20	962849	962862	962875	962888	962901	962914	39
21	962928	962941	962954	962967	962980	962993	38
22	963006	963019	963032	963045	963058	963071	37
23	963084	963097	963110	963123	963136	963150	36
24	963163	963176	963189	963202	963215	963228	35
25	963241	963254	963267	963280	963293	963306	34
26	963319	963332	963345	963358	963371	963384	33
27	963397	963410	963423	963436	963449	963462	32
28	963475	963488	963501	963514	963527	963540	31
29	963553	963566	963579	963592	963605	963617	30
30	1.963630	963643	963656	963669	963682	963695	29
31	963708	963721	963734	963747	963760	963773	28
32	963786	963799	963812	963825	963837	963850	27
33	963863	963876	963889	963902	963915	963928	26
34	963941	963954	963967	963979	963992	964005	25
35	964018	964031	964044	964057	964070	964083	24
36	964095	964108	964121	964134	964147	964160	23
37	964173	964185	964198	964211	964224	964237	22
38	964250	964263	964275	964288	964301	964314	21
39	964327	964340	964352	964365	964378	964391	20
40	1.964404	964417	964429	964442	964455	964468	19
41	964481	964493	964506	964519	964532	964545	18
42	964557	964570	964583	964596	964609	964621	17
43	964634	964647	964660	964672	964685	964698	16
44	964711	964724	964736	964749	964762	964775	15
45	964787	964800	964813	964826	964838	964851	14
46	964864	964877	964889	964902	964915	964927	13
47	964940	964953	964966	964978	964991	965004	12
48	965016	965029	965042	965055	965067	965080	11
49	965093	965105	965118	965131	965143	965156	10
50	1.965169	965182	965194	965207	965220	965232	9
51	965245	965258	965270	965283	965296	965308	8
52	965321	965334	965346	965359	965372	965384	7
53	965397	965409	965422	965435	965447	965460	6
54	965473	965485	965498	965511	965523	965536	5
55	965548	965561	965574	965586	965599	965611	4
56	965624	965637	965649	965662	965674	965687	3
57	965700	965712	965725	965737	965750	965763	2
58	965775	965788	965800	965813	965825	965838	1
59	965850	965863	965876	965888	965901	965913	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 15 degrees, or Natural Co-sine of 15 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	3	4	5	6	8	9	10	12

Versed Sine of 165 degrees, or Natural Sine of 75 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.965926	965938	965951	965963	965976	965989	59
1	966001	966014	966026	966039	966051	966064	58
2	966076	966089	966101	966114	966126	966139	57
3	966151	966164	966176	966189	966201	966214	56
4	966226	966239	966251	966264	966276	966289	55
5	966301	966314	966326	966339	966351	966364	54
6	966376	966389	966401	966413	966426	966438	53
7	966451	966463	966476	966488	966501	966513	52
8	966526	966538	966550	966563	966576	966588	51
9	966600	966613	966625	966637	966650	966662	50
10	1.966675	966687	966699	966712	966724	966737	49
11	966749	966761	966774	966786	966799	966811	48
12	966823	966836	966848	966861	966873	966885	47
13	966898	966910	966922	966935	966947	966959	46
14	966972	966984	966997	967009	967021	967034	45
15	967046	967058	967071	967083	967095	967108	44
16	967120	967132	967145	967157	967169	967182	43
17	967194	967206	967219	967231	967243	967255	42
18	967268	967280	967292	967305	967317	967329	41
19	967342	967354	967366	967378	967391	967403	40
20	1.967415	967427	967440	967452	967464	967477	39
21	967489	967501	967513	967526	967538	967550	38
22	967562	967575	967587	967599	967611	967624	37
23	967636	967648	967660	967672	967685	967697	36
24	967709	967721	967734	967746	967758	967770	35
25	967782	967795	967807	967819	967831	967843	34
26	967856	967868	967880	967892	967904	967917	33
27	967929	967941	967953	967965	967977	967990	32
28	968002	968014	968026	968038	968050	968063	31
29	968075	968087	968099	968111	968123	968136	30
30	1.968148	968160	968172	968184	968196	968208	29
31	968220	968233	968245	968257	968269	968281	28
32	968293	968305	968317	968329	968342	968354	27
33	968366	968378	968390	968402	968414	968426	26
34	968438	968450	968462	968475	968487	968499	25
35	968511	968523	968535	968547	968559	968571	24
36	968583	968595	968607	968619	968631	968643	23
37	968656	968668	968680	968692	968704	968716	22
38	968728	968740	968752	968764	968776	968788	21
39	968800	968812	968824	968836	968848	968860	20
40	1.968872	968884	968896	968908	968920	968932	19
41	968944	968956	968968	968980	968992	969004	18
42	969016	969028	969040	969052	969064	969076	17
43	969088	969099	969111	969123	969135	969147	16
44	969159	969171	969183	969195	969207	969219	15
45	969231	969243	969255	969267	969279	969291	14
46	969302	969314	969326	969338	969350	969362	13
47	969374	969386	969398	969410	969422	969433	12
48	969445	969457	969469	969481	969493	969505	11
49	969517	969529	969540	969552	969564	969576	10
50	1.969588	969600	969612	969623	969635	969647	9
51	969659	969671	969683	969695	969706	969718	8
52	969730	969742	969754	969766	969777	969789	7
53	969801	969813	969825	969837	969848	969860	6
54	969872	969884	969896	969907	969919	969931	5
55	969943	969955	969966	969978	969990	970002	4
56	970014	970025	970037	970049	970061	970073	3
57	970084	970096	970108	970120	970131	970143	2
58	970155	970167	970178	970190	970202	970214	1
59	970225	970237	970249	970261	970272	970284	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 14 degrees, or Natural Co-sine of 14 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	2	4	5	6	7	8	10	11

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 166 degrees, or Natural Sine of 76 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.970296	970307	970319	970331	970343	970354	59
1	970366	970378	970389	970401	970413	970425	58
2	970436	970448	970460	970471	970483	970495	57
3	970506	970518	970530	970542	970553	970565	56
4	970577	970588	970600	970612	970623	970635	55
5	970647	970658	970670	970682	970693	970705	54
6	970716	970728	970740	970751	970763	970775	53
7	970786	970798	970810	970821	970833	970844	52
8	970856	970868	970879	970891	970903	970914	51
9	970926	970937	970949	970961	970972	970984	50
10	1.970995	971007	971019	971030	971042	971053	49
11	971065	971076	971088	971100	971111	971123	48
12	971134	971146	971157	971169	971181	971192	47
13	971204	971215	971227	971238	971250	971261	46
14	971273	971284	971296	971307	971319	971331	45
15	971342	971354	971365	971377	971388	971400	44
16	971411	971423	971434	971446	971457	971469	43
17	971480	971492	971503	971515	971526	971538	42
18	971549	971561	971572	971584	971595	971607	41
19	971618	971629	971641	971652	971664	971675	40
20	1.971687	971698	971710	971721	971733	971744	39
21	971755	971767	971778	971790	971801	971813	38
22	971824	971835	971847	971858	971870	971881	37
23	971893	971904	971915	971927	971938	971950	36
24	971961	971972	971984	971995	972007	972018	35
25	972030	972041	972052	972064	972075	972086	34
26	972098	972109	972120	972132	972143	972154	33
27	972166	972177	972189	972200	972211	972223	32
28	972234	972245	972257	972268	972279	972291	31
29	972302	972313	972325	972336	972347	972359	30
30	1.972370	972382	972393	972404	972415	972426	29
31	972438	972449	972460	972472	972483	972494	28
32	972506	972517	972528	972539	972551	972562	27
33	972573	972585	972596	972607	972618	972630	26
34	972641	972652	972663	972675	972686	972697	25
35	972708	972720	972731	972742	972753	972765	24
36	972776	972787	972798	972810	972821	972832	23
37	972843	972854	972866	972877	972888	972899	22
38	972911	972922	972933	972944	972955	972967	21
39	972978	972989	973000	973011	973023	973034	20
40	1.973045	973056	973067	973078	973090	973101	19
41	973112	973123	973134	973145	973157	973168	18
42	973179	973190	973201	973212	973223	973235	17
43	973246	973257	973268	973279	973290	973301	16
44	973313	973324	973335	973346	973357	973368	15
45	973379	973390	973401	973413	973424	973435	14
46	973446	973457	973468	973479	973490	973501	13
47	973512	973524	973535	973546	973557	973568	12
48	973579	973590	973601	973612	973623	973634	11
49	973645	973656	973667	973678	973689	973701	10
50	1.973712	973723	973734	973745	973756	973767	9
51	973778	973789	973800	973811	973822	973833	8
52	973844	973855	973866	973877	973888	973899	7
53	973910	973921	973932	973943	973954	973965	6
54	973976	973987	973998	974009	974020	974031	5
55	974042	974053	974064	974075	974086	974097	4
56	974108	974119	974130	974141	974151	974162	3
57	974173	974184	974195	974206	974217	974228	2
58	974239	974250	974261	974272	974283	974294	1
59	974305	974316	974326	974337	974348	974359	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 13 degrees, or Natural Co-sine of 13 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	2	2	3	5	6	7	8	9	10

Versed Sine of 167 degrees, or Natural Sine of 77 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.974370	974381	974392	974403	974414	974425	59
1	974435	974446	974457	974468	974479	974490	58
2	974501	974512	974523	974533	974544	974555	57
3	974566	974577	974588	974599	974609	974620	56
4	974631	974642	974653	974664	974675	974685	55
5	974696	974707	974718	974729	974740	974750	54
6	974761	974772	974783	974794	974804	974815	53
7	974826	974837	974848	974859	974869	974880	52
8	974891	974902	974912	974923	974934	974945	51
9	974956	974966	974977	974988	974999	975010	50
10	1.975020	975031	975042	975053	975063	975074	49
11	975085	975096	975106	975117	975128	975139	48
12	975149	975160	975171	975182	975192	975203	47
13	975214	975224	975235	975246	975257	975267	46
14	975278	975289	975300	975310	975321	975332	45
15	975342	975353	975364	975374	975385	975396	44
16	975406	975417	975428	975439	975449	975460	43
17	975471	975481	975492	975503	975513	975524	42
18	975535	975545	975556	975567	975577	975588	41
19	975598	975609	975620	975630	975641	975652	40
20	1.975662	975673	975684	975694	975705	975715	39
21	975726	975737	975747	975758	975768	975779	38
22	975790	975800	975811	975821	975832	975843	37
23	975853	975864	975874	975885	975896	975906	36
24	975917	975927	975938	975948	975959	975970	35
25	975980	975991	976001	976012	976022	976033	34
26	976044	976054	976065	976075	976086	976096	33
27	976107	976117	976128	976138	976149	976159	32
28	976170	976180	976191	976201	976212	976222	31
29	976233	976244	976254	976265	976275	976286	30
30	1.976296	976306	976317	976327	976338	976348	29
31	976359	976369	976380	976390	976401	976411	28
32	976422	976432	976443	976453	976464	976474	27
33	976485	976495	976505	976516	976526	976537	26
34	976547	976558	976568	976578	976589	976599	25
35	976610	976620	976631	976641	976651	976662	24
36	976672	976683	976693	976704	976714	976724	23
37	976735	976745	976755	976766	976776	976787	22
38	976797	976807	976818	976828	976839	976849	21
39	976859	976870	976880	976890	976901	976911	20
40	1.976921	976932	976942	976953	976963	976973	19
41	976984	976994	977004	977015	977025	977035	18
42	977046	977056	977066	977077	977087	977097	17
43	977108	977118	977128	977138	977149	977159	16
44	977169	977180	977190	977200	977211	977221	15
45	977231	977241	977252	977262	977272	977283	14
46	977293	977303	977313	977324	977334	977344	13
47	977354	977365	977375	977385	977395	977406	12
48	977416	977426	977436	977447	977457	977467	11
49	977477	977488	977498	977508	977518	977528	10
50	1.977539	977549	977559	977569	977580	977590	9
51	977600	977610	977620	977631	977641	977651	8
52	977661	977671	977681	977692	977702	977712	7
53	977722	977732	977743	977753	977763	977773	6
54	977783	977793	977804	977814	977824	977834	5
55	977844	977854	977864	977875	977885	977895	4
56	977905	977915	977925	977935	977946	977956	3
57	977966	977976	977986	977996	978006	978016	2
58	978026	978037	978047	978057	978067	978077	1
59	978087	978097	978107	978117	978127	978138	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 12 degrees, or Natural Co-sine of 12 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	2	3	4	5	6	7	8	9

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Minutes	*Versed Sine of 168 degrees, or Natural Sine of 78 degrees.* 0″	10″	20″	30″	40″	50″	Minutes
0	1.978148	978158	978168	978178	978188	978198	59
1	978208	978218	978228	978238	978248	978258	58
2	978268	978278	978288	978299	978309	978319	57
3	978329	978339	978349	978359	978369	978379	56
4	978389	978399	978409	978419	978429	978439	55
5	978449	978459	978469	978479	978489	978499	54
6	978509	978519	978529	978539	978549	978559	53
7	978569	978579	978589	978599	978609	978619	52
8	978629	978639	978649	978659	978669	978679	51
9	978689	978699	978708	978718	978728	978738	50
10	1.978748	978758	978768	978778	978788	978798	49
11	978808	978818	978828	978838	978848	978857	48
12	978867	978877	978887	978897	978907	978917	47
13	978927	978937	978947	978957	978966	978976	46
14	978986	978996	979006	979016	979026	979036	45
15	979045	979055	979065	979075	979085	979095	44
16	979105	979115	979124	979134	979144	979154	43
17	979164	979174	979183	979193	979203	979213	42
18	979223	979233	979242	979252	979262	979272	41
19	979282	979292	979301	979311	979321	979331	40
20	1.979341	979350	979360	979370	979380	979390	39
21	979399	979409	979419	979429	979439	979448	38
22	979458	979468	979478	979487	979497	979507	37
23	979517	979526	979536	979546	979556	979565	36
24	979575	979585	979595	979604	979614	979624	35
25	979634	979643	979653	979663	979673	979682	34
26	979692	979702	979712	979721	979731	979741	33
27	979750	979760	979770	979779	979789	979799	32
28	979809	979818	979828	979838	979847	979857	31
29	979867	979876	979886	979896	979905	979915	30
30	1.979925	979934	979944	979954	979963	979973	29
31	979983	979992	980002	980012	980021	980031	28
32	980041	980050	980060	980069	980079	980089	27
33	980098	980108	980118	980127	980137	980146	26
34	980156	980166	980175	980185	980194	980204	25
35	980214	980223	980233	980243	980252	980262	24
36	980271	980281	980290	980300	980309	980319	23
37	980329	980338	980348	980357	980367	980376	22
38	980386	980396	980405	980415	980424	980434	21
39	980443	980453	980462	980472	980481	980491	20
40	1.980500	980510	980520	980529	980539	980548	19
41	980558	980567	980577	980586	980596	980605	18
42	980615	980624	980634	980643	980653	980662	17
43	980672	980681	980691	980700	980710	980719	16
44	980728	980738	980747	980757	980766	980776	15
45	980785	980795	980804	980814	980823	980833	14
46	980842	980851	980861	980870	980880	980889	13
47	980899	980908	980918	980927	980936	980946	12
48	980955	980965	980974	980983	980993	981002	11
49	981012	981021	981030	981040	981049	981059	10
50	1.981068	981077	981087	981096	981106	981115	9
51	981124	981134	981143	981152	981162	981171	8
52	981181	981190	981199	981209	981218	981227	7
53	981237	981246	981255	981265	981274	981283	6
54	981293	981302	981311	981321	981330	981339	5
55	981349	981358	981367	981377	981386	981395	4
56	981405	981414	981423	981432	981442	981451	3
57	981460	981470	981479	981488	981497	981507	2
58	981516	981525	981535	981544	981553	981562	1
59	981572	981581	981590	981599	981609	981618	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 11 degrees, or Natural Co-sine of 11 degrees.						
Propor. parts.	1″ 1	2″ 2	3″ 3	4″ 4	5″ 5	6″ 6	7″ 7	8″ 8	9″ 9

Minutes	*Versed Sine of 169 degrees, or Natural Sine of 79 degrees.* 0″	10″	20″	30″	40″	50″	Minutes
0	1.981627	981636	981646	981655	981664	981673	59
1	981683	981692	981701	981710	981720	981729	58
2	981738	981747	981756	981766	981775	981784	57
3	981793	981803	981812	981821	981830	981839	56
4	981849	981858	981867	981876	981885	981894	55
5	981904	981913	981922	981931	981940	981950	54
6	981959	981968	981977	981986	981995	982005	53
7	982014	982023	982032	982041	982050	982059	52
8	982069	982078	982087	982096	982105	982114	51
9	982123	982132	982142	982151	982160	982169	50
10	1.982178	982187	982196	982205	982215	982224	49
11	982233	982242	982251	982260	982269	982278	48
12	982287	982296	982305	982314	982324	982333	47
13	982342	982351	982360	982369	982378	982387	46
14	982396	982405	982414	982423	982432	982441	45
15	982450	982459	982468	982478	982487	982496	44
16	982505	982514	982523	982532	982541	982550	43
17	982559	982568	982577	982586	982595	982604	42
18	982613	982622	982631	982640	982649	982658	41
19	982667	982676	982685	982694	982703	982712	40
20	1.982721	982730	982739	982748	982757	982766	39
21	982774	982783	982792	982801	982810	982819	38
22	982828	982837	982846	982855	982864	982873	37
23	982882	982891	982900	982909	982918	982926	36
24	982935	982944	982953	982962	982971	982980	35
25	982989	982998	983007	983015	983024	983033	34
26	983042	983051	983060	983069	983078	983087	33
27	983096	983104	983113	983122	983131	983140	32
28	983149	983158	983166	983175	983184	983193	31
29	983202	983211	983220	983228	983237	983246	30
30	1.983255	983264	983273	983281	983290	983299	29
31	983308	983317	983326	983334	983343	983352	28
32	983361	983370	983378	983387	983396	983405	27
33	983414	983422	983431	983440	983449	983458	26
34	983466	983475	983484	983493	983501	983510	25
35	983519	983528	983536	983545	983554	983563	24
36	983571	983580	983589	983598	983606	983615	23
37	983624	983633	983641	983650	983659	983668	22
38	983676	983685	983694	983702	983711	983720	21
39	983729	983737	983746	983755	983763	983772	20
40	1.983781	983790	983798	983807	983816	983824	19
41	983833	983842	983850	983859	983868	983876	18
42	983885	983894	983902	983911	983920	983928	17
43	983937	983946	983954	983963	983972	983980	16
44	983989	983998	984006	984015	984023	984032	15
45	984041	984049	984058	984067	984075	984084	14
46	984092	984101	984110	984118	984127	984135	13
47	984144	984153	984161	984170	984178	984187	12
48	984196	984204	984213	984221	984230	984239	11
49	984247	984256	984264	984273	984281	984290	10
50	1.984298	984307	984316	984324	984333	984341	9
51	984350	984358	984367	984375	984384	984393	8
52	984401	984410	984418	984427	984435	984444	7
53	984452	984461	984469	984478	984486	984495	6
54	984503	984512	984520	984529	984537	984546	5
55	984554	984563	984571	984580	984588	984597	4
56	984605	984614	984622	984630	984639	984647	3
57	984656	984664	984673	984681	984690	984698	2
58	984707	984715	984723	984732	984740	984749	1
59	984757	984766	984774	984782	984791	984799	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes
	Versed Sine Supplement of 10 degrees, or Natural Co-sine of 10 degrees.						
Propor. parts.	1″ 1	2″ 2	3″ 3	4″ 4	5″ 4	6″ 5	7″ 6	8″ 7	9″ 8

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 170 degrees, or Natural Sine of 80 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.984808	984816	984825	984833	984841	984850	59
1	984858	984867	984875	984883	984892	984901	58
2	984909	984917	984925	984934	984942	984951	57
3	984959	984967	984976	984984	984992	985001	56
4	985009	985017	985026	985034	985043	985051	55
5	985059	985068	985076	985084	985093	985101	54
6	985109	985118	985126	985134	985143	985151	53
7	985159	985168	985176	985184	985193	985201	52
8	985209	985217	985226	985234	985242	985251	51
9	985259	985267	985276	985284	985292	985300	50
10	1.985309	985317	985325	985334	985342	985350	49
11	985358	985367	985375	985383	985391	985400	48
12	985408	985416	985424	985433	985441	985449	47
13	985457	985466	985474	985482	985490	985499	46
14	985507	985515	985523	985531	985540	985548	45
15	985556	985564	985572	985581	985589	985597	44
16	985605	985613	985622	985630	985638	985646	43
17	985654	985663	985671	985679	985687	985695	42
18	985703	985712	985720	985728	985736	985744	41
19	985752	985761	985769	985777	985785	985793	40
20	1.985801	985809	985818	985826	985834	985842	39
21	985850	985858	985866	985874	985883	985891	38
22	985899	985907	985915	985923	985931	985939	37
23	985947	985956	985964	985972	985980	985988	36
24	985996	986004	986012	986020	986028	986036	35
25	986045	986053	986061	986069	986077	986085	34
26	986093	986101	986109	986117	986125	986133	33
27	986141	986149	986157	986165	986173	986181	32
28	986189	986197	986205	986213	986222	986230	31
29	986238	986246	986254	986262	986270	986278	30
30	1.986286	986294	986302	986310	986318	986326	29
31	986334	986342	986350	986358	986366	986373	28
32	986381	986389	986397	986405	986413	986421	27
33	986429	986437	986445	986453	986461	986469	26
34	986477	986485	986493	986501	986509	986517	25
35	986525	986532	986540	986548	986556	986564	24
36	986572	986580	986588	986596	986604	986612	23
37	986620	986628	986635	986643	986651	986659	22
38	986667	986675	986683	986691	986699	986706	21
39	986714	986722	986730	986738	986746	986754	20
40	1.986762	986769	986777	986785	986793	986801	19
41	986809	986817	986824	986832	986840	986848	18
42	986856	986864	986871	986879	986887	986895	17
43	986903	986911	986918	986926	986934	986942	16
44	986950	986957	986965	986973	986981	986989	15
45	986996	987004	987012	987020	987028	987035	14
46	987043	987051	987059	987066	987074	987082	13
47	987090	987097	987105	987113	987121	987129	12
48	987136	987144	987152	987160	987167	987175	11
49	987183	987190	987198	987206	987214	987221	10
50	1.987229	987237	987245	987252	987260	987268	9
51	987275	987283	987291	987299	987306	987314	8
52	987322	987329	987337	987345	987352	987360	7
53	987368	987375	987383	987391	987398	987406	6
54	987414	987421	987429	987437	987444	987452	5
55	987460	987467	987475	987483	987490	987498	4
56	987506	987513	987521	987529	987536	987544	3
57	987551	987559	987567	987574	987582	987590	2
58	987597	987605	987612	987620	987628	987635	1
59	987643	987650	987658	987666	987673	987681	0
	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 9 degrees, or Natural Co-sine of 9 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	2	2	3	4	5	6	6	7

Versed Sine of 171 degrees, or Natural Sine of 81 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.987688	987696	987704	987711	987719	987726	
1	987734	987741	987749	987757	987764	987772	
2	987779	987787	987794	987802	987809	987817	
3	987824	987832	987840	987847	987855	987862	
4	987870	987877	987885	987892	987900	987907	
5	987915	987922	987930	987937	987945	987952	
6	987960	987967	987975	987982	987990	987997	
7	988005	988012	988020	988027	988035	988042	
8	988050	988057	988065	988072	988080	988087	
9	988094	988102	988109	988117	988124	988132	
10	1.988139	988147	988154	988162	988169	988176	
11	988184	988191	988199	988206	988214	988221	
12	988228	988236	988243	988251	988258	988265	
13	988273	988280	988288	988295	988302	988310	
14	988317	988325	988332	988339	988347	988354	
15	988362	988369	988376	988384	988391	988398	
16	988406	988413	988420	988428	988435	988442	
17	988450	988457	988465	988472	988479	988487	
18	988494	988501	988509	988516	988523	988531	
19	988538	988545	988552	988560	988567	988574	
20	1.988582	988589	988596	988604	988611	988618	
21	988626	988633	988640	988647	988655	988662	
22	988669	988676	988684	988691	988698	988706	
23	988713	988720	988727	988735	988742	988749	
24	988756	988764	988771	988778	988785	988793	
25	988800	988807	988814	988822	988829	988836	
26	988843	988850	988858	988865	988872	988879	
27	988886	988894	988901	988908	988915	988923	
28	988930	988937	988944	988951	988958	988966	
29	988973	988980	988987	988994	989002	989009	
30	1.989016	989023	989030	989037	989045	989052	
31	989059	989066	989073	989080	989087	989095	
32	989102	989109	989116	989123	989130	989137	
33	989145	989152	989159	989166	989173	989180	
34	989187	989194	989201	989208	989216	989223	
35	989230	989237	989244	989251	989258	989265	
36	989272	989279	989286	989294	989301	989308	
37	989315	989322	989329	989336	989343	989350	
38	989357	989364	989371	989378	989385	989392	
39	989399	989406	989414	989421	989428	989435	
40	1.989442	989449	989456	989463	989470	989477	
41	989484	989491	989498	989505	989512	989519	
42	989526	989533	989540	989547	989554	989561	
43	989568	989575	989582	989589	989596	989603	
44	989610	989617	989624	989631	989637	989644	
45	989651	989658	989665	989672	989679	989686	
46	989693	989700	989707	989714	989721	989728	
47	989735	989742	989749	989755	989762	989769	
48	989776	989783	989790	989797	989804	989811	
49	989818	989825	989831	989838	989845	989852	
50	1.989859	989866	989873	989880	989887	989893	
51	989900	989907	989914	989921	989928	989935	
52	989942	989948	989955	989962	989969	989976	
53	989983	989989	989996	990003	990010	990017	
54	990024	990030	990037	990044	990051	990058	
55	990065	990071	990078	990085	990092	990099	
56	990105	990112	990119	990126	990133	990139	
57	990146	990153	990160	990167	990173	990180	
58	990187	990194	990200	990207	990214	990221	
59	990228	990234	990241	990248	990255	990261	
Minutes	60″	50″	40″	30″	20″	10″	

Versed Sine Supplement of 8 degrees, or Natural Co-sine of 8 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	1	2	3	4	4	5	6	6

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 172 degrees, or Natural Sine of 82 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.990268	990275	990282	990288	990295	990302	59
1	990309	990315	990322	990329	990335	990342	58
2	990349	990356	990362	990369	990376	990382	57
3	990389	990396	990403	990409	990416	990423	56
4	990429	990436	990443	990449	990456	990463	55
5	990469	990476	990483	990489	990496	990503	54
6	990509	990516	990523	990529	990536	990543	53
7	990549	990556	990563	990569	990576	990583	52
8	990589	990596	990603	990609	990616	990622	51
9	990629	990636	990642	990649	990655	990662	50
10	1.990669	990675	990682	990689	990695	990702	49
11	990708	990715	990721	990728	990735	990741	48
12	990748	990754	990761	990768	990774	990781	47
13	990787	990794	990800	990807	990814	990820	46
14	990827	990833	990840	990846	990853	990859	45
15	990866	990872	990879	990886	990892	990899	44
16	990905	990912	990918	990925	990931	990938	43
17	990944	990951	990957	990964	990970	990977	42
18	990983	990990	990996	991002	991009	991016	41
19	991022	991029	991035	991042	991048	991055	40
20	1.991061	991067	991074	991080	991087	991093	39
21	991100	991106	991113	991119	991126	991132	38
22	991138	991145	991151	991158	991164	991171	37
23	991177	991183	991190	991196	991203	991209	36
24	991216	991222	991228	991235	991241	991248	35
25	991254	991260	991267	991273	991280	991286	34
26	991292	991299	991305	991311	991318	991324	33
27	991331	991337	991343	991350	991356	991362	32
28	991369	991375	991381	991388	991394	991401	31
29	991407	991413	991420	991426	991432	991439	30
30	1.991445	991451	991458	991464	991470	991476	29
31	991483	991489	991495	991502	991508	991514	28
32	991521	991527	991533	991540	991546	991552	27
33	991558	991565	991571	991577	991584	991590	26
34	991596	991602	991609	991615	991621	991627	25
35	991634	991640	991646	991652	991659	991665	24
36	991671	991677	991684	991690	991696	991702	23
37	991709	991715	991721	991727	991733	991740	22
38	991746	991752	991758	991765	991771	991777	21
39	991783	991789	991796	991802	991808	991814	20
40	1.991820	991827	991833	991839	991845	991851	19
41	991857	991864	991870	991876	991882	991888	18
42	991894	991901	991907	991913	991919	991925	17
43	991931	991938	991944	991950	991956	991962	16
44	991968	991974	991980	991987	991993	991999	15
45	992005	992011	992017	992023	992029	992036	14
46	992042	992048	992054	992060	992066	992072	13
47	992078	992084	992090	992096	992103	992109	12
48	992115	992121	992127	992133	992139	992145	11
49	992151	992157	992163	992169	992175	992181	10
50	1.992187	992193	992200	992206	992212	992218	9
51	992224	992230	992236	992242	992248	992254	8
52	992260	992266	992272	992278	992284	992290	7
53	992296	992302	992308	992314	992320	992326	6
54	992332	992338	992344	992350	992356	992362	5
55	992368	992374	992380	992386	992392	992398	4
56	992404	992410	992416	992422	992428	992433	3
57	992439	992445	992451	992457	992463	992469	2
58	992475	992481	992487	992493	992499	992505	1
59	992511	992517	992522	992528	992534	992540	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Versed Sine Supplement of 7 degrees, or Natural Co-sine of 7 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	1	2	3	3	4	5	5	6

Versed Sine of 173 degrees, or Natural Sine of 83 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.992546	992552	992558	992564	992570	992576	59
1	992582	992588	992593	992599	992605	992611	58
2	992617	992623	992629	992635	992640	992646	57
3	992652	992658	992664	992670	992676	992681	56
4	992687	992693	992699	992705	992711	992717	55
5	992722	992728	992734	992740	992746	992752	54
6	992757	992763	992769	992775	992781	992786	53
7	992792	992798	992804	992810	992815	992821	52
8	992827	992833	992839	992844	992850	992856	51
9	992862	992868	992873	992879	992885	992891	50
10	1.992896	992902	992908	992914	992920	992925	49
11	992931	992937	992943	992948	992954	992960	48
12	992966	992971	992977	992983	992988	992994	47
13	993000	993006	993011	993017	993023	993029	46
14	993034	993040	993046	993051	993057	993063	45
15	993068	993074	993080	993086	993091	993097	44
16	993103	993108	993114	993120	993125	993131	43
17	993137	993142	993148	993154	993159	993165	42
18	993171	993176	993182	993188	993193	993199	41
19	993205	993210	993216	993221	993227	993233	40
20	1.993238	993244	993250	993255	993261	993266	39
21	993272	993278	993283	993289	993295	993300	38
22	993306	993311	993317	993323	993328	993334	37
23	993339	993345	993350	993356	993362	993367	36
24	993373	993378	993384	993389	993395	993401	35
25	993406	993412	993417	993423	993428	993434	34
26	993439	993445	993451	993456	993462	993467	33
27	993473	993478	993484	993489	993495	993500	32
28	993506	993511	993517	993522	993528	993533	31
29	993539	993544	993550	993555	993561	993566	30
30	1.993572	993577	993583	993588	993594	993599	29
31	993605	993610	993616	993621	993627	993632	28
32	993638	993643	993648	993654	993659	993665	27
33	993670	993676	993681	993687	993692	993697	26
34	993703	993708	993714	993719	993725	993730	25
35	993735	993741	993746	993752	993757	993763	24
36	993768	993773	993779	993784	993790	993795	23
37	993800	993806	993811	993816	993822	993827	22
38	993833	993838	993843	993849	993854	993859	21
39	993865	993870	993876	993881	993886	993892	20
40	1.993897	993902	993908	993913	993918	993924	19
41	993929	993934	993940	993945	993950	993956	18
42	993961	993966	993972	993977	993982	993988	17
43	993993	993998	994003	994009	994014	994019	16
44	994025	994030	994035	994040	994046	994051	15
45	994056	994062	994067	994072	994077	994083	14
46	994088	994093	994098	994104	994109	994114	13
47	994120	994125	994130	994135	994140	994146	12
48	994151	994156	994161	994167	994172	994177	11
49	994182	994188	994193	994198	994203	994208	10
50	1.994214	994219	994224	994229	994234	994240	9
51	994245	994250	994255	994260	994266	994271	8
52	994276	994281	994286	994291	994297	994302	7
53	994307	994312	994317	994322	994328	994333	6
54	994338	994343	994348	994353	994359	994364	5
55	994369	994374	994379	994384	994390	994395	4
56	994400	994405	994410	994415	994420	994425	3
57	994430	994435	994441	994446	994451	994456	2
58	994461	994466	994471	994476	994481	994486	1
59	994491	994497	994502	994507	994512	994517	0
Minutes	60′	50′	40′	30′	20′	10′	Minutes

Versed Sine Supplement of 6 degrees, or Natural Co-sine of 6 degrees.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	1	1	2	2	3	3	4	4	5

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Versed Sine of 174 degrees, or Natural Sine of 84 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.994522	994527	994532	994537	994542	994547	59
1	994552	994557	994562	994567	994572	994577	58
2	994583	994588	994593	994598	994603	994608	57
3	994613	994618	994623	994628	994633	994638	56
4	994643	994648	994653	994658	994663	994668	55
5	994673	994678	994683	994688	994693	994698	54
6	994703	994708	994713	994718	994723	994728	53
7	994733	994738	994743	994748	994753	994757	52
8	994762	994767	994772	994777	994782	994787	51
9	994792	994797	994802	994807	994812	994817	50
10	1.994822	994827	994832	994837	994841	994846	49
11	994851	994856	994861	994866	994871	994876	48
12	994881	994886	994891	994895	994900	994905	47
13	994910	994915	994920	994925	994930	994934	46
14	994939	994944	994949	994954	994959	994964	45
15	994969	994973	994978	994983	994988	994993	44
16	994998	995002	995007	995012	995017	995022	43
17	995027	995031	995036	995041	995046	995051	42
18	995056	995060	995065	995070	995075	995080	41
19	995084	995089	995094	995099	995104	995108	40
20	1.995113	995118	995123	995128	995132	995137	39
21	995142	995147	995151	995156	995161	995166	38
22	995170	995175	995180	995185	995189	995194	37
23	995199	995204	995208	995213	995218	995223	36
24	995227	995232	995237	995242	995246	995251	35
25	995256	995260	995265	995270	995275	995279	34
26	995284	995289	995293	995298	995303	995307	33
27	995312	995317	995322	995326	995331	995336	32
28	995340	995345	995350	995354	995359	995364	31
29	995368	995373	995378	995382	995387	995392	30
30	1.995396	995401	995405	995410	995415	995419	29
31	995424	995429	995433	995438	995443	995447	28
32	995452	995456	995461	995466	995470	995475	27
33	995479	995484	995489	995493	995498	995502	26
34	995507	995512	995516	995521	995525	995530	25
35	995535	995539	995544	995548	995553	995557	24
36	995562	995567	995571	995576	995580	995585	23
37	995589	995594	995598	995603	995607	995612	22
38	995617	995621	995626	995630	995635	995639	21
39	995644	995648	995653	995657	995662	995666	20
40	1.995671	995675	995680	995684	995689	995693	19
41	995698	995702	995707	995711	995716	995720	18
42	995725	995729	995734	995738	995743	995747	17
43	995752	995756	995760	995765	995769	995774	16
44	995778	995783	995787	995792	995796	995800	15
45	995805	995809	995814	995818	995823	995827	14
46	995832	995836	995840	995845	995849	995854	13
47	995858	995862	995867	995871	995876	995880	12
48	995884	995889	995893	995898	995902	995906	11
49	995911	995915	995919	995924	995928	995933	10
50	1.995937	995941	995946	995950	995954	995959	9
51	995963	995967	995972	995976	995981	995985	8
52	995989	995994	995998	996002	996007	996011	7
53	996015	996019	996024	996028	996032	996037	6
54	996041	996045	996050	996054	996058	996063	5
55	996067	996071	996075	996080	996084	996088	4
56	996093	996097	996101	996105	996110	996114	3
57	996118	996123	996127	996131	996135	996140	2
58	996144	996148	996152	996157	996161	996165	1
59	996169	996174	996178	996182	996186	996190	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 5 degrees, or Natural Co-sine of 5 degrees.

Versed Sine of 175 degrees, or Natural Sine of 85 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.996195	996199	996203	996207	996212	996216	5
1	996220	996224	996228	996233	996237	996241	5
2	996245	996249	996254	996258	996262	996266	5
3	996270	996275	996279	996283	996287	996291	5
4	996295	996300	996304	996308	996312	996316	5
5	996320	996325	996329	996333	996337	996341	5
6	996345	996349	996354	996358	996362	996366	5
7	996370	996374	996378	996382	996387	996391	5
8	996395	996399	996403	996407	996411	996415	5
9	996419	996424	996428	996432	996436	996440	5
10	1.996444	996448	996452	996456	996460	996464	4
11	996468	996473	996477	996481	996485	996489	4
12	996493	996497	996501	996505	996509	996513	4
13	996517	996521	996525	996529	996533	996537	4
14	996541	996545	996549	996553	996557	996561	4
15	996566	996570	996574	996578	996582	996586	4
16	996590	996594	996598	996602	996606	996610	4
17	996614	996617	996621	996625	996629	996633	4
18	996637	996641	996645	996649	996653	996657	4
19	996661	996665	996669	996673	996677	996681	4
20	1.996685	996689	996693	996697	996701	996705	3
21	996709	996712	996716	996720	996724	996728	3
22	996732	996736	996740	996744	996748	996752	3
23	996756	996759	996763	996767	996771	996775	3
24	996779	996783	996787	996791	996794	996798	3
25	996802	996806	996810	996814	996818	996822	3
26	996825	996829	996833	996837	996841	996845	3
27	996848	996852	996856	996860	996864	996868	3
28	996872	996875	996879	996883	996887	996891	3
29	996894	996898	996902	996906	996910	996914	3
30	1.996917	996921	996925	996929	996933	996936	2
31	996940	996944	996948	996951	996955	996959	2
32	996963	996967	996970	996974	996978	996982	2
33	996985	996989	996993	996997	997000	997004	2
34	997008	997012	997015	997019	997023	997027	2
35	997030	997034	997038	997042	997045	997049	2
36	997053	997056	997060	997064	997068	997071	2
37	997075	997079	997082	997086	997090	997094	2
38	997097	997101	997105	997108	997112	997116	2
39	997119	997123	997127	997130	997134	997138	2
40	1.997141	997145	997149	997152	997156	997160	1
41	997163	997167	997171	997174	997178	997181	1
42	997185	997189	997192	997196	997200	997203	1
43	997207	997211	997214	997218	997221	997225	1
44	997229	997232	997236	997239	997243	997247	1
45	997250	997254	997257	997261	997265	997268	1
46	997272	997275	997279	997282	997286	997290	1
47	997293	997297	997300	997304	997307	997311	1
48	997314	997318	997322	997325	997329	997332	1
49	997336	997339	997343	997346	997350	997353	1
50	1.997357	997360	997364	997367	997371	997375	
51	997378	997382	997385	997388	997392	997396	
52	997399	997403	997406	997409	997413	997416	
53	997420	997423	997427	997430	997434	997437	
54	997441	997444	997448	997451	997455	997458	
55	997462	997465	997468	997472	997475	997479	
56	997482	997486	997489	997493	997496	997499	
57	997503	997506	997510	997513	997516	997520	
58	997523	997527	997530	997534	997537	997540	
59	997544	997547	997551	997554	997557	997561	
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 4 degrees, or Natural Co-sine of 4 degrees.

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 176 degrees, or Natural Sine of 86 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.997564	997567	997571	997574	997578	997581	59
1	997584	997588	997591	997594	997598	997601	58
2	997604	997608	997611	997615	997618	997621	57
3	997625	997628	997631	997635	997638	997641	56
4	997645	997648	997651	997655	997658	997661	55
5	997664	997668	997671	997674	997678	997681	54
6	997684	997688	997691	997694	997697	997701	53
7	997704	997707	997711	997714	997717	997720	52
8	997724	997727	997730	997733	997737	997740	51
9	997743	997747	997750	997753	997756	997760	50
10	1.997763	997766	997769	997772	997776	997779	49
11	997782	997785	997789	997792	997795	997798	48
12	997801	997805	997808	997811	997814	997818	47
13	997821	997824	997827	997830	997833	997837	46
14	997840	997843	997846	997849	997853	997856	45
15	997859	997862	997865	997868	997872	997875	44
16	997878	997881	997884	997887	997891	997894	43
17	997897	997900	997903	997906	997909	997912	42
18	997916	997919	997922	997925	997928	997931	41
19	997934	997937	997941	997944	997947	997950	40
20	1.997953	997956	997959	997962	997965	997968	39
21	997972	997975	997978	997981	997984	997987	38
22	997990	997993	997996	997999	998002	998005	37
23	998008	998011	998015	998018	998021	998024	36
24	998027	998030	998033	998036	998039	998042	35
25	998045	998048	998051	998054	998057	998060	34
26	998063	998066	998069	998072	998075	998078	33
27	998081	998084	998087	998090	998093	998096	32
28	998099	998102	998105	998108	998111	998114	31
29	998117	998120	998123	998126	998129	998132	30
30	1.998135	998138	998141	998144	998147	998150	29
31	998153	998155	998158	998161	998164	998167	28
32	998170	998173	998176	998179	998182	998185	27
33	998188	998191	998194	998196	998199	998202	26
34	998205	998208	998211	998214	998217	998220	25
35	998223	998225	998228	998231	998234	998237	24
36	998240	998243	998246	998248	998251	998254	23
37	998257	998260	998263	998266	998268	998271	22
38	998274	998277	998280	998283	998286	998288	21
39	998291	998294	998297	998300	998303	998305	20
40	1.998308	998311	998314	998317	998319	998322	19
41	998325	998328	998331	998333	998336	998339	18
42	998342	998345	998347	998350	998353	998356	17
43	998359	998361	998364	998367	998370	998372	16
44	998375	998378	998381	998383	998386	998389	15
45	998392	998394	998397	998400	998403	998405	14
46	998408	998411	998414	998416	998419	998422	13
47	998425	998427	998430	998433	998435	998438	12
48	998441	998443	998446	998449	998452	998454	11
49	998457	998460	998462	998465	998468	998470	10
50	1.998473	998476	998478	998481	998484	998486	9
51	998489	998492	998494	998497	998500	998502	8
52	998505	998508	998510	998513	998516	998518	7
53	998521	998524	998526	998529	998531	998534	6
54	998537	998539	998542	998545	998547	998550	5
55	998552	998555	998558	998560	998563	998565	4
56	998568	998571	998573	998576	998578	998581	3
57	998583	998586	998589	998591	998594	998596	2
58	998599	998601	998604	998607	998609	998612	1
59	998614	998617	998619	998622	998624	998627	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 3 degrees, or Natural Co-sine of 3 degrees.

Prover.) 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

Versed Sine of 177 degrees, or Natural Sine of 87 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.998630	998632	998635	998637	998640	998642	59
1	998645	998647	998650	998652	998655	998657	58
2	998660	998662	998665	998667	998670	998672	57
3	998675	998677	998680	998682	998685	998687	56
4	998690	998692	998695	998697	998700	998702	55
5	998705	998707	998710	998712	998714	998717	54
6	998719	998722	998724	998727	998729	998732	53
7	998734	998736	998739	998741	998744	998746	52
8	998749	998751	998753	998756	998758	998761	51
9	998763	998766	998768	998770	998773	998775	50
10	1.998778	998780	998782	998785	998787	998790	49
11	998792	998794	998797	998799	998801	998804	48
12	998806	998809	998811	998813	998816	998818	47
13	998820	998823	998825	998827	998830	998832	46
14	998834	998837	998839	998841	998844	998846	45
15	998848	998851	998853	998855	998858	998860	44
16	998862	998865	998867	998869	998872	998874	43
17	998876	998878	998881	998883	998885	998888	42
18	998890	998892	998894	998897	998899	998901	41
19	998904	998906	998908	998910	998913	998915	40
20	1.998917	998919	998922	998924	998926	998928	39
21	998931	998933	998935	998937	998940	998941	38
22	998944	998946	998948	998951	998953	998955	37
23	998957	998960	998962	998964	998966	998968	36
24	998971	998973	998975	998977	998979	998981	35
25	998984	998986	998988	998990	998992	998995	34
26	998997	998999	999001	999003	999005	999008	33
27	999010	999012	999014	999016	999018	999021	32
28	999023	999025	999027	999029	999031	999033	31
29	999035	999038	999040	999042	999044	999046	30
30	1.999048	999050	999052	999055	999057	999059	29
31	999061	999063	999065	999067	999069	999071	28
32	999073	999076	999078	999080	999082	999084	27
33	999086	999088	999090	999092	999094	999096	26
34	999098	999100	999102	999104	999107	999109	25
35	999111	999113	999115	999117	999119	999121	24
36	999123	999125	999127	999129	999131	999133	23
37	999135	999137	999139	999141	999143	999145	22
38	999147	999149	999151	999153	999155	999157	21
39	999159	999161	999163	999165	999167	999169	20
40	1.999171	999173	999175	999177	999179	999181	19
41	999183	999185	999187	999189	999190	999192	18
42	999194	999196	999198	999200	999202	999204	17
43	999206	999208	999210	999212	999214	999216	16
44	999218	999219	999221	999223	999225	999227	15
45	999229	999231	999233	999235	999237	999239	14
46	999240	999242	999244	999246	999248	999250	13
47	999252	999254	999255	999257	999259	999261	12
48	999263	999265	999267	999268	999270	999272	11
49	999274	999276	999278	999280	999281	999283	10
50	1.999285	999287	999289	999291	999292	999294	9
51	999296	999298	999300	999301	999303	999305	8
52	999307	999309	999311	999312	999314	999316	7
53	999318	999319	999321	999323	999325	999327	6
54	999328	999330	999332	999334	999335	999337	5
55	999339	999341	999343	999344	999346	999348	4
56	999350	999351	999353	999355	999357	999358	3
57	999360	999362	999363	999365	999367	999369	2
58	999370	999372	999374	999376	999377	999379	1
59	999381	999382	999384	999386	999387	999389	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 2 degrees, or Natural Co-sine of 2 degrees.

Prover.) 1″ 2″ 3″ 4″ 5″ 6″ 7″ 8″ 9″

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NATURAL VERSED SINES, OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 178 degrees, or Natural Sine of 88 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.999391	999393	999394	999396	999398	999399	59
1	999401	999403	999404	999406	999408	999409	58
2	999411	999413	999414	999416	999418	999419	57
3	999421	999423	999424	999426	999427	999429	56
4	999431	999432	999434	999436	999437	999439	55
5	999441	999442	999444	999445	999447	999448	54
6	999450	999452	999453	999455	999457	999458	53
7	999460	999461	999463	999465	999466	999468	52
8	999469	999471	999472	999474	999476	999477	51
9	999479	999480	999482	999483	999485	999487	50
10	1.999488	999490	999491	999493	999494	999496	49
11	999497	999499	999500	999502	999504	999505	48
12	999507	999508	999510	999511	999513	999514	47
13	999516	999517	999519	999520	999522	999523	46
14	999525	999526	999528	999529	999531	999532	45
15	999534	999535	999537	999538	999539	999541	44
16	999542	999544	999545	999547	999548	999550	43
17	999551	999553	999554	999556	999557	999558	42
18	999560	999561	999563	999564	999566	999567	41
19	999568	999570	999571	999573	999574	999576	40
20	1.999577	999578	999580	999581	999583	999584	39
21	999585	999587	999588	999590	999591	999592	38
22	999594	999595	999596	999598	999599	999601	37
23	999602	999603	999605	999606	999607	999609	36
24	999610	999611	999613	999614	999616	999617	35
25	999618	999620	999621	999622	999624	999625	34
26	999626	999628	999629	999630	999631	999633	33
27	999634	999635	999637	999638	999639	999641	32
28	999642	999643	999645	999646	999647	999648	31
29	999650	999651	999652	999654	999655	999656	30
30	1.999657	999659	999660	999661	999662	999664	29
31	999665	999666	999667	999669	999670	999671	28
32	999672	999674	999675	999676	999677	999679	27
33	999680	999681	999682	999683	999685	999686	26
34	999687	999688	999690	999691	999692	999693	25
35	999694	999696	999697	999698	999699	999700	24
36	999701	999703	999704	999705	999706	999707	23
37	999709	999710	999711	999712	999713	999714	22
38	999716	999717	999718	999719	999720	999721	21
39	999722	999724	999725	999726	999727	999728	20
40	1.999729	999730	999731	999733	999734	999735	19
41	999736	999737	999738	999739	999740	999742	18
42	999743	999744	999745	999746	999747	999748	17
43	999749	999750	999751	999752	999753	999755	16
44	999756	999757	999758	999759	999760	999761	15
45	999762	999763	999764	999765	999766	999767	14
46	999768	999769	999770	999771	999772	999774	13
47	999775	999776	999777	999778	999779	999780	12
48	999781	999782	999783	999784	999785	999786	11
49	999787	999788	999789	999790	999791	999792	10
50	1.999793	999794	999795	999796	999797	999798	9
51	999799	999800	999801	999802	999802	999803	8
52	999804	999805	999806	999807	999808	999809	7
53	999810	999811	999812	999813	999814	999815	6
54	999816	999817	999818	999818	999819	999820	5
55	999821	999822	999823	999824	999825	999826	4
56	999827	999828	999829	999829	999830	999831	3
57	999832	999833	999834	999835	999836	999836	2
58	999837	999838	999839	999840	999841	999842	1
59	999843	999843	999844	999845	999846	999847	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 1 degree, or Natural Co-sine of 1 degree.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	0	0	0	1	1	1	1	1	1

Versed Sine of 179 degrees, or Natural Sine of 89 degrees.

Minutes	0″	10″	20″	30″	40″	50″	Minutes
0	1.999848	999849	999849	999850	999851	999852	59
1	999853	999854	999854	999855	999856	999857	58
2	999858	999858	999859	999860	999861	999862	57
3	999863	999863	999864	999865	999866	999867	56
4	999867	999868	999869	999870	999870	999871	55
5	999872	999873	999874	999874	999875	999876	54
6	999877	999877	999878	999879	999880	999880	53
7	999881	999882	999883	999883	999884	999885	52
8	999886	999886	999887	999888	999889	999889	51
9	999890	999891	999891	999892	999893	999894	50
10	1.999894	999895	999896	999896	999897	999898	49
11	999898	999899	999900	999900	999901	999902	48
12	999903	999903	999904	999905	999905	999906	47
13	999907	999907	999908	999909	999909	999910	46
14	999910	999911	999912	999912	999913	999914	45
15	999914	999915	999916	999916	999917	999917	44
16	999918	999919	999919	999920	999921	999921	43
17	999922	999922	999923	999924	999924	999925	42
18	999925	999926	999927	999927	999928	999928	41
19	999929	999929	999930	999931	999931	999932	40
20	1.999932	999933	999933	999934	999935	999935	39
21	999936	999936	999937	999937	999938	999938	38
22	999939	999939	999940	999941	999941	999942	37
23	999942	999943	999943	999944	999944	999945	36
24	999945	999946	999946	999947	999947	999948	35
25	999948	999949	999949	999950	999950	999951	34
26	999951	999952	999952	999953	999953	999953	33
27	999954	999954	999955	999955	999956	999956	32
28	999957	999957	999958	999958	999958	999959	31
29	999959	999960	999960	999961	999961	999961	30
30	1.999962	999962	999963	999963	999964	999964	29
31	999964	999965	999965	999966	999966	999966	28
32	999967	999967	999967	999968	999968	999969	27
33	999969	999970	999970	999970	999971	999971	26
34	999971	999972	999972	999972	999973	999973	25
35	999974	999974	999974	999975	999975	999975	24
36	999976	999976	999976	999977	999977	999977	23
37	999978	999978	999978	999979	999979	999979	22
38	999980	999980	999980	999980	999981	999981	21
39	999981	999982	999982	999982	999983	999983	20
40	1.999983	999983	999984	999984	999984	999984	19
41	999985	999985	999985	999986	999986	999986	18
42	999986	999987	999987	999987	999987	999988	17
43	999988	999988	999988	999988	999989	999989	16
44	999989	999989	999990	999990	999990	999990	15
45	999990	999991	999991	999991	999991	999992	14
46	999992	999992	999992	999992	999992	999993	13
47	999993	999993	999993	999993	999994	999994	12
48	999994	999994	999994	999994	999995	999995	11
49	999995	999995	999995	999995	999995	999996	10
50	1.999996	999996	999996	999996	999996	999996	9
51	999997	999997	999997	999997	999997	999997	8
52	999997	999997	999998	999998	999998	999998	7
53	999998	999998	999998	999998	999998	999998	6
54	999998	999999	999999	999999	999999	999999	5
55	999999	999999	999999	999999	999999	999999	4
56	999999	999999	999999	999999	000000	000000	3
57	2.000000	000000	000000	000000	000000	000000	2
58	000000	000000	000000	000000	000000	000000	1
59	000000	000000	000000	000000	000000	000000	0
Minutes	60″	50″	40″	30″	20″	10″	Minutes

Versed Sine Supplement of 0 degree, or Natural Co-sine of 0 degree.

Propor. parts.	1″	2″	3″	4″	5″	6″	7″	8″	9″
	0	0	0	0	0	0	0	0	0

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
100	000000	0434	0868	1301	1734	2166	2598	3030	3461	3891	43	86	130	173	216	259	303	346	389
101	4321	4751	5181	5609	6038	6466	6894	7321	7748	8174	43	86	128	171	214	257	300	343	385
102	8600	9026	9451	9876	•300	•724	1147	1570	1993	2415	42	85	127	170	212	254	297	339	382
103	012837	3259	3680	4100	4521	4940	5360	5779	6197	6616	42	84	126	168	210	252	294	336	378
104	7033	7451	7868	8284	8701	9116	9532	9947	•361	•776	42	83	125	166	208	250	291	333	374
105	021189	1603	2016	2428	2841	3253	3664	4075	4486	4896	41	82	124	165	206	247	288	330	371
106	5306	5715	6125	6533	6942	7350	7757	8164	8571	8978	41	82	122	163	204	245	286	326	367
107	9384	9790	•195	•600	1004	1409	1812	2216	2619	3021	40	81	121	162	202	242	283	323	364
108	033424	3826	4227	4629	5029	5430	5830	6230	6629	7028	40	80	120	160	200	240	280	321	361
109	7427	7825	8223	8620	9017	9414	9811	•207	•602	•998	40	79	119	159	198	238	278	318	357
110	041393	1787	2182	2576	2969	3362	3755	4148	4540	4932	39	79	118	157	196	236	275	314	354
111	5323	5714	6105	6495	6885	7275	7664	8053	8442	8830	39	78	117	156	195	234	273	312	351
112	9218	9606	9993	•380	•766	1152	1538	1924	2309	2694	39	77	116	154	193	232	270	309	347
113	053078	3463	3846	4230	4613	4996	5378	5761	6142	6524	38	77	115	153	191	230	268	306	345
114	6905	7286	7666	8046	8426	8806	9185	9563	9942	•320	38	76	114	152	190	228	266	304	342
115	060698	1075	1453	1829	2206	2582	2958	3333	3709	4083	38	75	113	150	188	226	263	301	338
116	4458	4832	5206	5580	5953	6326	6699	7071	7443	7815	37	75	112	149	186	224	261	298	336
117	8186	8557	8928	9298	9668	••38	•407	•777	1145	1514	37	74	111	148	185	222	259	296	333
118	071882	2250	2618	2985	3352	3718	4085	4451	4816	5182	37	73	110	147	183	220	256	293	330
119	5547	5912	6276	6640	7004	7368	7731	8094	8457	8819	36	73	109	145	181	218	254	290	327
120	079181	9543	9905	•266	•627	•987	1347	1707	2067	2426	36	72	108	144	180	216	252	288	324
121	082785	3144	3503	3861	4219	4576	4934	5291	5647	6004	36	71	107	143	179	214	250	286	322
122	6360	6716	7071	7427	7781	8136	8491	8845	9198	9552	35	71	106	142	177	213	248	284	319
123	9905	•258	•611	•963	1315	1667	2019	2370	2721	3071	35	70	106	141	176	211	246	282	317
124	093422	3772	4122	4471	4820	5169	5518	5867	6215	6562	35	70	105	140	175	210	245	280	315
125	096910	7257	7604	7951	8298	8644	8990	9335	9681	••26	35	69	104	138	173	208	242	277	311
126	100371	0715	1059	1403	1747	2091	2434	2777	3119	3462	34	69	103	137	172	206	240	275	309
127	3804	4146	4487	4828	5169	5510	5851	6191	6531	6871	34	68	102	136	170	204	238	272	306
128	7210	7549	7888	8227	8565	8903	9241	9579	9916	•253	34	67	101	135	169	203	237	270	304
129	110590	0926	1263	1599	1934	2270	2605	2940	3275	3609	34	67	101	134	168	201	235	268	302
130	113943	4277	4611	4944	5278	5611	5943	6276	6608	6940	33	67	100	133	167	200	233	267	300
131	7271	7603	7934	8265	8595	8926	9256	9586	9915	•245	33	66	99	132	165	198	231	264	297
132	120574	0903	1232	1560	1888	2216	2544	2871	3198	3525	33	66	98	131	164	197	230	262	295
133	3852	4178	4504	4830	5156	5481	5807	6131	6456	6781	33	65	98	130	163	195	228	260	293
134	7105	7429	7753	8076	8399	8722	9045	9368	9690	••12	32	65	97	129	161	194	226	258	291
135	130334	0655	0977	1298	1619	1939	2260	2580	2900	3220	32	64	96	128	160	192	224	256	288
136	3539	3858	4177	4496	4814	5133	5451	5769	6086	6403	32	64	96	127	159	191	223	255	287
137	6721	7038	7354	7671	7987	8303	8618	8934	9249	9564	32	63	94	126	158	189	221	252	284
138	9879	•194	•508	•822	1136	1450	1763	2077	2390	2702	31	63	94	125	157	188	219	251	282
139	143015	3327	3639	3951	4263	4574	4885	5196	5507	5818	31	62	93	125	156	187	218	249	280
140	146128	6438	6748	7058	7367	7676	7985	8294	8603	8911	31	62	93	124	155	186	217	248	279
141	9219	9527	9835	•142	•449	•756	1063	1370	1676	1982	31	61	92	123	154	184	215	246	277
142	152288	2594	2900	3205	3510	3815	4120	4424	4728	5032	30	61	91	122	152	183	213	244	274
143	5336	5640	5943	6246	6549	6852	7154	7457	7759	8061	30	60	91	121	151	181	211	242	272
144	8363	8664	8965	9266	9567	9868	•168	•469	•769	1068	30	60	90	120	150	180	210	240	270
145	161368	1667	1967	2266	2564	2863	3161	3460	3758	4055	30	60	89	119	149	179	209	239	269
146	4353	4650	4947	5244	5541	5838	6134	6430	6726	7022	30	59	89	119	148	178	207	237	267
147	7317	7613	7908	8203	8498	8792	9086	9381	9674	9968	29	59	88	118	147	177	206	236	265
148	170262	0555	0848	1141	1434	1727	2019	2311	2603	2895	29	58	88	117	146	175	204	234	263
149	3186	3478	3769	4060	4351	4641	4932	5222	5512	5802	29	58	87	116	145	175	204	233	261
150	176091	6381	6670	6959	7248	7537	7825	8113	8401	8689	29	58	86	115	144	173	202	231	259
151	8977	9265	9552	9839	•126	•413	•699	•986	1272	1558	29	57	86	115	144	172	201	230	258
152	181844	2129	2415	2700	2985	3270	3555	3839	4123	4408	28	57	86	114	143	171	200	228	256
153	4691	4975	5259	5542	5825	6108	6391	6674	6956	7239	28	57	85	113	142	170	198	227	255
154	7521	7803	8084	8366	8647	8929	9210	9490	9771	••51	28	56	84	113	141	169	197	225	253
155	190332	0612	0892	1172	1451	1730	2010	2289	2568	2846	28	56	84	112	140	168	196	224	252
156	3125	3403	3681	3959	4237	4514	4792	5069	5346	5623	28	56	83	111	139	166	194	222	250
157	5900	6176	6453	6729	7005	7281	7556	7832	8107	8382	27	55	83	110	138	166	193	221	248
158	8657	8932	9207	9481	9755	••29	•303	•577	•851	1124	27	55	82	110	137	164	192	219	247
159	201397	1670	1943	2216	2488	2761	3033	3305	3577	3849	27	54	82	109	136	163	191	218	245
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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161	6826	7096	7365	7634	7904	8173	8441	8710	8979	9247	27	54	81	108	135	162	188	215	241
162	9515	9783	••51	•319	•586	•853	1121	1388	1654	1921	27	54	80	107	134	161	187	214	240
163	212188	2454	2720	2986	3252	3518	3783	4049	4314	4579	27	53	80	106	133	159	186	212	239
164	4844	5109	5373	5638	5902	6166	6430	6694	6957	7221	26	53	79	106	132	158	185	211	238
165	217484	7747	8010	8273	8536	8798	9060	9323	9585	9846	26	52	79	105	131	157	183	210	236
166	220108	0370	0631	0892	1153	1414	1675	1936	2196	2456	26	52	78	104	130	157	183	209	235
167	2717	2976	3236	3496	3756	4015	4274	4533	4792	5051	26	52	78	104	130	156	182	208	234
168	5309	5568	5826	6084	6342	6600	6858	7115	7372	7630	26	52	77	103	129	155	181	206	232
169	7887	8144	8400	8657	8913	9170	9426	9682	9938	•193	26	51	77	102	128	154	179	205	231
170	230449	0704	0960	1215	1470	1724	1979	2234	2488	2742	25	51	76	102	127	153	178	204	229
171	2996	3250	3504	3757	4011	4264	4517	4770	5023	5276	25	51	76	101	127	152	177	202	228
172	5528	5781	6033	6285	6537	6789	7041	7292	7544	7795	25	50	76	101	126	151	176	202	227
173	8046	8297	8548	8799	9049	9300	9550	9800	••50	•300	25	50	75	100	125	150	175	200	225
174	240549	0799	1048	1297	1547	1795	2044	2293	2541	2790	25	50	75	100	124	149	174	199	223
175	243038	3286	3534	3782	4030	4277	4525	4772	5019	5266	25	50	74	99	124	149	174	198	222
176	5513	5759	6006	6252	6499	6745	6991	7237	7482	7728	25	49	74	98	123	148	173	197	221
177	7973	8219	8464	8709	8954	9198	9443	9687	9932	•176	25	49	74	98	123	147	172	196	220
178	250420	0664	0908	1151	1395	1638	1882	2125	2368	2610	24	49	73	97	121	146	171	195	219
179	2853	3096	3338	3580	3822	4065	4306	4548	4790	5031	24	48	73	97	121	145	170	194	218
180	255273	5514	5755	5996	6237	6477	6718	6958	7198	7439	24	48	72	96	120	144	168	192	216
181	7679	7919	8158	8398	8637	8877	9116	9355	9594	9833	24	48	72	96	120	144	167	192	215
182	260071	0310	0548	0787	1025	1263	1501	1739	1976	2214	24	48	71	95	119	143	167	191	214
183	2451	2688	2926	3163	3399	3636	3873	4109	4346	4582	24	47	71	95	118	142	166	190	213
184	4818	5054	5290	5525	5761	5996	6232	6467	6702	6937	23	47	70	94	117	141	164	188	211
185	267172	7406	7641	7875	8110	8344	8578	8812	9046	9279	23	47	70	94	117	141	164	188	211
186	9513	9746	9980	•213	•446	•679	•912	1144	1377	1609	23	47	70	93	116	140	163	186	210
187	271842	2074	2306	2538	2770	3001	3233	3464	3696	3927	23	46	70	93	116	139	162	186	209
188	4158	4389	4620	4850	5081	5311	5542	5772	6002	6232	23	46	69	92	115	138	161	184	207
189	6462	6692	6921	7151	7380	7609	7838	8067	8296	8525	23	46	69	92	115	138	161	183	206
190	278754	8982	9211	9439	9667	9895	•123	•351	•578	•806	23	45	68	91	114	137	160	182	205
191	281033	1261	1488	1715	1942	2169	2396	2622	2849	3075	23	45	68	91	113	136	159	181	204
192	3301	3527	3753	3979	4205	4431	4656	4882	5107	5332	23	45	68	90	113	135	158	180	203
193	5557	5782	6007	6232	6457	6681	6905	7130	7354	7578	22	45	67	89	112	134	157	179	202
194	7802	8026	8249	8473	8696	8920	9143	9366	9589	9812	22	45	67	89	112	134	156	178	201
195	290035	0257	0480	0702	0925	1147	1369	1591	1813	2034	22	44	67	89	111	133	156	178	200
196	2256	2478	2699	2920	3142	3363	3584	3804	4025	4246	22	44	66	88	110	133	155	177	199
197	4466	4687	4907	5127	5347	5567	5787	6007	6226	6446	22	44	66	88	110	132	154	176	198
198	6665	6885	7104	7323	7542	7761	7979	8198	8416	8635	22	44	66	88	109	131	153	175	197
199	8853	9071	9289	9507	9725	9943	•161	•378	•596	•813	22	44	65	87	109	131	153	174	196
200	301030	1247	1464	1681	1898	2114	2331	2547	2764	2980	22	43	65	87	108	130	152	173	195
201	3196	3412	3628	3844	4060	4275	4491	4706	4921	5136	22	43	65	86	108	129	151	172	194
202	5351	5566	5781	5996	6211	6425	6639	6854	7068	7282	21	43	64	86	107	129	150	172	193
203	7496	7710	7924	8137	8351	8564	8778	8991	9204	9417	21	43	64	85	107	128	149	171	192
204	9630	9843	••56	•268	•481	•693	•906	1118	1330	1542	21	43	64	85	106	127	148	170	191
205	311754	1966	2177	2389	2600	2812	3023	3234	3445	3656	21	42	63	84	106	127	148	169	190
206	3867	4078	4289	4499	4710	4920	5130	5341	5551	5761	21	42	63	84	105	126	147	168	189
207	5970	6180	6390	6599	6809	7018	7227	7437	7646	7855	21	42	63	84	105	126	147	168	189
208	8063	8272	8481	8689	8898	9106	9314	9522	9731	9938	21	42	63	83	104	125	146	167	188
209	320146	0354	0562	0769	0977	1184	1391	1598	1806	2012	21	41	62	83	104	125	145	166	187
210	322219	2426	2633	2839	3046	3252	3458	3665	3871	4077	21	41	62	82	103	124	144	165	186
211	4283	4488	4694	4900	5105	5310	5516	5721	5926	6131	21	41	62	82	103	123	144	164	185
212	6336	6541	6745	6950	7155	7359	7563	7768	7972	8176	20	41	61	82	102	123	143	164	184
213	8380	8583	8787	8991	9194	9398	9601	9805	••08	•211	20	41	61	81	102	122	142	163	183
214	330414	0617	0820	1022	1225	1427	1630	1832	2034	2236	20	40	61	81	101	121	141	162	182
215	332439	2640	2842	3044	3246	3447	3649	3850	4051	4253	20	40	60	81	101	121	141	161	181
216	4454	4655	4856	5057	5257	5458	5659	5859	6059	6260	20	40	60	80	100	120	140	160	180
217	6460	6660	6860	7060	7260	7459	7659	7858	8058	8257	20	40	60	80	100	120	140	160	180
218	8457	8656	8855	9054	9253	9451	9650	9849	••47	•246	20	40	60	80	100	119	139	159	179
219	340444	0642	0841	1039	1237	1435	1632	1830	2028	2225	20	40	59	79	99	119	139	158	178
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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221	4392	4589	4785	4981	5178	5374	5570	5766	5962	6157	20	39	59	78	98	118	137	157	176
222	6353	6549	6744	6940	7135	7330	7525	7720	7915	8110	19	39	58	78	97	117	137	156	175
223	8305	8500	8694	8889	9083	9278	9472	9666	9860	••54	19	39	58	78	97	117	137	156	175
224	350248	0442	0636	0829	1023	1216	1410	1603	1796	1990	19	39	58	77	97	116	135	155	174
225	352183	2376	2568	2761	2954	3147	3339	3532	3724	3916	19	38	58	77	96	115	134	154	173
226	4108	4301	4493	4685	4876	5068	5260	5452	5643	5835	19	38	58	77	96	115	134	154	173
227	6026	6217	6408	6599	6791	6981	7172	7363	7554	7744	19	38	57	76	95	115	134	153	172
228	7935	8125	8316	8506	8696	8886	9076	9266	9456	9646	19	38	57	76	95	114	133	152	171
229	9836	••25	•215	•404	•593	•783	•972	1161	1350	1539	19	38	57	76	95	114	133	152	171
230	361728	1917	2105	2294	2483	2671	2859	3048	3236	3424	19	38	56	75	94	113	132	151	170
231	3612	3800	3988	4176	4363	4551	4739	4926	5113	5301	19	37	56	75	94	112	131	150	169
232	5488	5675	5862	6049	6236	6423	6610	6796	6983	7170	19	37	56	75	93	112	131	150	168
233	7356	7542	7729	7915	8101	8287	8473	8659	8845	9030	19	37	56	75	93	112	130	149	167
234	9216	9401	9587	9772	9958	•143	•328	•513	•698	•883	19	37	56	74	93	111	130	148	167
235	371068	1253	1437	1622	1807	1991	2175	2360	2544	2728	18	37	55	74	92	111	129	148	166
236	2912	3096	3280	3464	3648	3831	4015	4198	4382	4565	18	37	55	74	92	110	129	147	166
237	4748	4932	5115	5298	5481	5664	5846	6029	6212	6394	18	37	55	73	92	110	128	147	165
238	6577	6759	6942	7124	7306	7488	7670	7852	8034	8216	18	36	55	73	91	109	127	146	164
239	8398	8580	8761	8943	9124	9306	9487	9668	9849	••30	18	36	55	73	91	109	127	146	164
240	380211	0392	0573	0754	0935	1115	1296	1476	1657	1837	18	36	55	73	91	109	127	145	163
241	2017	2197	2377	2557	2737	2917	3097	3277	3456	3636	18	36	54	72	90	108	126	144	162
242	3815	3995	4174	4353	4533	4712	4891	5070	5249	5428	18	36	54	72	90	108	126	144	162
243	5606	5785	5964	6142	6321	6499	6677	6856	7034	7212	18	36	53	71	89	107	125	143	161
244	7390	7568	7746	7924	8101	8279	8457	8634	8811	8989	18	36	53	71	89	107	125	142	160
245	389166	9343	9521	9698	9875	••52	•228	•405	•582	•759	18	36	53	71	89	107	125	142	160
246	390935	1112	1288	1464	1641	1817	1993	2169	2345	2521	18	35	53	70	88	106	123	141	158
247	2697	2873	3049	3224	3400	3575	3751	3926	4101	4277	18	35	53	70	88	106	123	141	158
248	4452	4627	4802	4977	5152	5326	5501	5676	5850	6025	17	35	53	70	87	104	122	139	157
249	6199	6374	6548	6722	6896	7071	7245	7419	7592	7766	17	35	53	70	87	104	122	139	157
250	397940	8114	8287	8461	8634	8808	8981	9154	9328	9501	17	35	53	69	87	104	121	138	156
251	9674	9847	••20	•193	•365	•538	•711	•883	1056	1228	17	35	53	69	87	104	121	138	156
252	401401	1573	1745	1917	2089	2261	2433	2605	2777	2949	17	34	52	69	86	103	120	138	155
253	3121	3292	3464	3635	3807	3978	4149	4321	4492	4663	17	34	52	69	86	103	120	137	154
254	4834	5005	5176	5346	5517	5688	5858	6029	6199	6370	17	34	51	68	85	102	119	136	153
255	406540	6711	6881	7051	7221	7391	7561	7731	7901	8070	17	34	51	68	85	102	119	136	153
256	8240	8410	8579	8749	8918	9087	9257	9426	9595	9764	17	34	51	68	85	102	119	136	153
257	9933	•102	•271	•440	•609	•777	•946	1114	1283	1451	17	34	50	67	84	101	118	135	152
258	411620	1788	1956	2124	2293	2461	2629	2796	2964	3132	17	34	50	67	84	101	118	135	152
259	3300	3467	3635	3803	3970	4137	4305	4472	4639	4806	17	33	50	67	84	101	117	134	151
260	414973	5140	5307	5474	5641	5808	5974	6141	6308	6474	17	33	50	67	84	101	117	134	150
261	6641	6807	6973	7139	7306	7472	7638	7804	7970	8136	17	33	50	66	83	100	116	133	149
262	8301	8467	8633	8798	8964	9129	9295	9460	9625	9791	17	33	50	66	83	99	116	132	149
263	9956	•121	•286	•451	•616	•781	•945	1110	1275	1439	16	33	49	66	82	99	115	132	148
264	421604	1768	1933	2097	2261	2426	2590	2754	2918	3082	16	33	49	66	82	99	115	132	148
265	423246	3410	3574	3737	3901	4065	4228	4392	4555	4718	16	33	49	65	81	98	114	131	147
266	4882	5045	5208	5371	5534	5697	5860	6023	6186	6349	16	33	49	65	81	98	114	130	147
267	6511	6674	6837	6999	7161	7324	7486	7648	7811	7973	16	33	49	65	81	98	114	130	147
268	8135	8297	8459	8621	8783	8944	9106	9268	9429	9591	16	32	48	65	81	97	113	129	145
269	9752	9914	••75	•236	•398	•559	•720	•881	1042	1203	16	32	48	65	81	97	113	129	145
270	431364	1525	1685	1846	2007	2167	2328	2488	2649	2809	16	32	48	64	80	96	112	128	144
271	2969	3130	3290	3450	3610	3770	3930	4090	4250	4409	16	32	48	64	80	96	112	128	144
272	4569	4729	4888	5048	5207	5367	5526	5685	5844	6004	16	32	48	64	80	96	112	128	144
273	6163	6322	6481	6640	6799	6957	7116	7275	7433	7592	16	32	47	63	79	95	111	127	143
274	7751	7909	8068	8226	8384	8542	8701	8859	9017	9175	16	32	47	63	79	95	111	127	143
275	439333	9491	9648	9806	9964	•122	•279	•437	•594	•752	16	32	47	63	79	95	111	126	142
276	440909	1066	1224	1381	1538	1695	1852	2009	2166	2323	16	31	47	63	78	94	110	126	141
277	2480	2637	2793	2950	3107	3263	3420	3576	3732	3889	16	31	47	63	78	94	110	126	141
278	4045	4201	4357	4513	4669	4825	4981	5137	5293	5449	16	31	47	62	78	94	109	125	140
279	5604	5760	5915	6071	6226	6382	6537	6693	6848	7003	16	31	47	62	78	94	109	125	140
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST

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281	8706	8861	9015	9170	9324	9478	9633	9787	9941	••95	15	31	46	62	77	92	108	123	139
282	450249	0403	0557	0711	0865	1019	1172	1326	1479	1633	15	31	46	62	77	92	108	123	139
283	1786	1940	2093	2247	2400	2553	2706	2859	3012	3165	15	31	46	61	77	92	107	123	138
284	3318	3471	3624	3777	3930	4082	4235	4388	4540	4692	15	31	46	61	77	92	107	123	138
285	454845	4997	5150	5302	5454	5606	5758	5910	6062	6214	15	30	46	61	76	91	106	122	137
286	6366	6518	6670	6821	6973	7125	7276	7428	7579	7731	15	30	46	61	76	91	106	122	137
287	7882	8033	8184	8336	8487	8638	8789	8940	9091	9242	15	30	45	61	76	91	106	121	136
288	9393	9543	9694	9845	9995	•146	•296	•447	•597	•748	15	30	45	61	76	91	106	121	136
289	460898	1048	1198	1348	1499	1649	1799	1949	2098	2248	15	30	45	60	75	90	105	120	135
290	462398	2548	2697	2847	2997	3146	3296	3445	3594	3744	15	30	45	60	75	90	105	120	135
291	3893	4042	4191	4341	4490	4639	4788	4936	5085	5234	15	30	45	60	75	90	105	120	135
292	5383	5532	5680	5829	5977	6126	6274	6423	6571	6719	15	30	44	59	74	89	104	118	133
293	6868	7016	7164	7312	7460	7608	7756	7904	8052	8200	15	30	44	59	74	89	104	118	133
294	8347	8495	8643	8790	8938	9085	9233	9380	9528	9675	15	30	44	59	74	89	104	118	133
295	469822	9969	•116	•263	•411	•558	•704	•851	•998	1145	15	29	44	59	74	88	103	118	132
296	471292	1438	1585	1732	1878	2025	2171	2318	2464	2610	15	29	44	59	73	88	102	117	132
297	2756	2903	3049	3195	3341	3487	3633	3779	3925	4071	15	29	44	59	73	88	102	117	132
298	4216	4362	4508	4653	4799	4944	5090	5235	5381	5526	15	29	44	58	73	88	102	117	131
299	5671	5816	5962	6107	6252	6397	6542	6687	6832	6977	15	29	43	58	72	87	101	116	130
300	477121	7266	7411	7555	7700	7845	7989	8133	8278	8422	14	29	43	58	72	87	101	116	130
301	8567	8711	8855	8999	9143	9287	9431	9575	9719	9863	14	29	43	58	72	86	101	115	130
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307	7138	7280	7421	7563	7704	7845	7986	8128	8269	8410	14	28	42	57	71	85	99	113	127
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313	5544	5683	5822	5960	6099	6238	6376	6515	6653	6791	14	28	41	56	69	83	97	111	125
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315	498311	8448	8586	8724	8862	8999	9137	9275	9412	9550	14	28	41	55	69	83	97	110	124
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325	511883	2017	2151	2284	2418	2551	2684	2818	2951	3084	13	27	40	53	67	80	93	107	120
326	3218	3351	3484	3617	3750	3883	4016	4149	4282	4415	13	27	40	53	66	80	93	106	120
327	4548	4681	4813	4946	5079	5211	5344	5476	5609	5741	13	27	40	53	66	80	93	106	120
328	5874	6006	6139	6271	6403	6535	6668	6800	6932	7064	13	26	40	53	66	79	92	106	119
329	7196	7328	7460	7592	7724	7855	7987	8119	8251	8382	13	26	40	53	66	79	92	106	119
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											Proportional Parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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342	4026	4153	4280	4407	4534	4661	4787	4914	5041	5168	13	25	38	51	63	76	89	102	114
343	5294	5421	5547	5674	5800	5927	6053	6180	6306	6432	13	25	38	50	63	76	88	101	114
344	6558	6685	6811	6937	7063	7189	7315	7441	7567	7693	13	25	38	50	63	76	88	101	114
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351	5307	5431	5555	5678	5802	5925	6049	6172	6296	6419	12	25	37	49	62	74	86	99	111
352	6543	6666	6789	6913	7036	7159	7282	7406	7529	7652	12	25	37	49	62	74	86	99	111
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376	5188	5303	5419	5534	5650	5765	5880	5996	6111	6226	12	23	35	46	58	69	80	92	104
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383	3199	3312	3426	3539	3652	3765	3879	3992	4105	4218	11	23	34	45	56	68	79	90	102
384	4331	4444	4557	4670	4783	4896	5009	5122	5235	5348	11	23	34	45	56	68	79	90	102
385	585461	5574	5686	5799	5912	6024	6137	6250	6362	6475	11	22	34	45	56	67	78	90	101
386	6587	6700	6812	6925	7037	7150	7262	7374	7487	7599	11	22	34	45	56	67	78	90	101
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393	4393	4503	4614	4724	4834	4945	5055	5165	5276	5386	11	22	33	44	55	66	77	88	99
394	5496	5606	5717	5827	5937	6047	6157	6267	6377	6487	11	22	33	44	55	66	77	88	99
395	596597	6707	6817	6927	7037	7147	7256	7366	7476	7586	11	22	33	44	55	66	77	88	99
396	7695	7805	7915	8024	8134	8243	8353	8462	8572	8681	11	22	33	44	55	66	77	88	99
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Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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401	3144	3253	3361	3469	3577	3686	3794	3902	4010	4118	11	22	33	43	54	65	76	87	98
402	4226	4334	4442	4550	4658	4766	4874	4982	5090	5197	11	22	32	43	54	65	76	86	97
403	5305	5413	5521	5628	5736	5844	5951	6059	6166	6274	11	22	32	43	54	65	76	86	97
404	6381	6489	6596	6704	6811	6919	7026	7133	7241	7348	11	21	32	43	54	64	75	86	96
405	607455	7562	7669	7777	7884	7991	8098	8205	8312	8419	11	21	32	43	54	64	75	86	96
406	8526	8633	8740	8847	8954	9061	9167	9274	9381	9488	11	21	32	43	53	64	75	86	96
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409	1723	1830	1936	2042	2148	2254	2360	2466	2572	2678	11	21	32	42	53	64	74	85	95
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411	3842	3948	4053	4159	4264	4370	4475	4581	4686	4792	11	21	32	42	53	63	74	84	95
412	4897	5003	5108	5213	5319	5424	5529	5635	5740	5845	11	21	31	42	52	63	73	84	95
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414	7000	7105	7210	7315	7420	7525	7629	7734	7839	7943	10	21	31	42	52	63	73	84	94
415	618048	8153	8257	8362	8467	8571	8676	8780	8885	8989	10	21	31	42	52	62	73	83	94
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418	1176	1280	1384	1488	1592	1696	1799	1903	2007	2110	10	21	31	42	52	62	73	83	94
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423	6340	6443	6546	6648	6751	6853	6956	7059	7161	7263	10	21	31	41	51	62	72	82	93
424	7366	7468	7571	7673	7775	7878	7980	8082	8185	8287	10	20	31	41	51	61	72	82	92
425	628389	8491	8593	8695	8798	8900	9002	9104	9206	9308	10	20	31	41	51	61	72	82	92
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434	7490	7590	7690	7790	7890	7990	8090	8190	8290	8389	10	20	30	40	50	60	70	80	90
435	638489	8589	8689	8789	8888	8988	9088	9188	9287	9387	10	20	30	40	50	60	70	80	90
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440	643453	3551	3650	3749	3847	3946	4045	4143	4242	4340	10	20	30	39	49	59	69	79	89
441	4439	4537	4636	4734	4832	4931	5029	5127	5226	5324	10	20	30	39	49	59	69	79	89
442	5422	5521	5619	5717	5815	5913	6011	6110	6208	6306	10	20	30	39	49	59	69	79	89
443	6404	6502	6600	6698	6796	6894	6992	7089	7187	7285	10	20	29	39	49	59	69	78	88
444	7383	7481	7579	7676	7774	7872	7970	8067	8165	8262	10	20	29	39	49	59	69	78	88
445	648360	8458	8555	8653	8750	8848	8945	9043	9140	9238	10	19	29	39	49	58	68	78	88
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447	650308	0405	0502	0599	0696	0793	0890	0987	1084	1181	10	19	29	39	49	58	68	78	88
448	1278	1375	1472	1569	1666	1762	1859	1956	2053	2150	10	19	29	38	48	58	67	77	87
449	2246	2343	2440	2536	2633	2730	2826	2923	3020	3116	10	19	29	38	48	58	67	77	87
450	653213	3309	3406	3502	3598	3695	3791	3888	3984	4080	10	19	29	38	48	58	67	77	87
451	4177	4273	4369	4465	4562	4658	4754	4850	4946	5042	10	19	29	38	48	58	67	77	86
452	5138	5235	5331	5427	5523	5619	5715	5811	5906	6002	10	19	29	38	48	58	67	77	86
453	6098	6194	6290	6386	6482	6577	6673	6769	6865	6960	10	19	29	38	48	58	67	77	86
454	7056	7152	7247	7343	7438	7534	7629	7725	7821	7916	10	19	28	38	47	57	67	76	86
455	658011	8107	8202	8298	8393	8488	8584	8679	8774	8870	10	19	28	38	47	57	67	76	86
456	8965	9060	9155	9251	9346	9441	9536	9631	9726	9821	10	19	28	38	47	57	67	76	86
457	9916	••11	•106	•201	•296	•391	•486	•581	•676	•771	10	19	28	38	47	57	67	76	86
458	660865	0960	1055	1150	1245	1339	1434	1529	1623	1718	9	19	28	38	47	57	66	76	85
459	1813	1907	2002	2096	2191	2286	2380	2475	2569	2663	9	19	28	38	47	57	66	76	85
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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461	3701	3795	3889	3984	4078	4172	4266	4360	4454	4548	9	19	28	38	47	56	66	75	85
462	4642	4736	4830	4924	5018	5112	5206	5300	5393	5487	9	19	28	38	47	56	66	75	85
463	5581	5675	5769	5862	5956	6050	6143	6237	6331	6424	9	19	28	38	47	56	66	75	85
464	6518	6612	6705	6799	6892	6986	7079	7173	7266	7360	9	19	28	37	47	56	65	74	84
465	667453	7546	7640	7733	7826	7920	8013	8106	8200	8293	9	19	28	37	47	56	65	74	84
466	8386	8479	8572	8665	8759	8852	8945	9038	9131	9224	9	19	28	37	47	56	65	74	84
467	9317	9410	9503	9596	9689	9782	9875	9967	••60	•153	9	19	28	37	47	56	65	74	84
468	670246	0339	0431	0524	0617	0710	0802	0895	0988	1080	9	18	28	37	46	55	64	74	83
469	1173	1265	1358	1451	1543	1636	1728	1821	1913	2005	9	18	28	37	46	55	64	74	83
470	672098	2190	2283	2375	2467	2560	2652	2744	2837	2929	9	18	28	37	46	55	64	74	83
471	3021	3113	3205	3297	3390	3482	3574	3666	3758	3850	9	18	28	37	46	55	64	74	83
472	3942	4034	4126	4218	4310	4402	4494	4586	4678	4769	9	18	28	37	46	55	64	74	83
473	4861	4953	5045	5137	5228	5320	5412	5503	5595	5687	9	18	28	37	46	55	64	74	83
474	5778	5870	5962	6053	6145	6236	6328	6419	6511	6602	9	18	27	36	46	55	64	73	82
475	676694	6785	6876	6968	7059	7151	7242	7333	7424	7516	9	18	27	36	46	55	64	73	82
476	7607	7698	7789	7881	7972	8063	8154	8245	8336	8427	9	18	27	36	45	55	64	73	82
477	8518	8609	8700	8791	8882	8973	9064	9155	9246	9337	9	18	27	36	45	55	64	73	82
478	9428	9519	9610	9700	9791	9882	9973	••63	•154	•245	9	18	27	36	45	55	64	73	82
479	680336	0426	0517	0607	0698	0789	0879	0970	1060	1151	9	18	27	36	45	55	64	73	82
480	681241	1332	1422	1513	1603	1693	1784	1874	1965	2055	9	18	27	36	45	54	63	72	81
481	2145	2235	2326	2416	2506	2596	2687	2777	2867	2957	9	18	27	36	45	54	63	72	81
482	3047	3137	3227	3317	3407	3497	3587	3677	3767	3857	9	18	27	36	45	54	63	72	81
483	3947	4037	4127	4217	4307	4397	4486	4576	4666	4756	9	18	27	36	45	54	63	72	81
484	4845	4935	5025	5115	5204	5294	5383	5473	5563	5652	9	18	27	36	45	54	63	72	81
485	685742	5831	5921	6010	6100	6189	6279	6368	6458	6547	9	18	27	36	45	54	63	72	81
486	6636	6726	6815	6904	6994	7083	7172	7261	7351	7440	9	18	27	36	45	54	63	72	81
487	7529	7618	7707	7796	7886	7975	8064	8153	8242	8331	9	18	27	36	45	54	62	72	80
488	8420	8509	8598	8687	8776	8865	8954	9042	9131	9220	9	18	27	36	45	54	62	72	80
489	9309	9398	9486	9575	9664	9753	9841	9930	••19	•107	9	18	27	36	45	54	62	72	80
490	690196	0285	0373	0462	0551	0639	0728	0816	0905	0993	9	18	27	35	44	53	62	71	80
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493	2847	2935	3023	3111	3199	3287	3375	3463	3551	3639	9	18	26	35	44	53	62	70	79
494	3727	3815	3903	3991	4079	4166	4254	4342	4430	4518	9	18	26	35	44	53	62	70	79
495	694605	4693	4781	4868	4956	5044	5131	5219	5307	5394	9	18	26	35	44	53	62	70	79
496	5482	5569	5657	5744	5832	5919	6007	6094	6182	6269	9	17	26	35	44	52	61	70	79
497	6356	6444	6531	6618	6706	6793	6880	6968	7055	7142	9	17	26	35	44	52	61	70	79
498	7229	7317	7404	7491	7578	7665	7752	7839	7926	8014	9	17	26	35	44	52	61	70	79
499	8101	8188	8275	8362	8449	8536	8622	8709	8796	8883	9	17	26	35	44	52	61	70	79
500	698970	9057	9144	9231	9317	9404	9491	9578	9664	9751	9	17	26	35	43	52	61	70	78
501	9838	9924	••11	••98	•184	•271	•358	•444	•531	•617	9	17	26	35	43	52	61	70	78
502	700704	0790	0877	0963	1050	1136	1223	1309	1395	1482	9	17	26	35	43	52	61	70	78
503	1568	1654	1741	1827	1913	2000	2086	2172	2258	2344	9	17	26	35	43	52	61	70	78
504	2431	2517	2603	2689	2775	2861	2947	3033	3119	3205	9	17	26	34	43	52	60	69	77
505	703291	3377	3463	3549	3635	3721	3807	3893	3979	4065	9	17	26	34	43	52	60	69	77
506	4151	4236	4322	4408	4494	4579	4665	4751	4837	4922	9	17	26	34	43	52	60	69	77
507	5008	5094	5179	5265	5351	5436	5522	5607	5693	5778	9	17	26	34	43	52	60	69	77
508	5864	5949	6035	6120	6206	6291	6376	6462	6547	6633	9	17	26	34	43	51	60	68	77
509	6718	6803	6888	6974	7059	7144	7229	7315	7400	7485	9	17	26	34	43	51	60	68	77
510	707570	7655	7741	7826	7911	7996	8081	8166	8251	8336	9	17	26	34	43	51	60	68	77
511	8421	8506	8591	8676	8761	8846	8931	9015	9100	9185	9	17	26	34	43	51	60	68	77
512	9270	9355	9440	9524	9609	9694	9779	9863	9948	••33	8	17	25	34	42	51	59	68	76
513	710117	0202	0287	0371	0456	0540	0625	0710	0794	0879	8	17	25	34	42	51	59	68	76
514	0963	1048	1132	1217	1301	1385	1470	1554	1639	1723	8	17	25	34	42	51	59	68	76
515	711807	1892	1976	2060	2144	2229	2313	2397	2481	2566	8	17	25	34	42	51	59	68	76
516	2650	2734	2818	2902	2986	3070	3154	3239	3323	3407	8	17	25	34	42	50	59	67	76
517	3491	3575	3659	3743	3826	3910	3994	4078	4162	4246	8	17	25	34	42	50	59	67	76
518	4330	4414	4497	4581	4665	4749	4833	4916	5000	5084	8	17	25	34	42	50	59	67	76
519	5167	5251	5335	5418	5502	5586	5669	5753	5836	5920	8	17	25	34	42	50	59	67	76
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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520	716003	6087	6170	6254	6337	6421	6504	6588	6671	6754	8	17	25	34	42	50	59	67	76
521	6838	6921	7004	7088	7171	7254	7338	7421	7504	7587	8	17	25	33	42	50	58	66	75
522	7671	7754	7837	7920	8003	8086	8169	8253	8336	8419	8	17	25	33	42	50	58	66	75
523	8502	8585	8668	8751	8834	8917	9000	9083	9166	9248	8	17	25	33	42	50	58	66	75
524	9331	9414	9497	9580	9663	9746	9828	9911	9994	••77	8	17	25	33	41	50	58	66	75
525	720159	0242	0325	0407	0490	0573	0655	0738	0821	0903	8	17	25	33	41	50	58	66	75
526	0986	1068	1151	1233	1316	1398	1481	1563	1646	1728	8	16	25	33	41	49	58	66	74
527	1811	1893	1975	2058	2140	2223	2305	2387	2469	2552	8	16	25	33	41	49	58	66	74
528	2634	2716	2798	2881	2963	3045	3127	3209	3291	3374	8	16	25	33	41	49	58	66	74
529	3456	3538	3620	3702	3784	3866	3948	4030	4112	4194	8	16	25	33	41	49	57	66	74
530	724276	4358	4440	4522	4604	4685	4767	4849	4931	5013	8	16	25	33	41	49	57	66	74
531	5095	5176	5258	5340	5422	5503	5585	5667	5748	5830	8	16	25	33	41	49	57	66	74
532	5912	5993	6075	6157	6238	6320	6401	6483	6564	6646	8	16	24	33	41	49	57	65	73
533	6727	6809	6890	6972	7053	7134	7216	7297	7379	7460	8	16	24	33	41	49	57	65	73
534	7541	7623	7704	7785	7866	7948	8029	8110	8191	8273	8	16	24	33	41	49	57	65	73
535	728354	8435	8516	8597	8678	8760	8841	8922	9003	9084	8	16	24	33	41	49	57	65	73
536	9165	9246	9327	9408	9489	9570	9651	9732	9813	9893	8	16	24	32	41	49	57	65	73
537	9974	••55	•136	•217	•298	•379	•459	•540	•621	•702	8	16	24	32	40	49	57	65	73
538	730782	0863	0944	1024	1105	1186	1266	1347	1428	1508	8	16	24	32	40	49	57	65	73
539	1589	1669	1750	1830	1911	1991	2072	2152	2233	2313	8	16	24	32	40	48	56	64	72
540	732394	2474	2555	2635	2715	2796	2876	2956	3037	3117	8	16	24	32	40	48	56	64	72
541	3197	3278	3358	3438	3518	3599	3679	3759	3839	3919	8	16	24	32	40	48	56	64	72
542	3999	4079	4160	4240	4320	4400	4480	4560	4640	4720	8	16	24	32	40	48	56	64	72
543	4800	4880	4960	5040	5120	5200	5279	5359	5439	5519	8	16	24	32	40	48	56	64	72
544	5599	5679	5759	5838	5918	5998	6078	6157	6237	6317	8	16	24	32	40	48	56	64	72
545	736397	6476	6556	6636	6715	6795	6874	6954	7034	7113	8	16	24	32	40	48	56	64	72
546	7193	7272	7352	7431	7511	7590	7670	7749	7829	7908	8	16	24	32	40	48	56	64	72
547	7987	8067	8146	8225	8305	8384	8463	8543	8622	8701	8	16	24	32	40	48	56	64	72
548	8781	8860	8939	9018	9097	9177	9256	9335	9414	9493	8	16	24	32	40	47	55	63	71
549	9572	9651	9731	9810	9889	9968	••47	•126	•205	•284	8	16	24	32	40	47	55	63	71
550	740363	0442	0521	0600	0678	0757	0836	0915	0994	1073	8	16	24	32	40	47	55	63	71
551	1152	1230	1309	1388	1467	1546	1624	1703	1782	1860	8	16	24	32	40	47	55	63	71
552	1939	2018	2096	2175	2254	2332	2411	2490	2568	2647	8	16	23	31	39	47	55	63	71
553	2725	2804	2882	2961	3039	3118	3196	3275	3353	3431	8	16	23	31	39	47	55	63	71
554	3510	3588	3667	3745	3823	3902	3980	4058	4137	4215	8	16	23	31	39	47	55	63	71
555	744293	4371	4450	4528	4606	4684	4762	4840	4919	4997	8	16	23	31	39	47	55	63	71
556	5075	5153	5231	5309	5387	5465	5543	5621	5699	5777	8	16	23	31	39	47	55	62	70
557	5855	5933	6011	6089	6167	6245	6323	6401	6479	6556	8	16	23	31	39	47	55	62	70
558	6634	6712	6790	6868	6945	7023	7101	7179	7256	7334	8	16	23	31	39	47	55	62	70
559	7412	7490	7567	7645	7723	7800	7878	7955	8033	8111	8	16	23	31	39	47	54	62	70
560	748188	8266	8343	8421	8498	8576	8653	8731	8808	8885	8	16	23	31	39	47	54	62	70
561	8963	9040	9118	9195	9272	9350	9427	9504	9582	9659	8	16	23	31	39	47	54	62	70
562	9736	9814	9891	9968	••45	•123	•200	•277	•354	•431	8	16	23	31	39	47	54	62	70
563	750508	0586	0663	0740	0817	0894	0971	1048	1125	1202	8	16	23	31	39	47	54	62	70
564	1279	1356	1433	1510	1587	1664	1741	1818	1895	1972	8	15	23	30	38	46	54	62	70
565	752048	2125	2202	2279	2356	2433	2509	2586	2663	2740	8	15	23	30	38	46	54	62	70
566	2816	2893	2970	3047	3123	3200	3277	3353	3430	3507	8	15	23	30	38	46	54	62	70
567	3583	3660	3736	3813	3889	3966	4042	4119	4195	4272	8	15	23	30	38	46	54	62	70
568	4348	4425	4501	4578	4654	4731	4807	4883	4960	5036	8	15	23	30	38	46	53	61	69
569	5112	5189	5265	5341	5418	5494	5570	5646	5722	5799	8	15	23	30	38	46	53	61	69
570	755875	5951	6027	6103	6180	6256	6332	6408	6484	6560	8	15	23	30	38	46	53	61	69
571	6636	6712	6788	6864	6940	7016	7092	7168	7244	7320	8	15	23	30	38	46	53	61	69
572	7396	7472	7548	7624	7700	7776	7851	7927	8003	8079	8	15	23	30	38	46	53	61	68
573	8155	8230	8306	8382	8458	8533	8609	8685	8761	8836	8	15	23	30	38	46	53	61	68
574	8912	8988	9063	9139	9214	9290	9366	9441	9517	9592	8	15	23	30	38	45	53	60	68
575	759668	9743	9819	9894	9970	••45	•121	•196	•272	•347	8	15	23	30	38	45	53	60	68
576	760423	0498	0573	0649	0724	0799	0875	0950	1025	1101	8	15	23	30	38	45	53	60	68
577	1176	1251	1326	1402	1477	1552	1627	1702	1778	1853	8	15	23	30	38	45	53	60	68
578	1928	2003	2078	2153	2228	2303	2378	2454	2529	2604	8	15	22	30	38	45	52	60	68
579	2679	2754	2829	2904	2979	3053	3128	3203	3278	3353	8	15	22	30	38	45	52	60	68
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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581	4176	4251	4326	4400	4475	4550	4624	4699	4774	4848	7	15	22	30	37	45	52	60	67
582	4923	4998	5072	5147	5221	5296	5371	5445	5520	5594	7	15	22	30	37	45	52	60	67
583	5669	5743	5818	5892	5966	6041	6115	6190	6264	6339	7	15	22	30	37	45	52	60	67
584	6413	6487	6562	6636	6710	6785	6859	6933	7007	7082	7	15	22	30	37	45	52	60	67
585	767156	7230	7304	7379	7453	7527	7601	7675	7749	7824	7	15	22	30	37	45	52	59	67
586	7898	7972	8046	8120	8194	8268	8342	8416	8490	8564	7	15	22	30	37	45	52	59	67
587	8638	8712	8786	8860	8934	9008	9082	9156	9230	9304	7	15	22	30	37	45	52	59	67
588	9377	9451	9525	9599	9673	9747	9820	9894	9968	••42	7	15	22	30	37	45	52	59	67
589	770115	0189	0263	0336	0410	0484	0558	0631	0705	0778	7	15	22	30	37	45	52	59	67
590	770852	0926	0999	1073	1146	1220	1293	1367	1441	1514	7	15	22	30	37	45	52	59	67
591	1588	1661	1734	1808	1881	1955	2028	2102	2175	2248	7	15	22	30	37	44	52	59	67
592	2322	2395	2468	2542	2615	2688	2762	2835	2908	2981	7	15	22	29	37	44	51	59	66
593	3055	3128	3201	3274	3348	3421	3494	3567	3640	3713	7	15	22	29	37	44	51	59	66
594	3786	3860	3933	4006	4079	4152	4225	4298	4371	4444	7	15	22	29	37	44	51	59	66
595	774517	4590	4663	4736	4809	4882	4955	5028	5101	5173	7	15	22	29	37	44	51	59	66
596	5246	5319	5392	5465	5538	5610	5683	5756	5829	5902	7	15	22	29	37	44	51	59	66
597	5974	6047	6120	6193	6265	6338	6411	6483	6556	6629	7	15	22	29	37	44	51	59	66
598	6701	6774	6846	6919	6992	7064	7137	7209	7282	7354	7	14	22	29	36	43	51	58	65
599	7427	7499	7572	7644	7717	7789	7862	7934	8007	8079	7	14	22	29	36	43	51	58	65
600	778151	8224	8296	8368	8441	8513	8585	8658	8730	8802	7	14	22	29	36	43	51	58	65
601	8875	8947	9019	9091	9163	9236	9308	9380	9452	9524	7	14	22	29	36	43	51	58	65
602	9597	9669	9741	9813	9885	9957	••29	•101	•173	•245	7	14	22	29	36	43	50	58	65
603	780317	0389	0461	0533	0605	0677	0749	0821	0893	0965	7	14	22	29	36	43	50	58	65
604	1037	1109	1181	1253	1325	1396	1468	1540	1612	1684	7	14	22	29	36	43	50	58	65
605	781755	1827	1899	1971	2042	2114	2186	2258	2329	2401	7	14	22	29	36	43	50	58	65
606	2473	2544	2616	2688	2759	2831	2902	2974	3046	3117	7	14	21	29	36	43	50	57	64
607	3189	3260	3332	3403	3475	3546	3618	3689	3761	3832	7	14	21	29	36	43	50	57	64
608	3904	3975	4046	4118	4189	4261	4332	4403	4475	4546	7	14	21	29	36	43	50	57	64
609	4617	4689	4760	4831	4902	4974	5045	5116	5187	5259	7	14	21	29	36	43	50	57	64
610	785330	5401	5472	5543	5615	5686	5757	5828	5899	5970	7	14	21	28	36	43	50	57	64
611	6041	6112	6183	6254	6325	6397	6468	6539	6610	6680	7	14	21	28	36	43	50	57	64
612	6751	6822	6893	6964	7035	7106	7177	7248	7319	7390	7	14	21	28	36	43	50	57	64
613	7461	7531	7602	7673	7744	7815	7885	7956	8027	8098	7	14	21	28	35	42	49	56	63
614	8168	8239	8310	8381	8451	8522	8593	8663	8734	8805	7	14	21	28	35	42	49	56	63
615	788875	8946	9016	9087	9158	9228	9299	9369	9440	9510	7	14	21	28	35	42	49	56	63
616	9581	9651	9722	9792	9863	9933	••04	••74	•144	•215	7	14	21	28	35	42	49	56	63
617	790285	0356	0426	0496	0567	0637	0707	0778	0848	0918	7	14	21	28	35	42	49	56	63
618	0989	1059	1129	1199	1270	1340	1410	1480	1550	1621	7	14	21	28	35	42	49	56	63
619	1691	1761	1831	1901	1971	2041	2111	2182	2252	2322	7	14	21	28	35	42	49	56	63
620	792392	2462	2532	2602	2672	2742	2812	2882	2952	3022	7	14	21	28	35	42	49	56	63
621	3092	3162	3231	3301	3371	3441	3511	3581	3651	3721	7	14	21	28	35	42	49	56	63
622	3790	3860	3930	4000	4070	4139	4209	4279	4349	4418	7	14	21	28	35	42	49	56	63
623	4488	4558	4627	4697	4767	4837	4906	4976	5045	5115	7	14	21	28	35	42	49	56	63
624	5185	5254	5324	5393	5463	5532	5602	5672	5741	5811	7	14	21	28	35	42	49	56	63
625	795880	5950	6019	6088	6158	6227	6297	6366	6436	6505	7	14	21	28	35	42	49	56	63
626	6574	6644	6713	6782	6852	6921	6990	7060	7129	7198	7	14	21	28	35	42	49	56	62
627	7268	7337	7406	7475	7545	7614	7683	7752	7821	7891	7	14	21	28	35	42	49	56	62
628	7960	8029	8098	8167	8236	8305	8374	8444	8513	8582	7	14	21	28	34	41	48	55	62
629	8651	8720	8789	8858	8927	8996	9065	9134	9203	9272	7	14	21	28	34	41	48	55	62
630	799341	9410	9478	9547	9616	9685	9754	9823	9892	9961	7	14	21	28	34	41	48	55	62
631	800029	0098	0167	0236	0305	0373	0442	0511	0580	0648	7	14	21	28	34	41	48	55	62
632	0717	0786	0855	0923	0992	1061	1129	1198	1267	1335	7	14	21	28	34	41	48	55	62
633	1404	1472	1541	1610	1678	1747	1815	1884	1952	2021	7	14	21	27	34	41	48	55	62
634	2089	2158	2226	2295	2363	2432	2500	2569	2637	2705	7	14	21	27	34	41	48	55	62
635	802774	2842	2911	2979	3047	3116	3184	3252	3321	3389	7	14	21	27	34	41	48	55	62
636	3457	3525	3594	3662	3730	3798	3867	3935	4003	4071	7	14	21	27	34	41	48	55	62
637	4139	4208	4276	4344	4412	4480	4548	4616	4685	4753	7	14	21	27	34	41	48	55	62
638	4821	4889	4957	5025	5093	5161	5229	5297	5365	5433	7	14	20	27	34	41	48	54	61
639	5501	5569	5637	5705	5773	5841	5909	5976	6044	6112	7	14	20	27	34	41	48	54	61
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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641	6858	6926	6994	7061	7129	7197	7264	7332	7400	7467	7	14	20	27	34	41	48	54	61
642	7535	7603	7670	7738	7806	7873	7941	8008	8076	8143	7	14	20	27	34	41	48	54	61
643	8211	8279	8346	8414	8481	8549	8616	8684	8751	8818	7	14	20	27	34	41	48	54	61
644	8886	8953	9021	9088	9156	9223	9290	9358	9425	9492	7	13	20	27	34	40	47	54	61
645	809560	9627	9694	9762	9829	9896	9964	••31	••98	•165	7	13	20	27	34	40	47	54	61
646	810233	0300	0367	0434	0501	0569	0636	0703	0770	0837	7	13	20	27	33	40	47	54	60
647	0904	0971	1039	1106	1173	1240	1307	1374	1441	1508	7	13	20	27	33	40	47	54	60
648	1575	1642	1709	1776	1843	1910	1977	2044	2111	2178	7	13	20	27	33	40	47	54	60
649	2245	2312	2379	2445	2512	2579	2646	2713	2780	2847	7	13	20	27	33	40	47	54	60
650	812913	2980	3047	3114	3181	3247	3314	3381	3448	3514	7	13	20	27	33	40	47	54	60
651	3581	3648	3714	3781	3848	3914	3981	4048	4114	4181	7	13	20	27	33	40	47	54	60
652	4248	4314	4381	4447	4514	4581	4647	4714	4780	4847	7	13	20	26	33	40	46	53	60
653	4913	4980	5046	5113	5179	5246	5312	5379	5445	5511	7	13	20	26	33	40	46	53	60
654	5578	5644	5711	5777	5843	5910	5976	6042	6109	6175	7	13	20	26	33	40	46	53	60
655	816241	6308	6374	6440	6506	6573	6639	6705	6771	6838	7	13	20	26	33	40	46	53	60
656	6904	6970	7036	7102	7169	7235	7301	7367	7433	7499	7	13	20	26	33	40	46	53	59
657	7565	7632	7698	7764	7830	7896	7962	8028	8094	8160	7	13	20	26	33	40	46	53	59
658	8226	8292	8358	8424	8490	8556	8622	8688	8754	8820	7	13	20	26	33	40	46	53	59
659	8885	8951	9017	9083	9149	9215	9281	9347	9412	9478	7	13	20	26	33	40	46	53	59
660	819544	9610	9676	9741	9807	9873	9939	••04	••70	•136	7	13	20	26	33	40	46	53	59
661	820202	0267	0333	0399	0464	0530	0596	0661	0727	0792	7	13	20	26	33	40	46	53	59
662	0858	0924	0989	1055	1120	1186	1251	1317	1383	1448	7	13	20	26	33	40	46	53	59
663	1514	1579	1645	1710	1776	1841	1906	1972	2037	2103	7	13	20	26	33	39	46	52	59
664	2168	2234	2299	2364	2430	2495	2560	2626	2691	2756	7	13	20	26	33	39	46	52	59
665	822822	2887	2952	3018	3083	3148	3213	3279	3344	3409	7	13	20	26	33	39	46	52	59
666	3474	3539	3605	3670	3735	3800	3865	3931	3996	4061	7	13	20	26	33	39	46	52	59
667	4126	4191	4256	4321	4386	4451	4516	4581	4646	4711	6	13	19	26	32	39	45	52	58
668	4777	4842	4907	4972	5036	5101	5166	5231	5296	5361	6	13	19	26	32	39	45	52	58
669	5426	5491	5556	5621	5686	5751	5815	5880	5945	6010	6	13	19	26	32	39	45	52	58
670	826075	6140	6204	6269	6334	6399	6464	6528	6593	6658	6	13	19	26	32	39	45	52	58
671	6723	6787	6852	6917	6981	7046	7111	7175	7240	7305	6	13	19	26	32	39	45	52	58
672	7369	7434	7499	7563	7628	7692	7757	7821	7886	7951	6	13	19	26	32	39	45	52	58
673	8015	8080	8144	8209	8273	8338	8402	8467	8531	8596	6	13	19	26	32	39	45	52	58
674	8660	8724	8789	8853	8918	8982	9046	9111	9175	9239	6	13	19	26	32	39	45	52	58
675	829304	9368	9432	9497	9561	9625	9690	9754	9818	9882	6	13	19	26	32	39	45	52	58
676	9947	••11	••75	•139	•204	•268	•332	•396	•460	•525	6	13	19	26	32	38	45	51	58
677	830589	0653	0717	0781	0845	0909	0973	1038	1102	1166	6	13	19	26	32	38	45	51	58
678	1230	1294	1358	1422	1486	1550	1614	1678	1742	1806	6	13	19	26	32	38	45	51	58
679	1870	1934	1998	2062	2126	2190	2253	2317	2381	2445	6	13	19	26	32	38	45	51	58
680	832509	2573	2637	2701	2764	2828	2892	2956	3020	3083	6	13	19	26	32	38	45	51	58
681	3147	3211	3275	3338	3402	3466	3530	3593	3657	3721	6	13	19	26	32	38	45	51	58
682	3784	3848	3912	3975	4039	4103	4166	4230	4294	4357	6	13	19	26	32	38	45	51	58
683	4421	4484	4548	4611	4675	4739	4802	4866	4929	4993	6	13	19	26	32	38	45	51	58
684	5056	5120	5183	5247	5310	5374	5437	5500	5564	5627	6	13	19	26	32	38	45	51	58
685	835691	5754	5817	5881	5944	6008	6071	6134	6198	6261	6	13	19	26	32	38	45	51	58
686	6324	6387	6451	6514	6577	6641	6704	6767	6830	6894	6	13	19	26	32	38	45	51	58
687	6957	7020	7083	7146	7210	7273	7336	7399	7462	7525	6	13	19	25	32	38	44	51	57
688	7588	7652	7715	7778	7841	7904	7967	8030	8093	8156	6	13	19	25	32	38	44	50	57
689	8219	8282	8345	8408	8471	8534	8597	8660	8723	8786	6	13	19	25	32	38	44	50	57
690	838849	8912	8975	9038	9101	9164	9227	9290	9352	9415	6	13	19	25	31	38	44	50	57
691	9478	9541	9604	9667	9729	9792	9855	9918	9981	••43	6	13	19	25	31	38	44	50	57
692	840106	0169	0232	0294	0357	0420	0483	0545	0608	0671	6	13	19	25	31	38	44	50	57
693	0733	0796	0859	0921	0984	1047	1109	1172	1234	1297	6	13	19	25	31	38	44	50	56
694	1360	1422	1485	1547	1610	1672	1735	1797	1860	1922	6	13	19	25	31	38	44	50	56
695	841985	2047	2110	2172	2235	2297	2360	2422	2484	2547	6	12	19	25	31	37	44	50	56
696	2609	2672	2734	2796	2859	2921	2984	3046	3108	3171	6	12	19	25	31	37	44	50	56
697	3233	3295	3357	3420	3482	3544	3607	3669	3731	3793	6	12	19	25	31	37	43	50	56
698	3855	3918	3980	4042	4104	4166	4229	4291	4353	4415	6	12	19	25	31	37	43	50	56
699	4477	4539	4601	4664	4726	4788	4850	4912	4974	5036	6	12	19	25	31	37	43	50	56
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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701	5718	5780	5842	5904	5966	6028	6090	6152	6213	6275	6	12	19	25	31	37	43	50	56
702	6337	6399	6461	6523	6585	6646	6708	6770	6832	6894	6	12	19	25	31	37	43	50	56
703	6955	7017	7079	7141	7202	7264	7326	7388	7449	7511	6	12	19	25	31	37	43	50	56
704	7573	7634	7696	7758	7819	7881	7943	8004	8066	8128	6	12	18	25	31	37	43	49	55
705	848189	8251	8312	8374	8436	8497	8559	8620	8682	8743	6	12	18	25	31	37	43	49	55
706	8805	8866	8928	8989	9051	9112	9174	9235	9297	9358	6	12	18	25	31	37	43	49	55
707	9419	9481	9542	9604	9665	9726	9788	9849	9911	9972	6	12	18	25	31	37	43	49	55
708	850033	0095	0156	0217	0279	0340	0401	0462	0524	0585	6	12	18	25	31	37	43	49	55
709	0646	0708	0769	0830	0891	0952	1014	1075	1136	1197	6	12	18	25	31	37	43	49	55
710	851258	1320	1381	1442	1503	1564	1625	1686	1747	1809	6	12	18	25	31	37	43	49	55
711	1870	1931	1992	2053	2114	2175	2236	2297	2358	2419	6	12	18	25	31	37	43	49	55
712	2480	2541	2602	2663	2724	2785	2846	2907	2968	3029	6	12	18	24	30	37	43	49	55
713	3090	3150	3211	3272	3333	3394	3455	3516	3577	3637	6	12	18	24	30	37	43	49	55
714	3698	3759	3820	3881	3941	4002	4063	4124	4185	4245	6	12	18	24	30	37	43	49	55
715	854306	4367	4428	4488	4549	4610	4670	4731	4792	4852	6	12	18	24	30	36	42	48	54
716	4913	4974	5034	5095	5156	5216	5277	5337	5398	5459	6	12	18	24	30	36	42	48	54
717	5519	5580	5640	5701	5761	5822	5882	5943	6004	6064	6	12	18	24	30	36	42	48	54
718	6124	6185	6245	6306	6366	6427	6487	6548	6608	6669	6	12	18	24	30	36	42	48	54
719	6729	6789	6850	6910	6970	7031	7091	7152	7212	7272	6	12	18	24	30	36	42	48	54
720	857333	7393	7453	7513	7574	7634	7694	7755	7815	7875	6	12	18	24	30	36	42	48	54
721	7935	7996	8056	8116	8176	8236	8297	8357	8417	8477	6	12	18	24	30	36	42	48	54
722	8537	8597	8658	8718	8778	8838	8898	8958	9018	9078	6	12	18	24	30	36	42	48	54
723	9138	9198	9258	9319	9379	9439	9499	9559	9619	9679	6	12	18	24	30	36	42	48	54
724	9739	9799	9859	9919	9978	••38	••98	•158	•218	•278	6	12	18	24	30	36	42	48	54
725	860338	0398	0458	0518	0578	0637	0697	0757	0817	0877	6	12	18	24	30	36	42	48	54
726	0937	0996	1056	1116	1176	1236	1295	1355	1415	1475	6	12	18	24	30	36	42	48	54
727	1534	1594	1654	1714	1773	1833	1893	1952	2012	2072	6	12	18	24	30	36	42	48	54
728	2131	2191	2251	2310	2370	2430	2489	2549	2608	2668	6	12	18	24	30	36	42	48	54
729	2728	2787	2847	2906	2966	3025	3085	3144	3204	3263	6	12	18	24	30	36	42	48	54
730	863323	3382	3442	3501	3561	3620	3680	3739	3799	3858	6	12	18	24	30	36	42	48	54
731	3917	3977	4036	4096	4155	4214	4274	4333	4392	4452	6	12	18	24	30	36	42	48	54
732	4511	4570	4630	4689	4748	4808	4867	4926	4986	5045	6	12	18	24	30	36	42	48	54
733	5104	5163	5223	5282	5341	5400	5459	5519	5578	5637	6	12	18	24	30	36	42	48	54
734	5696	5755	5814	5874	5933	5992	6051	6110	6169	6228	6	12	18	24	30	36	42	48	54
735	866287	6346	6406	6465	6524	6583	6642	6701	6760	6819	6	12	18	24	30	35	41	47	53
736	6878	6937	6996	7055	7114	7173	7232	7291	7350	7409	6	12	18	24	29	35	41	47	53
737	7468	7526	7585	7644	7703	7762	7821	7880	7939	7998	6	12	18	24	29	35	41	47	53
738	8056	8115	8174	8233	8292	8351	8409	8468	8527	8586	6	12	18	24	29	35	41	47	53
739	8644	8703	8762	8821	8879	8938	8997	9056	9114	9173	6	12	18	24	29	35	41	47	53
740	869232	9290	9349	9408	9466	9525	9584	9642	9701	9760	6	12	18	24	29	35	41	47	53
741	9818	9877	9935	9994	••53	•111	•170	•228	•287	•345	6	12	18	24	29	35	41	47	53
742	870404	0462	0521	0579	0638	0697	0755	0813	0872	0930	6	12	18	24	29	35	41	47	53
743	0989	1047	1106	1164	1223	1281	1339	1398	1456	1515	6	12	18	24	29	35	41	47	53
744	1573	1631	1690	1748	1806	1865	1923	1981	2040	2098	6	12	18	23	29	35	41	47	53
745	872156	2215	2273	2331	2389	2448	2506	2564	2622	2681	6	12	18	23	29	35	41	47	53
746	2739	2797	2855	2913	2972	3030	3088	3146	3204	3263	6	12	18	23	29	35	41	47	53
747	3321	3379	3437	3495	3553	3611	3669	3727	3786	3844	6	12	18	23	29	35	41	47	53
748	3902	3960	4018	4076	4134	4192	4250	4308	4366	4424	6	12	17	23	29	35	41	46	52
749	4482	4540	4598	4656	4714	4772	4830	4888	4945	5003	6	12	17	23	29	35	41	46	52
750	875061	5119	5177	5235	5293	5351	5409	5466	5524	5582	6	12	17	23	29	35	41	46	52
751	5640	5698	5756	5813	5871	5929	5987	6045	6102	6160	6	12	17	23	29	35	41	46	52
752	6218	6276	6333	6391	6449	6507	6564	6622	6680	6737	6	12	17	23	29	34	40	46	52
753	6795	6853	6910	6968	7026	7083	7141	7199	7256	7314	6	12	17	23	29	34	40	46	52
754	7371	7429	7487	7544	7602	7659	7717	7774	7832	7889	6	12	17	23	29	34	40	46	52
755	877947	8005	8062	8120	8177	8235	8292	8349	8407	8464	6	12	17	23	29	34	40	46	52
756	8522	8579	8637	8694	8752	8809	8866	8924	8981	9039	6	12	17	23	29	34	40	46	52
757	9096	9153	9211	9268	9325	9383	9440	9497	9555	9612	6	12	17	23	29	34	40	46	52
758	9669	9727	9784	9841	9898	9956	••13	••70	•127	•185	6	11	17	23	28	34	40	46	51
759	880242	0299	0356	0413	0471	0528	0585	0642	0699	0756	6	11	17	23	28	34	40	46	51
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
760	880814	0871	0928	0985	1042	1099	1156	1213	1271	1328	6	11	17	23	28	34	40	46	51
761	1385	1442	1499	1556	1613	1670	1727	1784	1841	1898	6	11	17	23	28	34	40	46	51
762	1955	2012	2069	2126	2183	2240	2297	2354	2411	2468	6	11	17	23	28	34	40	46	51
763	2525	2582	2638	2695	2752	2809	2866	2923	2980	3037	6	11	17	23	28	34	40	46	51
764	3093	3150	3207	3264	3321	3378	3434	3491	3548	3605	6	11	17	23	28	34	40	46	51
765	883661	3718	3775	3832	3889	3945	4002	4059	4115	4172	6	11	17	23	28	34	40	46	51
766	4229	4286	4342	4399	4456	4512	4569	4626	4682	4739	6	11	17	23	28	34	40	46	51
767	4795	4852	4909	4965	5022	5078	5135	5192	5248	5305	6	11	17	23	28	34	40	46	51
768	5361	5418	5474	5531	5587	5644	5700	5757	5813	5870	6	11	17	23	28	34	39	45	51
769	5926	5983	6039	6096	6152	6209	6265	6322	6378	6434	6	11	17	23	28	34	39	45	51
770	886491	6547	6604	6660	6716	6773	6829	6885	6942	6998	6	11	17	23	28	34	39	45	51
771	7054	7111	7167	7223	7280	7336	7392	7449	7505	7561	6	11	17	23	28	34	39	45	51
772	7617	7674	7730	7786	7842	7899	7955	8011	8067	8123	6	11	17	23	28	34	39	45	51
773	8180	8236	8292	8348	8404	8460	8517	8573	8629	8685	6	11	17	22	28	34	39	45	50
774	8741	8797	8853	8909	8965	9021	9078	9134	9190	9246	6	11	17	22	28	34	39	45	50
775	889302	9358	9414	9470	9526	9582	9638	9694	9750	9806	6	11	17	22	28	34	39	45	50
776	9862	9918	9974	••30	••86	•142	•197	•253	•309	•365	6	11	17	22	28	34	39	45	50
777	890421	0477	0533	0589	0645	0700	0756	0812	0868	0924	6	11	17	22	28	34	39	45	50
778	0980	1035	1091	1147	1203	1259	1314	1370	1426	1482	6	11	17	22	28	34	39	45	50
779	1538	1593	1649	1705	1760	1816	1872	1928	1983	2039	6	11	17	22	28	33	39	44	50
780	892095	2150	2206	2262	2317	2373	2429	2484	2540	2595	6	11	17	22	28	33	39	44	50
781	2651	2707	2762	2818	2873	2929	2985	3040	3096	3151	6	11	17	22	28	33	39	44	50
782	3207	3262	3318	3373	3429	3484	3540	3595	3651	3706	6	11	17	22	28	33	39	44	50
783	3762	3817	3873	3928	3984	4039	4094	4150	4205	4261	6	11	17	22	28	33	39	44	50
784	4316	4372	4427	4482	4538	4593	4648	4704	4759	4814	6	11	17	22	27	33	39	44	50
785	894870	4925	4980	5036	5091	5146	5202	5257	5312	5367	6	11	17	22	27	33	39	44	50
786	5423	5478	5533	5588	5644	5699	5754	5809	5864	5920	6	11	17	22	27	33	39	44	50
787	5975	6030	6085	6140	6195	6251	6306	6361	6416	6471	6	11	17	22	27	33	39	44	50
788	6526	6581	6636	6692	6747	6802	6857	6912	6967	7022	6	11	17	22	27	33	39	44	50
789	7077	7132	7187	7242	7297	7352	7407	7462	7517	7572	6	11	17	22	27	33	39	44	50
790	897627	7682	7737	7792	7847	7902	7957	8012	8067	8122	6	11	17	22	27	33	39	44	50
791	8177	8231	8286	8341	8396	8451	8506	8561	8616	8670	6	11	17	22	27	33	39	44	50
792	8725	8780	8835	8890	8945	8999	9054	9109	9164	9218	5	11	17	22	27	33	38	44	50
793	9273	9328	9383	9438	9492	9547	9602	9656	9711	9766	5	11	17	22	27	33	38	44	50
794	9821	9875	9930	9985	••39	••94	•149	•203	•258	•313	5	11	17	22	27	33	38	44	50
795	900367	0422	0476	0531	0586	0640	0695	0749	0804	0859	5	11	17	22	27	33	38	44	50
796	0913	0968	1022	1077	1131	1186	1240	1295	1349	1404	5	11	16	22	27	33	38	44	49
797	1458	1513	1567	1622	1676	1731	1785	1840	1894	1949	5	11	16	22	27	33	38	44	49
798	2003	2057	2112	2166	2221	2275	2329	2384	2438	2492	5	11	16	22	27	33	38	44	49
799	2547	2601	2656	2710	2764	2819	2873	2927	2981	3036	5	11	16	22	27	33	38	44	49
800	903090	3144	3199	3253	3307	3361	3416	3470	3524	3578	5	11	16	22	27	32	38	43	49
801	3633	3687	3741	3795	3849	3904	3958	4012	4066	4120	5	11	16	22	27	32	38	43	49
802	4174	4229	4283	4337	4391	4445	4499	4553	4607	4662	5	11	16	22	27	32	38	43	49
803	4716	4770	4824	4878	4932	4986	5040	5094	5148	5202	5	11	16	22	27	32	38	43	49
804	5256	5310	5364	5418	5472	5526	5580	5634	5688	5742	5	11	16	22	27	32	38	43	49
805	905796	5850	5904	5958	6012	6066	6120	6173	6227	6281	5	11	16	22	27	32	38	43	49
806	6335	6389	6443	6497	6551	6604	6658	6712	6766	6820	5	11	16	22	27	32	38	43	49
807	6874	6927	6981	7035	7089	7143	7196	7250	7304	7358	5	11	16	22	27	32	38	43	49
808	7411	7465	7519	7573	7626	7680	7734	7787	7841	7895	5	11	16	22	27	32	38	43	49
809	7949	8002	8056	8110	8163	8217	8271	8324	8378	8431	5	11	16	22	27	32	38	43	49
810	908485	8539	8592	8646	8699	8753	8807	8860	8914	8967	5	11	16	21	27	32	37	43	48
811	9021	9074	9128	9182	9235	9289	9342	9396	9449	9503	5	11	16	21	27	32	37	43	48
812	9556	9610	9663	9717	9770	9823	9877	9930	9984	••37	5	11	16	21	27	32	37	43	48
813	910091	0144	0197	0251	0304	0358	0411	0464	0518	0571	5	11	16	21	27	32	37	43	48
814	0624	0678	0731	0784	0838	0891	0944	0998	1051	1104	5	11	16	21	27	32	37	43	48
815	911158	1211	1264	1317	1371	1424	1477	1531	1584	1637	5	11	16	21	27	32	37	42	48
816	1690	1743	1797	1850	1903	1956	2009	2063	2116	2169	5	11	16	21	27	32	37	42	48
817	2222	2275	2328	2382	2435	2488	2541	2594	2647	2700	5	11	16	21	27	32	37	42	48
818	2753	2806	2860	2913	2966	3019	3072	3125	3178	3231	5	11	16	21	27	32	37	42	48
819	3284	3337	3390	3443	3496	3549	3602	3655	3708	3761	5	11	16	21	27	32	37	42	48
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
820	913814	3867	3920	3973	4026	4079	4132	4184	4237	4290	5	11	16	21	27	32	37	42	48
821	4343	4396	4449	4502	4555	4608	4660	4713	4766	4819	5	11	16	21	27	32	37	42	48
822	4872	4925	4978	5030	5083	5136	5189	5242	5294	5347	5	11	16	21	27	32	37	42	48
823	5400	5453	5505	5558	5611	5664	5716	5769	5822	5875	5	11	16	21	27	32	37	42	48
824	5927	5980	6033	6085	6138	6191	6243	6296	6349	6401	5	11	16	21	27	32	37	42	48
825	916454	6507	6559	6612	6665	6717	6770	6822	6875	6928	5	11	16	21	26	31	37	42	47
826	6980	7033	7085	7138	7190	7243	7295	7348	7401	7453	5	11	16	21	26	31	37	42	47
827	7506	7558	7611	7663	7716	7768	7821	7873	7925	7978	5	11	16	21	26	31	37	42	47
828	8030	8083	8135	8188	8240	8293	8345	8397	8450	8502	5	11	16	21	26	31	37	42	47
829	8555	8607	8659	8712	8764	8816	8869	8921	8973	9026	5	11	16	21	26	31	37	42	47
830	919078	9130	9183	9235	9287	9340	9392	9444	9497	9549	5	11	16	21	26	31	37	42	47
831	9601	9653	9706	9758	9810	9862	9915	9967	••19	••71	5	11	16	21	26	31	37	42	47
832	920123	0176	0228	0280	0332	0384	0436	0489	0541	0593	5	10	16	21	26	31	36	42	47
833	0645	0697	0749	0801	0854	0906	0958	1010	1062	1114	5	10	16	21	26	31	36	42	47
834	1166	1218	1270	1322	1374	1426	1478	1530	1582	1635	5	10	16	21	26	31	36	42	47
835	921687	1739	1791	1843	1895	1947	1998	2050	2102	2154	5	10	16	21	26	31	36	42	47
836	2206	2258	2310	2362	2414	2466	2518	2570	2622	2674	5	10	16	21	26	31	36	42	47
837	2726	2777	2829	2881	2933	2985	3037	3089	3140	3192	5	10	16	21	26	31	36	42	47
838	3244	3296	3348	3400	3451	3503	3555	3607	3658	3710	5	10	16	21	26	31	36	42	47
839	3762	3814	3866	3917	3969	4021	4072	4124	4176	4228	5	10	16	21	26	31	36	42	47
840	924279	4331	4383	4434	4486	4538	4589	4641	4693	4744	5	10	15	21	26	31	36	41	46
841	4796	4848	4899	4951	5003	5054	5106	5157	5209	5261	5	10	15	21	26	31	36	41	46
842	5312	5364	5415	5467	5518	5570	5622	5673	5725	5776	5	10	15	21	26	31	36	41	46
843	5828	5879	5931	5982	6034	6085	6137	6188	6240	6291	5	10	15	21	26	31	36	41	46
844	6342	6394	6445	6497	6548	6600	6651	6703	6754	6805	5	10	15	21	26	31	36	41	46
845	926857	6908	6960	7011	7062	7114	7165	7216	7268	7319	5	10	15	21	26	31	36	41	46
846	7370	7422	7473	7524	7576	7627	7678	7730	7781	7832	5	10	15	21	26	31	36	41	46
847	7883	7935	7986	8037	8089	8140	8191	8242	8293	8345	5	10	15	21	26	31	36	41	46
848	8396	8447	8498	8550	8601	8652	8703	8754	8805	8857	5	10	15	21	26	31	36	41	46
849	8908	8959	9010	9061	9112	9163	9215	9266	9317	9368	5	10	15	20	26	31	36	41	46
850	929419	9470	9521	9572	9623	9674	9725	9776	9828	9879	5	10	15	20	26	31	36	41	46
851	9930	9981	••32	••83	•134	•185	•236	•287	•338	•389	5	10	15	20	26	31	36	41	46
852	930440	0491	0542	0593	0643	0694	0745	0796	0847	0898	5	10	15	20	25	31	36	41	46
853	0949	1000	1051	1102	1153	1204	1254	1305	1356	1407	5	10	15	20	25	31	36	41	46
854	1458	1509	1560	1610	1661	1712	1763	1814	1865	1915	5	10	15	20	25	31	36	41	46
855	931966	2017	2068	2119	2169	2220	2271	2322	2372	2423	5	10	15	20	25	30	35	40	45
856	2474	2525	2575	2626	2677	2727	2778	2829	2880	2930	5	10	15	20	25	30	35	40	45
857	2981	3032	3082	3133	3184	3234	3285	3335	3386	3437	5	10	15	20	25	30	35	40	45
858	3487	3538	3589	3639	3690	3740	3791	3842	3892	3943	5	10	15	20	25	30	35	40	45
859	3993	4044	4094	4145	4195	4246	4296	4347	4397	4448	5	10	15	20	25	30	35	40	45
860	934499	4549	4599	4650	4700	4751	4801	4852	4902	4953	5	10	15	20	25	30	35	40	45
861	5003	5054	5104	5154	5205	5255	5306	5356	5407	5457	5	10	15	20	25	30	35	40	45
862	5507	5558	5608	5658	5709	5759	5810	5860	5910	5961	5	10	15	20	25	30	35	40	45
863	6011	6061	6111	6162	6212	6262	6313	6363	6413	6464	5	10	15	20	25	30	35	40	45
864	6514	6564	6614	6665	6715	6765	6815	6866	6916	6966	5	10	15	20	25	30	35	40	45
865	937016	7066	7117	7167	7217	7267	7317	7367	7418	7468	5	10	15	20	25	30	35	40	45
866	7518	7568	7618	7668	7718	7769	7819	7869	7919	7969	5	10	15	20	25	30	35	40	45
867	8019	8069	8119	8169	8219	8270	8320	8370	8420	8470	5	10	15	20	25	30	35	40	45
868	8520	8570	8620	8670	8720	8770	8820	8870	8920	8970	5	10	15	20	25	30	35	40	45
869	9020	9070	9120	9170	9220	9270	9320	9370	9419	9469	5	10	15	20	25	30	35	40	45
870	939519	9569	9619	9669	9719	9769	9819	9869	9918	9968	5	10	15	20	25	30	35	40	45
871	940018	0068	0118	0168	0218	0267	0317	0367	0417	0467	5	10	15	20	25	30	35	40	45
872	0517	0566	0616	0666	0716	0765	0815	0865	0915	0965	5	10	15	20	25	30	35	40	45
873	1014	1064	1114	1164	1213	1263	1313	1362	1412	1462	5	10	15	20	25	30	35	40	45
874	1511	1561	1611	1661	1710	1760	1810	1859	1909	1958	5	10	15	20	25	30	35	40	45
875	942008	2058	2107	2157	2207	2256	2306	2355	2405	2455	5	10	15	20	25	30	35	40	45
876	2504	2554	2603	2653	2702	2752	2802	2851	2901	2950	5	10	15	20	25	30	35	40	45
877	3000	3049	3099	3148	3198	3247	3297	3346	3396	3445	5	10	15	20	25	30	35	40	45
878	3495	3544	3593	3643	3692	3742	3791	3841	3890	3940	5	10	15	20	25	30	35	40	45
879	3989	4038	4088	4137	4187	4236	4285	4335	4384	4433	5	10	15	20	25	30	35	40	45
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
880	944483	4532	4581	4631	4680	4729	4779	4828	4877	4927	5	10	15	20	25	30	35	40	45
881	4976	5025	5075	5124	5173	5222	5272	5321	5370	5419	5	10	15	20	25	30	35	40	45
882	5469	5518	5567	5616	5666	5715	5764	5813	5862	5912	5	10	15	20	25	29	34	39	44
883	5961	6010	6059	6108	6157	6207	6256	6305	6354	6403	5	10	15	20	25	29	34	39	44
884	6452	6501	6551	6600	6649	6698	6747	6796	6845	6894	5	10	15	20	25	29	34	39	44
885	946943	6992	7041	7091	7140	7189	7238	7287	7336	7385	5	10	15	20	25	29	34	39	44
886	7434	7483	7532	7581	7630	7679	7728	7777	7826	7875	5	10	15	20	25	29	34	39	44
887	7924	7973	8022	8071	8119	8168	8217	8266	8315	8364	5	10	15	20	25	29	34	39	44
888	8413	8462	8511	8560	8609	8657	8706	8755	8804	8853	5	10	15	20	25	29	34	39	44
889	8902	8951	9000	9048	9097	9146	9195	9244	9292	9341	5	10	15	20	25	29	34	39	44
890	949390	9439	9488	9536	9585	9634	9683	9732	9780	9829	5	10	15	20	25	29	34	39	44
891	9878	9926	9975	••24	••73	•121	•170	•219	•268	•316	5	10	15	20	25	29	34	39	44
892	950365	0414	0462	0511	0560	0608	0657	0706	0754	0803	5	10	15	19	24	29	34	39	44
893	0852	0900	0949	0997	1046	1095	1143	1192	1240	1289	5	10	15	19	24	29	34	39	44
894	1338	1386	1435	1483	1532	1580	1629	1677	1726	1775	5	10	15	19	24	29	34	39	44
895	951823	1872	1920	1969	2017	2066	2114	2163	2211	2260	5	10	15	19	24	29	34	39	44
896	2308	2357	2405	2453	2502	2550	2599	2647	2696	2744	5	10	15	19	24	29	34	39	44
897	2792	2841	2889	2938	2986	3035	3083	3131	3180	3228	5	10	15	19	24	29	34	39	44
898	3276	3325	3373	3421	3470	3518	3566	3615	3663	3711	5	10	15	19	24	29	34	39	44
899	3760	3808	3856	3905	3953	4001	4049	4098	4146	4194	5	10	15	19	24	29	34	39	44
900	954243	4291	4339	4387	4436	4484	4532	4580	4628	4677	5	10	14	19	24	29	34	38	43
901	4725	4773	4821	4869	4918	4966	5014	5062	5110	5158	5	10	14	19	24	29	34	38	43
902	5207	5255	5303	5351	5399	5447	5495	5543	5592	5640	5	10	14	19	24	29	34	38	43
903	5688	5736	5784	5832	5880	5928	5976	6024	6072	6120	5	10	14	19	24	29	34	38	43
904	6168	6217	6265	6313	6361	6409	6457	6505	6553	6601	5	10	14	19	24	29	34	38	43
905	956649	6697	6745	6793	6841	6889	6936	6984	7032	7080	5	10	14	19	24	29	34	38	43
906	7128	7176	7224	7272	7320	7368	7416	7464	7512	7559	5	10	14	19	24	29	34	38	43
907	7607	7655	7703	7751	7799	7847	7895	7942	7990	8038	5	10	14	19	24	29	34	38	43
908	8086	8134	8182	8229	8277	8325	8373	8421	8468	8516	5	10	14	19	24	29	34	38	43
909	8564	8612	8659	8707	8755	8803	8851	8898	8946	8994	5	10	14	19	24	29	34	38	43
910	959041	9089	9137	9185	9232	9280	9328	9375	9423	9471	5	10	14	19	24	29	34	38	43
911	9518	9566	9614	9661	9709	9757	9804	9852	9900	9947	5	10	14	19	24	29	34	38	43
912	9995	••43	••90	•138	•185	•233	•281	•328	•376	•423	5	10	14	19	24	28	33	38	43
913	960471	0518	0566	0614	0661	0709	0756	0804	0851	0899	5	10	14	19	24	28	33	38	43
914	0946	0994	1041	1089	1136	1184	1231	1279	1326	1374	5	10	14	19	24	28	33	38	43
915	961421	1469	1516	1564	1611	1658	1706	1753	1801	1848	5	10	14	19	24	28	33	38	43
916	1896	1943	1990	2038	2085	2133	2180	2227	2275	2322	5	10	14	19	24	28	33	38	43
917	2369	2417	2464	2511	2559	2606	2653	2701	2748	2795	5	9	14	19	24	28	33	38	42
918	2843	2890	2937	2985	3032	3079	3126	3174	3221	3268	5	9	14	19	24	28	33	38	42
919	3316	3363	3410	3457	3505	3552	3599	3646	3693	3741	5	9	14	19	24	28	33	38	42
920	963788	3835	3882	3929	3977	4024	4071	4118	4165	4213	5	9	14	19	24	28	33	38	42
921	4260	4307	4354	4401	4448	4495	4543	4590	4637	4684	5	9	14	19	24	28	33	38	42
922	4731	4778	4825	4872	4919	4966	5014	5061	5108	5155	5	9	14	19	24	28	33	38	42
923	5202	5249	5296	5343	5390	5437	5484	5531	5578	5625	5	9	14	19	24	28	33	38	42
924	5672	5719	5766	5813	5860	5907	5954	6001	6048	6095	5	9	14	19	24	28	33	38	42
925	966142	6189	6236	6283	6330	6376	6423	6470	6517	6564	5	9	14	19	24	28	33	38	42
926	6611	6658	6705	6752	6799	6845	6892	6939	6986	7033	5	9	14	19	24	28	33	38	42
927	7080	7127	7173	7220	7267	7314	7361	7408	7454	7501	5	9	14	19	24	28	33	38	42
928	7548	7595	7642	7688	7735	7782	7829	7875	7922	7969	5	9	14	19	23	28	33	38	42
929	8016	8063	8109	8156	8203	8249	8296	8343	8390	8436	5	9	14	19	23	28	33	38	42
930	968483	8530	8576	8623	8670	8716	8763	8810	8856	8903	5	9	14	19	23	28	33	37	42
931	8950	8996	9043	9090	9136	9183	9230	9276	9323	9369	5	9	14	19	23	28	33	37	42
932	9416	9463	9509	9556	9602	9649	9695	9742	9789	9835	5	9	14	19	23	28	33	37	42
933	9882	9928	9975	••21	••68	•114	•161	•207	•254	•300	5	9	14	19	23	28	33	37	42
934	970347	0393	0440	0486	0533	0579	0626	0672	0719	0765	5	9	14	19	23	28	33	37	42
935	970812	0858	0905	0951	0997	1044	1090	1137	1183	1229	5	9	14	19	23	28	33	37	42
936	1276	1322	1369	1415	1461	1508	1554	1601	1647	1693	5	9	14	19	23	28	33	37	42
937	1740	1786	1832	1879	1925	1971	2018	2064	2110	2157	5	9	14	19	23	28	33	37	42
938	2203	2249	2295	2342	2388	2434	2481	2527	2573	2619	5	9	14	18	23	28	32	37	41
939	2666	2712	2758	2804	2851	2897	2943	2989	3035	3082	5	9	14	18	23	28	32	37	41
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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941	3590	3636	3682	3728	3774	3820	3866	3913	3959	4005	5	9	14	18	23	28	32	37	41
942	4051	4097	4143	4189	4235	4281	4327	4374	4420	4466	5	9	14	18	23	28	32	37	41
943	4512	4558	4604	4650	4696	4742	4788	4834	4880	4926	5	9	14	18	23	28	32	37	41
944	4972	5018	5064	5110	5156	5202	5248	5294	5340	5386	5	9	14	18	23	28	32	37	41
945	975432	5478	5524	5570	5616	5662	5708	5753	5799	5845	5	9	14	18	23	28	32	37	41
946	5891	5937	5983	6029	6075	6121	6167	6212	6258	6304	5	9	14	18	23	28	32	37	41
947	6350	6396	6442	6488	6533	6579	6625	6671	6717	6763	5	9	14	18	23	28	32	37	41
948	6808	6854	6900	6946	6992	7037	7083	7129	7175	7220	5	9	14	18	23	27	32	37	41
949	7266	7312	7358	7404	7449	7495	7541	7586	7632	7678	5	9	14	18	23	27	32	37	41
950	977724	7769	7815	7861	7906	7952	7998	8044	8089	8135	5	9	14	18	23	27	32	37	41
951	8181	8226	8272	8318	8363	8409	8454	8500	8546	8591	5	9	14	18	23	27	32	37	41
952	8637	8683	8728	8774	8819	8865	8911	8956	9002	9047	5	9	14	18	23	27	32	36	41
953	9093	9139	9184	9230	9275	9321	9366	9412	9457	9503	5	9	14	18	23	27	32	36	41
954	9548	9594	9639	9685	9730	9776	9821	9867	9912	9958	5	9	14	18	23	27	32	36	41
955	980003	0049	0094	0140	0185	0231	0276	0322	0367	0413	5	9	14	18	23	27	32	36	41
956	0458	0503	0549	0594	0640	0685	0730	0776	0821	0867	5	9	14	18	23	27	32	36	41
957	0912	0957	1003	1048	1093	1139	1184	1230	1275	1320	5	9	14	18	23	27	32	36	41
958	1366	1411	1456	1502	1547	1592	1637	1683	1728	1773	5	9	14	18	23	27	32	36	41
959	1819	1864	1909	1954	2000	2045	2090	2136	2181	2226	5	9	14	18	23	27	32	36	41
960	982271	2317	2362	2407	2452	2497	2543	2588	2633	2678	5	9	14	18	23	27	32	36	41
961	2723	2769	2814	2859	2904	2949	2995	3040	3085	3130	5	9	14	18	23	27	32	36	41
962	3175	3220	3265	3311	3356	3401	3446	3491	3536	3581	5	9	14	18	23	27	32	36	41
963	3626	3671	3717	3762	3807	3852	3897	3942	3987	4032	5	9	14	18	23	27	32	36	41
964	4077	4122	4167	4212	4257	4302	4347	4392	4437	4482	5	9	14	18	23	27	32	36	41
965	984527	4572	4617	4662	4707	4752	4797	4842	4887	4932	5	9	14	18	23	27	32	36	41
966	4977	5022	5067	5112	5157	5202	5247	5292	5337	5382	5	9	14	18	23	27	32	36	41
967	5427	5471	5516	5561	5606	5651	5696	5741	5786	5831	4	9	13	18	22	27	31	36	40
968	5875	5920	5965	6010	6055	6100	6145	6189	6234	6279	4	9	13	18	22	27	31	36	40
969	6324	6369	6413	6458	6503	6548	6593	6637	6682	6727	4	9	13	18	22	27	31	36	40
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973	8113	8158	8202	8247	8291	8336	8381	8425	8470	8514	4	9	13	18	22	27	31	36	40
974	8559	8604	8648	8693	8737	8782	8826	8871	8916	8960	4	9	13	18	22	27	31	36	40
975	989005	9049	9094	9138	9183	9227	9272	9316	9361	9405	4	9	13	18	22	27	31	36	40
976	9450	9494	9539	9583	9628	9672	9717	9761	9806	9850	4	9	13	18	22	27	31	36	40
977	9895	9939	9984	••28	••72	•117	•161	•206	•250	•294	4	9	13	18	22	27	31	36	40
978	990339	0383	0428	0472	0516	0561	0605	0650	0694	0738	4	9	13	18	22	27	31	36	40
979	0783	0827	0871	0916	0960	1004	1049	1093	1137	1182	4	9	13	18	22	27	31	36	40
980	991226	1270	1315	1359	1403	1448	1492	1536	1581	1625	4	9	13	18	22	27	31	36	40
981	1669	1713	1758	1802	1846	1890	1935	1979	2023	2067	4	9	13	18	22	27	31	36	40
982	2112	2156	2200	2244	2288	2333	2377	2421	2465	2509	4	9	13	18	22	26	31	35	40
983	2554	2598	2642	2686	2730	2774	2819	2863	2907	2951	4	9	13	18	22	26	31	35	40
984	2995	3039	3083	3128	3172	3216	3260	3304	3348	3392	4	9	13	18	22	26	31	35	40
985	993436	3480	3524	3569	3613	3657	3701	3745	3789	3833	4	9	13	18	22	26	31	35	40
986	3877	3921	3965	4009	4053	4097	4141	4185	4229	4273	4	9	13	18	22	26	31	35	40
987	4317	4361	4405	4449	4493	4537	4581	4625	4669	4713	4	9	13	18	22	26	31	35	40
988	4757	4801	4845	4889	4933	4977	5021	5065	5109	5152	4	9	13	18	22	26	31	35	40
989	5196	5240	5284	5328	5372	5416	5460	5504	5547	5591	4	9	13	18	22	26	31	35	40
990	995635	5679	5723	5767	5811	5855	5898	5942	5986	6030	4	9	13	18	22	26	31	35	40
991	6074	6118	6161	6205	6249	6293	6337	6380	6424	6468	4	9	13	18	22	26	31	35	40
992	6512	6555	6599	6643	6687	6731	6774	6818	6862	6906	4	9	13	18	22	26	31	35	40
993	6949	6993	7037	7080	7124	7168	7212	7255	7299	7343	4	9	13	18	22	26	31	35	39
994	7386	7430	7474	7517	7561	7605	7648	7692	7736	7779	4	9	13	17	22	26	30	35	39
995	997823	7867	7910	7954	7998	8041	8085	8129	8172	8216	4	9	13	17	22	26	30	35	39
996	8259	8303	8347	8390	8434	8477	8521	8565	8608	8652	4	9	13	17	22	26	30	35	39
997	8695	8739	8782	8826	8869	8913	8956	9000	9044	9087	4	9	13	17	22	26	30	35	39
998	9131	9174	9218	9261	9305	9348	9392	9435	9479	9522	4	9	13	17	22	26	30	35	39
999	9566	9609	9652	9696	9739	9783	9826	9870	9913	9957	4	9	13	17	22	26	30	35	39
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1001	0434	0477	0521	0564	0608	0651	0694	0738	0781	0824	4	9	13	17	22	26	30	35	39
1002	0868	0911	0954	0998	1041	1084	1128	1171	1214	1258	4	9	13	17	22	26	30	35	39
1003	1301	1344	1387	1431	1474	1517	1561	1604	1647	1690	4	9	13	17	22	26	30	35	39
1004	1734	1777	1820	1864	1907	1950	1993	2036	2080	2123	4	9	13	17	22	26	30	35	39
1005	002166	2209	2252	2296	2339	2382	2425	2468	2512	2555	4	9	13	17	22	26	30	35	39
1006	2598	2641	2684	2727	2771	2814	2857	2900	2943	2986	4	9	13	17	21	26	30	34	39
1007	3029	3073	3116	3159	3202	3245	3288	3331	3374	3417	4	9	13	17	21	26	30	34	39
1008	3460	3504	3547	3590	3633	3676	3719	3762	3805	3848	4	9	13	17	21	26	30	34	39
1009	3891	3934	3977	4020	4063	4106	4149	4192	4235	4278	4	9	13	17	21	26	30	34	39
1010	004321	4364	4407	4450	4493	4536	4579	4622	4665	4708	4	9	13	17	21	26	30	34	39
1011	4751	4794	4837	4880	4923	4966	5009	5052	5095	5138	4	9	13	17	21	26	30	34	39
1012	5180	5223	5266	5309	5352	5395	5438	5481	5524	5567	4	9	13	17	21	26	30	34	39
1013	5609	5652	5695	5738	5781	5824	5867	5909	5952	5995	4	9	13	17	21	26	30	34	39
1014	6038	6081	6124	6166	6209	6252	6295	6338	6380	6423	4	9	13	17	21	26	30	34	39
1015	006466	6509	6552	6594	6637	6680	6723	6765	6808	6851	4	9	13	17	21	26	30	34	38
1016	6894	6936	6979	7022	7065	7107	7150	7193	7235	7278	4	9	13	17	21	26	30	34	38
1017	7321	7364	7406	7449	7492	7534	7577	7620	7662	7705	4	9	13	17	21	26	30	34	38
1018	7748	7790	7833	7876	7918	7961	8004	8046	8089	8132	4	9	13	17	21	26	30	34	38
1019	8174	8217	8259	8302	8345	8387	8430	8472	8515	8558	4	9	13	17	21	26	30	34	38
1020	008600	8643	8685	8728	8770	8813	8856	8898	8941	8983	4	8	13	17	21	25	30	34	38
1021	9026	9068	9111	9153	9196	9238	9281	9323	9366	9408	4	8	13	17	21	25	30	34	38
1022	9451	9493	9536	9578	9621	9663	9706	9748	9791	9833	4	8	13	17	21	25	30	34	38
1023	9876	9918	9960	●●●3	●●45	●●88	●130	●173	●215	●257	4	8	13	17	21	25	30	34	38
1024	010300	0342	0385	0427	0470	0512	0554	0597	0639	0681	4	8	13	17	21	25	30	34	38
1025	010724	0766	0809	0851	0893	0936	0978	1020	1063	1105	4	8	13	17	21	25	30	34	38
1026	1147	1190	1232	1274	1317	1359	1401	1444	1486	1528	4	8	13	17	21	25	30	34	38
1027	1570	1613	1655	1697	1740	1782	1824	1866	1909	1951	4	8	13	17	21	25	30	34	38
1028	1993	2035	2078	2120	2162	2204	2246	2289	2331	2373	4	8	13	17	21	25	30	34	38
1029	2415	2458	2500	2542	2584	2626	2668	2711	2753	2795	4	8	13	17	21	25	30	34	38
1030	012837	2879	2921	2964	3006	3048	3090	3132	3174	3216	4	8	13	17	21	25	29	34	38
1031	3259	3301	3343	3385	3427	3469	3511	3553	3595	3638	4	8	13	17	21	25	29	34	38
1032	3680	3722	3764	3806	3848	3890	3932	3974	4016	4058	4	8	13	17	21	25	29	34	38
1033	4100	4142	4184	4226	4268	4310	4352	4394	4436	4478	4	8	13	17	21	25	29	34	38
1034	4520	4562	4604	4646	4688	4730	4772	4814	4856	4898	4	8	13	17	21	25	29	34	38
1035	014940	4982	5024	5066	5108	5150	5192	5234	5276	5318	4	8	13	17	21	25	29	33	38
1036	5360	5402	5444	5485	5527	5569	5611	5653	5695	5737	4	8	13	17	21	25	29	33	38
1037	5779	5821	5862	5904	5946	5988	6030	6072	6114	6155	4	8	13	17	21	25	29	33	38
1038	6197	6239	6281	6323	6365	6406	6448	6490	6532	6574	4	8	13	17	21	25	29	33	38
1039	6615	6657	6699	6741	6783	6824	6866	6908	6950	6992	4	8	13	17	21	25	29	33	38
1040	017033	7075	7117	7159	7200	7242	7284	7326	7367	7409	4	8	12	17	21	25	29	33	37
1041	7451	7492	7534	7576	7618	7659	7701	7743	7784	7826	4	8	12	17	21	25	29	33	37
1042	7868	7909	7951	7993	8034	8076	8118	8159	8201	8243	4	8	12	17	21	25	29	33	37
1043	8284	8326	8368	8409	8451	8492	8534	8576	8617	8659	4	8	12	17	21	25	29	33	37
1044	8700	8742	8784	8825	8867	8908	8950	8992	9033	9075	4	8	12	17	21	25	29	33	37
1045	019116	9158	9199	9241	9282	9324	9366	9407	9449	9490	4	8	12	17	21	25	29	33	37
1046	9532	9573	9615	9656	9698	9739	9781	9822	9864	9905	4	8	12	17	21	25	29	33	37
1047	9947	9988	●030	●071	●113	●154	●195	●237	●278	●320	4	8	12	17	21	25	29	33	37
1048	020361	0403	0444	0486	0527	0568	0610	0651	0693	0734	4	8	12	17	21	25	29	33	37
1049	0775	0817	0858	0900	0941	0982	1024	1065	1107	1148	4	8	12	17	21	25	29	33	37
1050	021189	1231	1272	1313	1355	1396	1437	1479	1520	1561	4	8	12	16	21	25	29	33	37
1051	1603	1644	1685	1727	1768	1809	1851	1892	1933	1974	4	8	12	16	21	25	29	33	37
1052	2016	2057	2098	2140	2181	2222	2263	2305	2346	2387	4	8	12	16	21	25	29	33	37
1053	2428	2470	2511	2552	2593	2634	2676	2717	2758	2799	4	8	12	16	21	25	29	33	37
1054	2841	2882	2923	2964	3005	3047	3088	3129	3170	3211	4	8	12	16	21	25	29	33	37
1055	023252	3294	3335	3376	3417	3458	3499	3540	3582	3623	4	8	12	16	20	25	29	33	37
1056	3664	3705	3746	3787	3828	3869	3911	3952	3993	4034	4	8	12	16	20	25	29	33	37
1057	4075	4116	4157	4198	4239	4280	4321	4362	4404	4445	4	8	12	16	20	25	29	33	37
1058	4486	4527	4568	4609	4650	4691	4732	4773	4814	4855	4	8	12	16	20	25	29	33	37
1059	4896	4937	4978	5019	5060	5101	5142	5183	5224	5265	4	8	12	16	20	25	29	33	37
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

Note.—This part of the Table will be found particularly useful in computing the lunar observations by methods III. IV. V. in Vol. 1. pages 438, 439, 441 when the apparent distance exceeds 90 degrees.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
1060	025306	5347	5388	5429	5470	5511	5552	5593	5633	5674	4	8	12	16	20	24	29	33	37
1061	5715	5756	5797	5838	5879	5920	5961	6002	6043	6084	4	8	12	16	20	24	29	33	37
1062	6124	6165	6206	6247	6288	6329	6370	6411	6451	6492	4	8	12	16	20	24	29	33	37
1063	6533	6574	6615	6656	6697	6737	6778	6819	6860	6901	4	8	12	16	20	24	29	33	37
1064	6942	6982	7023	7064	7105	7146	7186	7227	7268	7309	4	8	12	16	20	24	29	33	37
1065	027350	7390	7431	7472	7513	7553	7594	7635	7676	7716	4	8	12	16	20	24	28	32	37
1066	7757	7798	7839	7879	7920	7961	8002	8042	8083	8124	4	8	12	16	20	24	28	32	37
1067	8164	8205	8246	8286	8327	8368	8409	8449	8490	8531	4	8	12	16	20	24	28	32	37
1068	8571	8612	8653	8693	8734	8774	8815	8856	8896	8937	4	8	12	16	20	24	28	32	37
1069	8978	9018	9059	9100	9140	9181	9221	9262	9303	9343	4	8	12	16	20	24	28	32	37
1070	029384	9424	9465	9505	9546	9587	9627	9668	9708	9749	4	8	12	16	20	24	28	32	36
1071	9789	9830	9871	9911	9952	9992	••33	••73	•114	•154	4	8	12	16	20	24	28	32	36
1072	030195	0235	0276	0316	0357	0397	0438	0478	0519	0559	4	8	12	16	20	24	28	32	36
1073	0600	0640	0681	0721	0762	0802	0842	0883	0923	0964	4	8	12	16	20	24	28	32	36
1074	1004	1045	1085	1126	1166	1206	1247	1287	1328	1368	4	8	12	16	20	24	28	32	36
1075	031408	1449	1489	1530	1570	1610	1651	1691	1731	1772	4	8	12	16	20	24	28	32	36
1076	1812	1853	1893	1933	1974	2014	2054	2095	2135	2175	4	8	12	16	20	24	28	32	36
1077	2216	2256	2296	2337	2377	2417	2458	2498	2538	2578	4	8	12	16	20	24	28	32	36
1078	2619	2659	2699	2740	2780	2820	2860	2901	2941	2981	4	8	12	16	20	24	28	32	36
1079	3021	3062	3102	3142	3182	3223	3263	3303	3343	3383	4	8	12	16	20	24	28	32	36
1080	033424	3464	3504	3544	3585	3625	3665	3705	3745	3785	4	8	12	16	20	24	28	32	36
1081	3826	3866	3906	3946	3986	4026	4067	4107	4147	4187	4	8	12	16	20	24	28	32	36
1082	4227	4267	4307	4348	4388	4428	4468	4508	4548	4588	4	8	12	16	20	24	28	32	36
1083	4628	4669	4709	4749	4789	4829	4869	4909	4949	4989	4	8	12	16	20	24	28	32	36
1084	5029	5069	5109	5149	5189	5230	5270	5310	5350	5390	4	8	12	16	20	24	28	32	36
1085	035430	5470	5510	5550	5590	5630	5670	5710	5750	5790	4	8	12	16	20	24	28	32	36
1086	5830	5870	5910	5950	5990	6030	6070	6110	6150	6190	4	8	12	16	20	24	28	32	36
1087	6229	6269	6309	6349	6389	6429	6469	6509	6549	6589	4	8	12	16	20	24	28	32	36
1088	6629	6669	6709	6749	6788	6828	6868	6908	6948	6988	4	8	12	16	20	24	28	32	36
1089	7028	7068	7108	7147	7187	7227	7267	7307	7347	7387	4	8	12	16	20	24	28	32	36
1090	037426	7466	7506	7546	7586	7626	7665	7705	7745	7785	4	8	12	16	20	24	28	32	36
1091	7825	7865	7904	7944	7984	8024	8063	8103	8143	8183	4	8	12	16	20	24	28	32	36
1092	8223	8262	8302	8342	8382	8421	8461	8501	8541	8580	4	8	12	16	20	24	28	32	36
1093	8620	8660	8700	8739	8779	8819	8858	8898	8938	8978	4	8	12	16	20	24	28	32	36
1094	9017	9057	9097	9136	9176	9216	9255	9295	9335	9374	4	8	12	16	20	24	28	32	36
1095	039414	9454	9493	9533	9573	9612	9652	9692	9731	9771	4	8	12	16	20	24	28	32	36
1096	9811	9850	9890	9929	9969	••09	••48	••88	•127	•167	4	8	12	16	20	24	28	32	36
1097	040207	0246	0286	0325	0365	0404	0444	0484	0523	0563	4	8	12	16	20	24	28	32	36
1098	0602	0642	0681	0721	0760	0800	0840	0879	0919	0958	4	8	12	16	20	24	28	32	36
1099	0998	1037	1077	1116	1156	1195	1235	1274	1314	1353	4	8	12	16	20	24	28	32	36
1100	041393	1432	1472	1511	1551	1590	1629	1669	1708	1748	4	8	12	16	20	24	27	31	35
1101	1787	1827	1866	1906	1945	1984	2024	2063	2103	2142	4	8	12	16	20	24	27	31	35
1102	2182	2221	2260	2300	2339	2379	2418	2457	2497	2536	4	8	12	16	20	24	27	31	35
1103	2575	2615	2654	2694	2733	2772	2812	2851	2890	2930	4	8	12	16	20	24	27	31	35
1104	2969	3008	3048	3087	3126	3166	3205	3244	3284	3323	4	8	12	16	20	24	27	31	35
1105	043362	3402	3441	3480	3519	3559	3598	3637	3677	3716	4	8	12	16	20	24	27	31	35
1106	3755	3794	3834	3873	3912	3951	3991	4030	4069	4108	4	8	12	16	20	24	27	31	35
1107	4148	4187	4226	4265	4304	4344	4383	4422	4461	4501	4	8	12	16	20	24	27	31	35
1108	4540	4579	4618	4657	4696	4736	4775	4814	4853	4892	4	8	12	16	20	24	27	31	35
1109	4931	4971	5010	5049	5088	5127	5166	5206	5245	5284	4	8	12	16	20	24	27	31	35
1110	045323	5362	5401	5440	5479	5519	5558	5597	5636	5675	4	8	12	16	20	23	27	31	35
1111	5714	5753	5792	5831	5870	5909	5948	5988	6027	6066	4	8	12	16	20	23	27	31	35
1112	6105	6144	6183	6222	6261	6300	6339	6378	6417	6456	4	8	12	16	20	23	27	31	35
1113	6495	6534	6573	6612	6651	6690	6729	6768	6807	6846	4	8	12	16	20	23	27	31	35
1114	6885	6924	6963	7002	7041	7080	7119	7158	7197	7236	4	8	12	16	20	23	27	31	35
1115	047275	7314	7353	7392	7431	7470	7508	7547	7586	7625	4	8	12	16	19	23	27	31	35
1116	7664	7703	7742	7781	7820	7859	7898	7936	7975	8014	4	8	12	16	19	23	27	31	35
1117	8053	8092	8131	8170	8209	8247	8286	8325	8364	8403	4	8	12	16	19	23	27	31	35
1118	8442	8481	8519	8558	8597	8636	8675	8714	8752	8791	4	8	12	16	19	23	27	31	35
1119	8830	8869	8908	8946	8985	9024	9063	9102	9140	9179	4	8	12	16	19	23	27	31	35
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
1120	049218	9257	9296	9334	9373	9412	9451	9489	9528	9567	4	8	12	15	19	23	27	31	35
1121	9606	9644	9683	9722	9761	9799	9838	9877	9915	9954	4	8	12	15	19	23	27	31	35
1122	9993	••32	••70	•109	•148	•186	•225	•264	•302	•341	4	8	12	15	19	23	27	31	35
1123	050380	0418	0457	0496	0534	0573	0612	0650	0689	0728	4	8	12	15	19	23	27	31	35
1124	0766	0805	0844	0882	0921	0959	0998	1037	1075	1114	4	8	12	15	19	23	27	31	35
1125	051152	1191	1230	1268	1307	1345	1384	1423	1461	1500	4	8	12	15	19	23	27	31	35
1126	1538	1577	1615	1654	1693	1731	1770	1808	1847	1885	4	8	12	15	19	23	27	31	35
1127	1924	1962	2001	2039	2078	2117	2155	2194	2232	2271	4	8	12	15	19	23	27	31	35
1128	2309	2348	2386	2425	2463	2502	2540	2578	2617	2655	4	8	12	15	19	23	27	31	35
1129	2694	2732	2771	2809	2848	2886	2925	2963	3002	3040	4	8	12	15	19	23	27	31	35
1130	053078	3117	3155	3194	3232	3271	3309	3347	3386	3424	4	8	11	15	19	23	27	31	34
1131	3463	3501	3539	3578	3616	3655	3693	3731	3770	3808	4	8	11	15	19	23	27	31	34
1132	3846	3885	3923	3961	4000	4038	4077	4115	4153	4192	4	8	11	15	19	23	27	31	34
1133	4230	4268	4307	4345	4383	4421	4460	4498	4536	4575	4	8	11	15	19	23	27	31	34
1134	4613	4651	4690	4728	4766	4804	4843	4881	4919	4958	4	8	11	15	19	23	27	31	34
1135	054996	5034	5072	5111	5149	5187	5225	5264	5302	5340	4	8	11	15	19	23	27	31	34
1136	5378	5417	5455	5493	5531	5569	5608	5646	5684	5722	4	8	11	15	19	23	27	31	34
1137	5760	5799	5837	5875	5913	5951	5990	6028	6066	6104	4	8	11	15	19	23	27	31	34
1138	6142	6180	6219	6257	6295	6333	6371	6409	6447	6486	4	8	11	15	19	23	27	31	34
1139	6524	6562	6600	6638	6676	6714	6752	6790	6829	6867	4	8	11	15	19	23	27	31	34
1140	056905	6943	6981	7019	7057	7095	7133	7171	7209	7248	4	8	11	15	19	23	27	30	34
1141	7286	7324	7362	7400	7438	7476	7514	7552	7590	7628	4	8	11	15	19	23	27	30	34
1142	7666	7704	7742	7780	7818	7856	7894	7932	7970	8008	4	8	11	15	19	23	27	30	34
1143	8046	8084	8122	8160	8198	8236	8274	8312	8350	8388	4	8	11	15	19	23	27	30	34
1144	8426	8464	8502	8540	8578	8616	8654	8692	8730	8768	4	8	11	15	19	23	27	30	34
1145	058805	8843	8881	8919	8957	8995	9033	9071	9109	9147	4	8	11	15	19	23	26	30	34
1146	9185	9222	9260	9298	9336	9374	9412	9450	9488	9526	4	8	11	15	19	23	26	30	34
1147	9563	9601	9639	9677	9715	9753	9790	9828	9866	9904	4	8	11	15	19	23	26	30	34
1148	9942	9980	••17	••55	••93	•131	•169	•207	•244	•282	4	8	11	15	19	23	26	30	34
1149	060320	0358	0396	0433	0471	0509	0547	0584	0622	0660	4	8	11	15	19	23	26	30	34
1150	060698	0736	0773	0811	0849	0887	0924	0962	1000	1038	4	8	11	15	19	23	26	30	34
1151	1075	1113	1151	1188	1226	1264	1302	1339	1377	1415	4	8	11	15	19	23	26	30	34
1152	1452	1490	1528	1566	1603	1641	1679	1716	1754	1792	4	8	11	15	19	23	26	30	34
1153	1829	1867	1905	1942	1980	2018	2055	2093	2130	2168	4	8	11	15	19	23	26	30	34
1154	2206	2243	2281	2319	2356	2394	2432	2469	2507	2544	4	8	11	15	19	23	26	30	34
1155	062582	2620	2657	2695	2732	2770	2807	2845	2883	2920	4	7	11	15	19	23	26	30	34
1156	2958	2995	3033	3070	3108	3146	3183	3221	3258	3296	4	7	11	15	19	23	26	30	34
1157	3333	3371	3408	3446	3483	3521	3558	3596	3633	3671	4	7	11	15	19	23	26	30	34
1158	3709	3746	3784	3821	3858	3896	3933	3971	4008	4046	4	7	11	15	19	23	26	30	34
1159	4083	4121	4158	4196	4233	4271	4308	4346	4383	4420	4	7	11	15	19	23	26	30	34
1160	064458	4495	4533	4570	4608	4645	4683	4720	4757	4795	4	7	11	15	19	22	26	30	34
1161	4832	4870	4907	4944	4982	5019	5057	5094	5131	5169	4	7	11	15	19	22	26	30	34
1162	5206	5243	5281	5318	5356	5393	5430	5468	5505	5542	4	7	11	15	19	22	26	30	34
1163	5580	5617	5654	5692	5729	5766	5804	5841	5878	5916	4	7	11	15	19	22	26	30	34
1164	5953	5990	6028	6065	6102	6139	6177	6214	6251	6289	4	7	11	15	19	22	26	30	34
1165	066326	6363	6400	6438	6475	6512	6549	6587	6624	6661	4	7	11	15	19	22	26	30	33
1166	6699	6736	6773	6810	6847	6885	6922	6959	6996	7034	4	7	11	15	19	22	26	30	33
1167	7071	7108	7145	7182	7220	7257	7294	7331	7368	7406	4	7	11	15	19	22	26	30	33
1168	7443	7480	7517	7554	7591	7629	7666	7703	7740	7777	4	7	11	15	19	22	26	30	33
1169	7814	7852	7889	7926	7963	8000	8037	8074	8112	8149	4	7	11	15	19	22	26	30	33
1170	068186	8223	8260	8297	8334	8371	8408	8446	8483	8520	4	7	11	15	19	22	26	30	33
1171	8557	8594	8631	8668	8705	8742	8779	8816	8853	8891	4	7	11	15	19	22	26	30	33
1172	8928	8965	9002	9039	9076	9113	9150	9187	9224	9261	4	7	11	15	19	22	26	30	33
1173	9298	9335	9372	9409	9446	9483	9520	9557	9594	9631	4	7	11	15	19	22	26	30	33
1174	9668	9705	9742	9779	9816	9853	9890	9927	9964	••01	4	7	11	15	19	22	26	30	33
1175	070038	0075	0112	0149	0186	0223	0260	0296	0333	0370	4	7	11	15	18	22	26	29	33
1176	0407	0444	0481	0518	0555	0592	0629	0666	0703	0740	4	7	11	15	18	22	26	29	33
1177	0776	0813	0850	0887	0924	0961	0998	1035	1071	1108	4	7	11	15	18	22	26	29	33
1178	1145	1182	1219	1256	1293	1330	1366	1403	1440	1477	4	7	11	15	18	22	26	29	33
1179	1514	1551	1587	1624	1661	1698	1735	1772	1808	1845	4	7	11	15	18	22	26	29	33
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999

Nat. No.	0	1	2	3	4	5	6	7	8	9	Pr. 1	2	3
1060	025306	5347	5388	5429	5470	5511	5552	5593	5633	5674	4	8	
1061	5715	5756	5797	5838	5879	5920	5961	6002	6043	6084	4	8	
1062	6124	6165	6206	6247	6288	6329	6370	6411	6451	6492	4	8	
1063	6533	6574	6615	6656	6697	6737	6778	6819	6860	6901	4	8	
1064	6942	6982	7023	7064	7105	7146	7186	7227	7268	7309	4	8	
1065	027350	7390	7431	7472	7513	7553	7594	7635	7676	7716	4	8	
1066	7757	7798	7839	7879	7920	7961	8002	8042	8083	8124	4	8	
1067	8164	8205	8246	8286	8327	8368	8409	8449	8490	8531	4		
1068	8571	8612	8653	8693	8734	8774	8815	8856	8896	8937	4		
1069	8978	9018	9059	9100	9140	9181	9221	9262	9303	9343	4		
1070	029384	9424	9465	9505	9546	9587	9627	9668	9708	9749	4		
1071	9789	9830	9871	9911	9952	9992	••33	••73	•114	•154	4		
1072	030195	0235	0276	0316	0357	0397	0438	0478	0519	0559	4		
1073	0600	0640	0681	0721	0762	0802	0842	0883	0923	0964	4		
1074	1004	1045	1085	1126	1166	1206	1247	1287	1328	1368			
1075	031408	1449	1489	1530	1570	1610	1651	1691	1731	1772			
1076	1812	1853	1893	1933	1974	2014	2054	2095	2135	2175			
1077	2216	2256	2296	2337	2377	2417	2458	2498	2538	2578			
1078	2619	2659	2699	2740	2780	2820	2860	2901	2941	2981			
1079	3021	3062	3102	3142	3182	3223	3263	3303	3343	3383			
1080	033424	3464	3504	3544	3585	3625	3665	3705	3745	3785			
1081	3826	3866	3906	3946	3986	4026	4067	4107	4147	4187			
1082	4227	4267	4307	4348	4388	4428	4468	4508	4548	4588			
1083	4628	4669	4709	4749	4789	4829	4869	4909	4949	4989			
1084	5029	5069	5109	5149	5189	5230	5270	5310	5350	5390			
1085	035430	5470	5510	5550	5590	5630	5670	5710	5750	5790			
1086	5830	5870	5910	5950	5990	6030	6070	6110	6150	6190			
1087	6229	6269	6309	6349	6389	6429	6469	6509	6549	6589			
1088	6629	6669	6709	6749	6788	6828	6868	6908	6948	6988			
1089	7028	7068	7108	7147	7187	7227	7267	7307	7347	7386			
1090	037426	7466	7506	7546	7586	7626	7665	7705	7745	7785			
1091	7825	7865	7904	7944	7984	8024	8063	8103	8143	8183			
1092	8223	8262	8302	8342	8382	8421	8461	8501	8541	8580			
1093	8620	8660	8700	8739	8779	8819	8858	8898	8938	8978			
1094	9017	9057	9097	9136	9176	9216	9255	9295	9335	9374			
1095	039414	9454	9493	9533	9573	9612	9652	9692	9731	9771			
1096	9811	9850	9890	9929	9969	••09	••48	••88	•127	•167			
1097	040207	0246	0286	0325	0365	0404	0444	0484	0523	0563			
1098	0602	0642	0681	0721	0760	0800	0840	0879	0919	0958			
1099	0998	1037	1077	1116	1156	1195	1235	1274	1314	1353			
1100	041393	1432	1472	1511	1551	1590	1629	1669	1708	1748			
1101	1787	1827	1866	1906	1945	1984	2024	2063	2103	2142			
1102	2182	2221	2260	2300	2339	2379	2418	2457	2497	2536			
1103	2575	2615	2654	2694	2733	2772	2812	2851	2890	2930			
1104	2969	3008	3048	3087	3126	3166	3205	3244	3284	3323			
1105	043362	3402	3441	3480	3519	3559	3598	3637	3677	3716			
1106	3755	3794	3834	3873	3912	3951	3991	4030	4069	4108			
1107	4148	4187	4226	4265	4304	4344	4383	4422	4461	4500			
1108	4540	4579	4618	4657	4696	4736	4775	4814	4853	4892			
1109	4931	4971	5010	5049	5088	5127	5166	5206	5245	5284			
1110	045323	5362	5401	5440	5479	5519	5558	5597	5636	5675			
1111	5714	5753	5792	5831	5870	5909	5948	5988	6027	6066			
1112	6105	6144	6183	6222	6261	6300	6339	6378	6417	6456			
1113	6495	6534	6573	6612	6651	6690	6729	6768	6807	6846			
1114	6885	6924	6963	7002	7041	7080	7119	7158	7197	7236			
1115	047275	7314	7353	7392	7431	7470	7508	7547	7586	7625			
1116	7664	7703	7742	7781	7820	7859	7898	7936	7975	8014			
1117	8053	8092	8131	8170	8209	8247	8286	8325	8364	8403			
1118	8442	8481	8519	8558	8597	8636	8675	8714	8753	8791			
1119	8830	8869	8908	8946	8985	9024	9063	9101	9140	9179			
Nat. No.	0	1	2	3	4	5	6	7					

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	9	Proportional parts.								
		1	2	3	4	5	6	7	8	9
2	3737	3	7	10	14	17	21	24	28	31
2	4087	3	7	10	14	17	21	24	28	31
01	4436	3	7	10	14	17	21	24	28	31
51	4785	3	7	10	14	17	21	24	28	31
100	5134	3	7	10	14	17	21	24	28	31
148	5483	3	7	10	14	17	21	24	28	31
797	5832	3	7	10	14	17	21	24	28	31
145	6180	3	7	10	14	17	21	24	28	31
493	6528	3	7	10	14	17	21	24	28	31
840	6875	3	7	10	14	17	21	24	28	31
3 7188	7223	3	7	10	14	17	21	24	28	31
0 7535	7570	3	7	10	14	17	21	24	28	31
47 7882	7916	3	7	10	14	17	21	24	28	31
94 8228	8263	3	7	10	14	17	21	24	28	31
40 8574	8609	3	7	10	14	17	21	24	28	31
886 8920	8955	3	7	10	14	17	21	24	28	31
232 9266	9301	3	7	10	14	17	21	24	28	31
577 9612	9646	3	7	10	14	17	21	24	28	31
922 9957	9991	3	7	10	14	17	21	24	28	31
0267 0302	0336	3	7	10	14	17	21	24	28	31
7 0612 0646	0681	3	7	10	14	17	21	24	27	31
0956 0990	1025	3	7	10	14	17	21	24	27	31
6 1300 1335	1369	3	7	10	14	17	21	24	27	31
10 1644 1678	1713	3	7	10	14	17	21	24	27	31
53 1987 2022	2056	3	7	10	14	17	21	24	27	31
96 2331 2365	2399	3	7	10	14	17	21	24	27	31
29 2674 2708	2742	3	7	10	14	17	21	24	27	31
82 3016 3051	3085	3	7	10	14	17	21	24	27	31
35 3359 3393	3427	3	7	10	14	17	21	24	27	31
67 3701 3735	3769	3	7	10	14	17	21	24	27	31
009 4043 4077	4111	3	7	10	14	17	20	24	27	31
50 4385 4419	4453	3	7	10	14	17	20	24	27	31
92 4726 4760	4794	3	7	10	14	17	20	24	27	31
33 5067 5101	5135	3	7	10	14	17	20	24	27	31
374 5408 5442	5476	3	7	10	14	17	20	24	27	31
714 5749 5783	5817	3	7	10	14	17	20	24	27	31
055 6089 6123	6157	3	7	10	14	17	20	24	27	31
395 6429 6463	6497	3	7	10	14	17	20	24	27	31
735 6769 6803	6837	3	7	10	14	17	20	24	27	31
7074 7108 7142	7176	3	7	10	14	17	20	24	27	31
7413 7447 7481	7515	3	7	10	14	17	20	24	27	30
7752 7786 7820	7854	3	7	10	14	17	20	24	27	30
8091 8125 8159	8193	3	7	10	14	17	20	24	27	30
8430 8463 8497	8531	3	7	10	13	17	20	24	27	30
8768 8802 8835	8869	3	7	10	13	17	20	24	27	30
9106 9140 9173	9207	3	7	10	13	17	20	24	27	30
9443 9477 9511	9545	3	7	10	13	17	20	24	27	30
9781 9815 9848	9882	3	7	10	13	17	20	24	27	30
0118 0152 0185	0219	3	7	10	13	17	20	24	27	30
0455 0489 0522	0556	3	7	10	13	17	20	24	27	30
0792 0825 0859	0893	3	7	10	13	17	20	24	27	30
1128 1162 1195	1229	3	7	10	13	17	20	24	27	30
1464 1498 1531	1565	3	7	10	13	17	20	24	27	30
1800 1834 1867	1901	3	7	10	13	17	20	24	27	30
2136 2169 2203	2236	3	7	10	13	17	20	24	27	30
2471 2504 2538	2571	3	7	10	13	17	20	23	27	30
2806 2839 2873	2906	3	7	10	13	17	20	23	27	30
3141 3174 3208	3241	3	7	10	13	17	20	23	27	30
3475 3509 3542	3576	3	7	10	13	17	20	23	27	30
3810 3843 3876	3910	3	7	10	13	17	20	23	27	30
5 6 7 8 9		1	2	3	4	5	6	7	8	9
		Proportional parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
1180	071882	1919	1956	1992	2029	2066	2103	2140	2176	2213	4	7	11	15	18	22	26	29	33
1181	2250	2287	2323	2360	2397	2434	2470	2507	2544	2581	4	7	11	15	18	22	26	29	33
1182	2617	2654	2691	2728	2764	2801	2838	2875	2911	2948	4	7	11	15	18	22	26	29	33
1183	2985	3021	3058	3095	3132	3168	3205	3242	3278	3315	4	7	11	15	18	22	26	29	33
1184	3352	3388	3425	3462	3498	3535	3572	3608	3645	3682	4	7	11	15	18	22	26	29	33
1185	073718	3755	3792	3828	3865	3902	3938	3975	4011	4048	4	7	11	15	18	22	26	29	33
1186	4085	4121	4158	4194	4231	4268	4304	4341	4377	4414	4	7	11	15	18	22	26	29	33
1187	4451	4487	4524	4560	4597	4634	4670	4707	4743	4780	4	7	11	15	18	22	26	29	33
1188	4816	4853	4889	4926	4963	4999	5036	5072	5109	5145	4	7	11	15	18	22	26	29	33
1189	5182	5218	5255	5291	5328	5364	5401	5437	5474	5510	4	7	11	15	18	22	26	29	33
1190	075547	5583	5620	5656	5693	5729	5766	5802	5839	5875	4	7	11	15	18	22	25	29	33
1191	5912	5948	5985	6021	6058	6094	6130	6167	6203	6240	4	7	11	15	18	22	25	29	33
1192	6276	6313	6349	6385	6422	6458	6495	6531	6568	6604	4	7	11	15	18	22	25	29	33
1193	6640	6677	6713	6750	6786	6822	6859	6895	6932	6968	4	7	11	15	18	22	25	29	33
1194	7004	7041	7077	7113	7150	7186	7222	7259	7295	7332	4	7	11	15	18	22	25	29	33
1195	077368	7404	7441	7477	7513	7550	7586	7622	7658	7695	4	7	11	14	18	22	25	29	33
1196	7731	7767	7804	7840	7876	7913	7949	7985	8022	8058	4	7	11	14	18	22	25	29	33
1197	8094	8130	8167	8203	8239	8275	8312	8348	8384	8421	4	7	11	14	18	22	25	29	33
1198	8457	8493	8529	8566	8602	8638	8674	8710	8747	8783	4	7	11	14	18	22	25	29	33
1199	8819	8855	8892	8928	8964	9000	9036	9073	9109	9145	4	7	11	14	18	22	25	29	33
1200	079181	9217	9254	9290	9326	9362	9398	9434	9471	9507	4	7	11	14	18	22	25	29	33
1201	9543	9579	9615	9651	9688	9724	9760	9796	9832	9868	4	7	11	14	18	22	25	29	33
1202	9904	9941	9977	••13	••49	••85	•121	•157	•193	•229	4	7	11	14	18	22	25	29	32
1203	080266	0302	0338	0374	0410	0446	0482	0518	0554	0590	4	7	11	14	18	22	25	29	32
1204	0626	0663	0699	0735	0771	0807	0843	0879	0915	0951	4	7	11	14	18	22	25	29	32
1205	080987	1023	1059	1095	1131	1167	1203	1239	1275	1311	4	7	11	14	18	22	25	29	32
1206	1347	1383	1419	1455	1491	1527	1563	1599	1635	1671	4	7	11	14	18	22	25	29	32
1207	1707	1743	1779	1815	1851	1887	1923	1959	1995	2031	4	7	11	14	18	22	25	29	32
1208	2067	2103	2139	2175	2211	2247	2283	2318	2354	2390	4	7	11	14	18	22	25	29	32
1209	2426	2462	2498	2534	2570	2606	2642	2678	2714	2749	4	7	11	14	18	22	25	29	32
1210	082785	2821	2857	2893	2929	2965	3001	3036	3072	3108	4	7	11	14	18	22	25	29	32
1211	3144	3180	3216	3252	3288	3323	3359	3395	3431	3467	4	7	11	14	18	22	25	29	32
1212	3503	3538	3574	3610	3646	3682	3718	3753	3789	3825	4	7	11	14	18	22	25	29	32
1213	3861	3897	3932	3968	4004	4040	4076	4111	4147	4183	4	7	11	14	18	21	25	29	32
1214	4219	4254	4290	4326	4362	4397	4433	4469	4505	4540	4	7	11	14	18	21	25	29	32
1215	084576	4612	4648	4683	4719	4755	4791	4826	4862	4898	4	7	11	14	18	21	25	29	32
1216	4934	4969	5005	5041	5076	5112	5148	5183	5219	5255	4	7	11	14	18	21	25	29	32
1217	5291	5326	5362	5398	5433	5469	5505	5540	5576	5612	4	7	11	14	18	21	25	29	32
1218	5647	5683	5719	5754	5790	5825	5861	5897	5932	5968	4	7	11	14	18	21	25	29	32
1219	6004	6039	6075	6111	6146	6182	6217	6253	6289	6324	4	7	11	14	18	21	25	29	32
1220	086360	6395	6431	6467	6502	6538	6573	6609	6644	6680	4	7	11	14	18	21	25	28	32
1221	6716	6751	6787	6822	6858	6893	6929	6965	7000	7036	4	7	11	14	18	21	25	28	32
1222	7071	7107	7142	7178	7213	7249	7284	7320	7355	7391	4	7	11	14	18	21	25	28	32
1223	7426	7462	7497	7533	7568	7604	7639	7675	7710	7746	4	7	11	14	18	21	25	28	32
1224	7781	7817	7852	7888	7923	7959	7994	8030	8065	8101	4	7	11	14	18	21	25	28	32
1225	088136	8171	8207	8242	8278	8313	8349	8384	8420	8455	4	7	11	14	18	21	25	28	32
1226	8490	8526	8561	8597	8632	8668	8703	8738	8774	8809	4	7	11	14	18	21	25	28	32
1227	8845	8880	8915	8951	8986	9021	9057	9092	9128	9163	4	7	11	14	18	21	25	28	32
1228	9198	9234	9269	9304	9340	9375	9410	9446	9481	9516	4	7	11	14	18	21	25	28	32
1229	9552	9587	9623	9658	9693	9728	9764	9799	9834	9870	4	7	11	14	18	21	25	28	32
1230	089905	9940	9976	••11	••46	••82	•117	•152	•187	•223	4	7	11	14	18	21	25	28	32
1231	090258	0293	0329	0364	0399	0434	0470	0505	0540	0575	4	7	11	14	18	21	25	28	32
1232	0611	0646	0681	0716	0752	0787	0822	0857	0893	0928	4	7	11	14	18	21	25	28	32
1233	0963	0998	1033	1069	1104	1139	1174	1210	1245	1280	4	7	11	14	18	21	25	28	32
1234	1315	1350	1385	1421	1456	1491	1526	1561	1597	1632	4	7	11	14	18	21	25	28	32
1235	091667	1702	1737	1772	1808	1843	1878	1913	1948	1983	4	7	11	14	18	21	25	28	32
1236	2018	2054	2089	2124	2159	2194	2229	2264	2299	2335	4	7	11	14	18	21	25	28	32
1237	2370	2405	2440	2475	2510	2545	2580	2615	2650	2686	4	7	11	14	18	21	25	28	32
1238	2721	2756	2791	2826	2861	2896	2931	2966	3001	3036	4	7	11	14	18	21	25	28	32
1239	3071	3106	3141	3176	3211	3246	3282	3317	3352	3387	4	7	11	14	18	21	25	28	32
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1241	3772	3807	3842	3877	3912	3947	3982	4017	4052	4087	3	7	10	14	17	21	24	28	31
1242	4122	4157	4191	4226	4261	4296	4331	4366	4401	4436	3	7	10	14	17	21	24	28	31
1243	4471	4506	4541	4576	4611	4646	4681	4716	4751	4785	3	7	10	14	17	21	24	28	31
1244	4820	4855	4890	4925	4960	4995	5030	5065	5100	5134	3	7	10	14	17	21	24	28	31
1245	095169	5204	5239	5274	5309	5344	5379	5413	5448	5483	3	7	10	14	17	21	24	28	31
1246	5518	5553	5588	5623	5657	5692	5727	5762	5797	5832	3	7	10	14	17	21	24	28	31
1247	5866	5901	5936	5971	6006	6041	6075	6110	6145	6180	3	7	10	14	17	21	24	28	31
1248	6215	6249	6284	6319	6354	6388	6423	6458	6493	6528	3	7	10	14	17	21	24	28	31
1249	6562	6597	6632	6667	6701	6736	6771	6806	6840	6875	3	7	10	14	17	21	24	28	31
1250	096910	6945	6979	7014	7049	7084	7118	7153	7188	7223	3	7	10	14	17	21	24	28	31
1251	7257	7292	7327	7361	7396	7431	7466	7500	7535	7570	3	7	10	14	17	21	24	28	31
1252	7604	7639	7674	7708	7743	7778	7812	7847	7882	7916	3	7	10	14	17	21	24	28	31
1253	7951	7986	8020	8055	8090	8124	8159	8194	8228	8263	3	7	10	14	17	21	24	28	31
1254	8297	8332	8367	8401	8436	8471	8505	8540	8574	8609	3	7	10	14	17	21	24	28	31
1255	098644	8678	8713	8747	8782	8817	8851	8886	8920	8955	3	7	10	14	17	21	24	28	31
1256	8990	9024	9059	9093	9128	9162	9197	9232	9266	9301	3	7	10	14	17	21	24	28	31
1257	9335	9370	9404	9439	9473	9508	9542	9577	9612	9646	3	7	10	14	17	21	24	28	31
1258	9681	9715	9750	9784	9819	9853	9888	9922	9957	9991	3	7	10	14	17	21	24	28	31
1259	100026	0060	0095	0129	0164	0198	0233	0267	0302	0336	3	7	10	14	17	21	24	28	31
1260	100370	0405	0439	0474	0508	0543	0577	0612	0646	0681	3	7	10	14	17	21	24	27	31
1261	0715	0749	0784	0818	0853	0887	0922	0956	0990	1025	3	7	10	14	17	21	24	27	31
1262	1059	1094	1128	1163	1197	1231	1266	1300	1335	1369	3	7	10	14	17	21	24	27	31
1263	1403	1438	1472	1506	1541	1575	1610	1644	1678	1713	3	7	10	14	17	21	24	27	31
1264	1747	1781	1816	1850	1884	1919	1953	1987	2022	2056	3	7	10	14	17	21	24	27	31
1265	102090	2125	2159	2193	2228	2262	2296	2331	2365	2399	3	7	10	14	17	21	24	27	31
1266	2434	2468	2502	2537	2571	2605	2639	2674	2708	2742	3	7	10	14	17	21	24	27	31
1267	2777	2811	2845	2879	2914	2948	2982	3016	3051	3085	3	7	10	14	17	21	24	27	31
1268	3119	3153	3188	3222	3256	3290	3325	3359	3393	3427	3	7	10	14	17	21	24	27	31
1269	3462	3496	3530	3564	3598	3633	3667	3701	3735	3769	3	7	10	14	17	21	24	27	31
1270	103804	3838	3872	3906	3940	3975	4009	4043	4077	4111	3	7	10	14	17	20	24	27	31
1271	4146	4180	4214	4248	4282	4316	4350	4385	4419	4453	3	7	10	14	17	20	24	27	31
1272	4487	4521	4555	4589	4624	4658	4692	4726	4760	4794	3	7	10	14	17	20	24	27	31
1273	4828	4862	4897	4931	4965	4999	5033	5067	5101	5135	3	7	10	14	17	20	24	27	31
1274	5169	5203	5238	5272	5306	5340	5374	5408	5442	5476	3	7	10	14	17	20	24	27	31
1275	105510	5544	5578	5612	5646	5680	5714	5749	5783	5817	3	7	10	14	17	20	24	27	31
1276	5851	5885	5919	5953	5987	6021	6055	6089	6123	6157	3	7	10	14	17	20	24	27	31
1277	6191	6225	6259	6293	6327	6361	6395	6429	6463	6497	3	7	10	14	17	20	24	27	31
1278	6531	6565	6599	6633	6667	6701	6735	6769	6803	6837	3	7	10	14	17	20	24	27	31
1279	6870	6904	6938	6972	7006	7040	7074	7108	7142	7176	3	7	10	14	17	20	24	27	31
1280	107210	7244	7278	7312	7346	7380	7413	7447	7481	7515	3	7	10	14	17	20	24	27	30
1281	7549	7583	7617	7651	7685	7719	7752	7786	7820	7854	3	7	10	14	17	20	24	27	30
1282	7888	7922	7956	7990	8023	8057	8091	8125	8159	8193	3	7	10	14	17	20	24	27	30
1283	8227	8260	8294	8328	8362	8396	8430	8463	8497	8531	3	7	10	13	17	20	24	27	30
1284	8565	8599	8633	8666	8700	8734	8768	8802	8835	8869	3	7	10	13	17	20	24	27	30
1285	108903	8937	8971	9004	9038	9072	9106	9140	9173	9207	3	7	10	13	17	20	24	27	30
1286	9241	9275	9308	9342	9376	9410	9443	9477	9511	9545	3	7	10	13	17	20	24	27	30
1287	9578	9612	9646	9680	9713	9747	9781	9815	9848	9882	3	7	10	13	17	20	24	27	30
1288	9916	9950	9983	••17	••51	••84	•118	•152	•185	•219	3	7	10	13	17	20	24	27	30
1289	110253	0287	0320	0354	0388	0421	0455	0489	0522	0556	3	7	10	13	17	20	24	27	30
1290	110590	0623	0657	0691	0724	0758	0792	0825	0859	0893	3	7	10	13	17	20	24	27	30
1291	0926	0960	0993	1027	1061	1094	1128	1162	1195	1229	3	7	10	13	17	20	24	27	30
1292	1262	1296	1330	1363	1397	1431	1464	1498	1531	1565	3	7	10	13	17	20	24	27	30
1293	1598	1632	1666	1699	1733	1766	1800	1834	1867	1901	3	7	10	13	17	20	24	27	30
1294	1934	1968	2001	2035	2068	2102	2136	2169	2203	2236	3	7	10	13	17	20	24	27	30
1295	112270	2303	2337	2370	2404	2437	2471	2504	2538	2571	3	7	10	13	17	20	23	27	30
1296	2605	2638	2672	2705	2739	2772	2806	2839	2873	2906	3	7	10	13	17	20	23	27	30
1297	2940	2973	3007	3040	3074	3107	3141	3174	3208	3241	3	7	10	13	17	20	23	27	30
1298	3275	3308	3342	3375	3408	3442	3475	3509	3542	3576	3	7	10	13	17	20	23	27	30
1299	3609	3643	3676	3709	3743	3776	3810	3843	3876	3910	3	7	10	13	17	20	23	27	30
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								
1300	113943	3977	4010	4044	4077	4110	4144	4177	4210	4244	3	7	10	13	17	20	23	27	30
1301	4277	4311	4344	4377	4411	4444	4477	4511	4544	4578	3	7	10	13	17	20	23	27	30
1302	4611	4644	4678	4711	4744	4778	4811	4844	4878	4911	3	7	10	13	17	20	23	27	30
1303	4944	4978	5011	5044	5078	5111	5144	5178	5211	5244	3	7	10	13	17	20	23	27	30
1304	5278	5311	5344	5377	5411	5444	5477	5511	5544	5577	3	7	10	13	17	20	23	27	30
1305	115610	5644	5677	5710	5744	5777	5810	5843	5877	5910	3	7	10	13	17	20	23	27	30
1306	5943	5976	6010	6043	6076	6109	6143	6176	6209	6242	3	7	10	13	17	20	23	27	30
1307	6276	6309	6342	6375	6408	6442	6475	6508	6541	6574	3	7	10	13	17	20	23	27	30
1308	6608	6641	6674	6707	6740	6774	6807	6840	6873	6906	3	7	10	13	17	20	23	27	30
1309	6940	6973	7006	7039	7072	7105	7139	7172	7205	7238	3	7	10	13	17	20	23	27	30
1310	117271	7304	7338	7371	7404	7437	7470	7503	7536	7570	3	7	10	13	17	20	23	26	30
1311	7603	7636	7669	7702	7735	7768	7801	7834	7868	7901	3	7	10	13	17	20	23	26	30
1312	7934	7967	8000	8033	8066	8099	8132	8165	8199	8232	3	7	10	13	17	20	23	26	30
1313	8265	8298	8331	8364	8397	8430	8463	8496	8529	8562	3	7	10	13	17	20	23	26	30
1314	8595	8628	8661	8694	8728	8761	8794	8827	8860	8893	3	7	10	13	17	20	23	26	30
1315	118926	8959	8992	9025	9058	9091	9124	9157	9190	9223	3	7	10	13	16	20	23	26	30
1316	9256	9289	9322	9355	9388	9421	9454	9487	9520	9553	3	7	10	13	16	20	23	26	30
1317	9586	9619	9652	9685	9718	9751	9784	9816	9849	9882	3	7	10	13	16	20	23	26	30
1318	9915	9948	9981	••14	••47	••80	•113	•146	•179	•212	3	7	10	13	16	20	23	26	30
1319	120245	0278	0311	0344	0376	0409	0442	0475	0508	0541	3	7	10	13	16	20	23	26	30
1320	120574	0607	0640	0673	0705	0738	0771	0804	0837	0870	3	7	10	13	16	20	23	26	30
1321	0903	0936	0969	1001	1034	1067	1100	1133	1166	1199	3	7	10	13	16	20	23	26	30
1322	1231	1264	1297	1330	1363	1396	1428	1461	1494	1527	3	7	10	13	16	20	23	26	30
1323	1560	1593	1625	1658	1691	1724	1757	1790	1822	1855	3	7	10	13	16	20	23	26	30
1324	1888	1921	1954	1986	2019	2052	2085	2117	2150	2183	3	7	10	13	16	20	23	26	30
1325	122216	2249	2281	2314	2347	2380	2412	2445	2478	2511	3	7	10	13	16	20	23	26	29
1326	2543	2576	2609	2642	2674	2707	2740	2773	2805	2838	3	7	10	13	16	20	23	26	29
1327	2871	2904	2936	2969	3002	3034	3067	3100	3133	3165	3	7	10	13	16	20	23	26	29
1328	3198	3231	3263	3296	3329	3362	3394	3427	3460	3492	3	7	10	13	16	20	23	26	29
1329	3525	3558	3590	3623	3656	3688	3721	3754	3786	3819	3	7	10	13	16	20	23	26	29
1330	123852	3884	3917	3950	3982	4015	4047	4080	4113	4145	3	7	10	13	16	20	23	26	29
1331	4178	4211	4243	4276	4309	4341	4374	4406	4439	4472	3	7	10	13	16	20	23	26	29
1332	4504	4537	4569	4602	4635	4667	4700	4732	4765	4798	3	7	10	13	16	20	23	26	29
1333	4830	4863	4895	4928	4960	4993	5026	5058	5091	5123	3	7	10	13	16	20	23	26	29
1334	5156	5188	5221	5253	5286	5319	5351	5384	5416	5449	3	7	10	13	16	20	23	26	29
1335	125481	5514	5546	5579	5611	5644	5676	5709	5741	5774	3	7	10	13	16	19	23	26	29
1336	5806	5839	5871	5904	5936	5969	6001	6034	6066	6099	3	7	10	13	16	19	23	26	29
1337	6131	6164	6196	6229	6261	6294	6326	6359	6391	6424	3	7	10	13	16	19	23	26	29
1338	6456	6489	6521	6553	6586	6618	6651	6683	6716	6748	3	7	10	13	16	19	23	26	29
1339	6781	6813	6845	6878	6910	6943	6975	7008	7040	7072	3	7	10	13	16	19	23	26	29
1340	127105	7137	7170	7202	7234	7267	7299	7332	7364	7396	3	6	10	13	16	19	23	26	29
1341	7429	7461	7493	7526	7558	7591	7623	7655	7688	7720	3	6	10	13	16	19	23	26	29
1342	7752	7785	7817	7850	7882	7914	7947	7979	8011	8044	3	6	10	13	16	19	23	26	29
1343	8076	8108	8141	8173	8205	8238	8270	8302	8335	8367	3	6	10	13	16	19	23	26	29
1344	8399	8432	8464	8496	8528	8561	8593	8625	8658	8690	3	6	10	13	16	19	23	26	29
1345	128722	8755	8787	8819	8851	8884	8916	8948	8980	9013	3	6	10	13	16	19	23	26	29
1346	9045	9077	9110	9142	9174	9206	9239	9271	9303	9335	3	6	10	13	16	19	23	26	29
1347	9368	9400	9432	9464	9496	9529	9561	9593	9625	9658	3	6	10	13	16	19	23	26	29
1348	9690	9722	9754	9786	9819	9851	9883	9915	9948	9980	3	6	10	13	16	19	23	26	29
1349	130012	0044	0076	0108	0141	0173	0205	0237	0269	0302	3	6	10	13	16	19	23	26	29
1350	130334	0366	0398	0430	0462	0495	0527	0559	0591	0623	3	6	10	13	16	19	22	26	29
1351	0655	0687	0720	0752	0784	0816	0848	0880	0912	0945	3	6	10	13	16	19	22	26	29
1352	0977	1009	1041	1073	1105	1137	1169	1201	1234	1266	3	6	10	13	16	19	22	26	29
1353	1298	1330	1362	1394	1426	1458	1490	1522	1554	1587	3	6	10	13	16	19	22	26	29
1354	1619	1651	1683	1715	1747	1779	1811	1843	1875	1907	3	6	10	13	16	19	22	26	29
1355	131939	1971	2003	2035	2067	2099	2132	2164	2196	2228	3	6	10	13	16	19	22	26	29
1356	2260	2292	2324	2356	2388	2420	2452	2484	2516	2548	3	6	10	13	16	19	22	26	29
1357	2580	2612	2644	2676	2708	2740	2772	2804	2836	2868	3	6	10	13	16	19	22	26	29
1358	2900	2932	2964	2996	3028	3060	3092	3124	3155	3187	3	6	10	13	16	19	22	26	29
1359	3219	3251	3283	3315	3347	3379	3411	3443	3475	3507	3	6	10	13	16	19	22	26	29
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1361	3858	3890	3922	3954	3986	4018	4049	4081	4113	4145	3	6	10	13	16	19	22	26	29
1362	4177	4209	4241	4273	4305	4336	4368	4400	4432	4464	3	6	10	13	16	19	22	26	29
1363	4496	4528	4560	4591	4623	4655	4687	4719	4751	4782	3	6	10	13	16	19	22	26	29
1364	4814	4846	4878	4910	4942	4973	5005	5037	5069	5101	3	6	10	13	16	19	22	26	29
1365	135133	5164	5196	5228	5260	5292	5323	5355	5387	5419	3	6	10	13	16	19	22	25	29
1366	5451	5482	5514	5546	5578	5610	5641	5673	5705	5737	3	6	10	13	16	19	22	25	29
1367	5768	5800	5832	5864	5896	5927	5959	5991	6023	6054	3	6	10	13	16	19	22	25	29
1368	6086	6118	6150	6181	6213	6245	6276	6308	6340	6372	3	6	10	13	16	19	22	25	29
1369	6403	6435	6467	6499	6530	6562	6594	6625	6657	6689	3	6	10	13	16	19	22	25	29
1370	136721	6752	6784	6816	6847	6879	6911	6942	6974	7006	3	6	10	13	16	19	22	25	28
1371	7037	7069	7101	7132	7164	7196	7227	7259	7291	7322	3	6	10	13	16	19	22	25	28
1372	7354	7386	7417	7449	7481	7512	7544	7576	7607	7639	3	6	10	13	16	19	22	25	28
1373	7670	7702	7734	7765	7797	7829	7860	7892	7923	7955	3	6	10	13	16	19	22	25	28
1374	7987	8018	8050	8081	8113	8145	8176	8208	8239	8271	3	6	10	13	16	19	22	25	28
1375	138303	8334	8366	8397	8429	8461	8492	8524	8555	8587	3	6	9	13	16	19	22	25	28
1376	8618	8650	8682	8713	8745	8776	8808	8839	8871	8902	3	6	9	13	16	19	22	25	28
1377	8934	8965	8997	9028	9060	9092	9123	9155	9186	9218	3	6	9	13	16	19	22	25	28
1378	9249	9281	9312	9344	9375	9407	9438	9470	9501	9533	3	6	9	13	16	19	22	25	28
1379	9564	9596	9627	9659	9690	9722	9753	9785	9816	9848	3	6	9	13	16	19	22	25	28
1380	139879	9911	9942	9973	●●●5	●●36	●●68	●●99	●131	●162	3	6	9	13	16	19	22	25	28
1381	140194	0225	0257	0288	0319	0351	0382	0414	0445	0477	3	6	9	13	16	19	22	25	28
1382	0508	0539	0571	0602	0634	0665	0697	0728	0759	0791	3	6	9	13	16	19	22	25	28
1383	0822	0854	0885	0916	0948	0979	1011	1042	1073	1105	3	6	9	13	16	19	22	25	28
1384	1136	1167	1199	1230	1262	1293	1324	1356	1387	1418	3	6	9	13	16	19	22	25	28
1385	141450	1481	1512	1544	1575	1606	1638	1669	1701	1732	3	6	9	13	16	19	22	25	28
1386	1763	1795	1826	1857	1888	1920	1951	1982	2014	2045	3	6	9	13	16	19	22	25	28
1387	2076	2108	2139	2170	2202	2233	2264	2296	2327	2358	3	6	9	13	16	19	22	25	28
1388	2389	2421	2452	2483	2515	2546	2577	2608	2640	2671	3	6	9	13	16	19	22	25	28
1389	2702	2733	2765	2796	2827	2859	2890	2921	2952	2984	3	6	9	13	16	19	22	25	28
1390	143015	3046	3077	3108	3140	3171	3202	3233	3265	3296	3	6	9	12	16	19	22	25	28
1391	3327	3358	3390	3421	3452	3483	3514	3546	3577	3608	3	6	9	12	16	19	22	25	28
1392	3639	3670	3702	3733	3764	3795	3826	3858	3889	3920	3	6	9	12	16	19	22	25	28
1393	3951	3982	4013	4045	4076	4107	4138	4169	4200	4232	3	6	9	12	16	19	22	25	28
1394	4263	4294	4325	4356	4387	4418	4450	4481	4512	4543	3	6	9	12	16	19	22	25	28
1395	144574	4605	4636	4668	4699	4730	4761	4792	4823	4854	3	6	9	12	16	19	22	25	28
1396	4885	4916	4948	4979	5010	5041	5072	5103	5134	5165	3	6	9	12	16	19	22	25	28
1397	5196	5227	5259	5290	5321	5352	5383	5414	5445	5476	3	6	9	12	16	19	22	25	28
1398	5507	5538	5569	5600	5631	5662	5693	5725	5756	5787	3	6	9	12	16	19	22	25	28
1399	5818	5849	5880	5911	5942	5973	6004	6035	6066	6097	3	6	9	12	16	19	22	25	28
1400	146128	6159	6190	6221	6252	6283	6314	6345	6376	6407	3	6	9	12	15	19	22	25	28
1401	6438	6469	6500	6531	6562	6593	6624	6655	6686	6717	3	6	9	12	15	19	22	25	28
1402	6748	6779	6810	6841	6872	6903	6934	6965	6996	7027	3	6	9	12	15	19	22	25	28
1403	7058	7089	7120	7150	7181	7212	7243	7274	7305	7336	3	6	9	12	15	19	22	25	28
1404	7367	7398	7429	7460	7491	7522	7553	7584	7614	7645	3	6	9	12	15	19	22	25	28
1405	147676	7707	7738	7769	7800	7831	7862	7893	7923	7954	3	6	9	12	15	19	22	25	28
1406	7985	8016	8047	8078	8109	8140	8171	8201	8232	8263	3	6	9	12	15	19	22	25	28
1407	8294	8325	8356	8387	8417	8448	8479	8510	8541	8572	3	6	9	12	15	19	22	25	28
1408	8603	8633	8664	8695	8726	8757	8788	8818	8849	8880	3	6	9	12	15	19	22	25	28
1409	8911	8942	8973	9003	9034	9065	9096	9127	9157	9188	3	6	9	12	15	19	22	25	28
1410	149219	9250	9281	9311	9342	9373	9404	9435	9465	9496	3	6	9	12	15	18	22	25	28
1411	9527	9558	9589	9619	9650	9681	9712	9742	9773	9804	3	6	9	12	15	18	22	25	28
1412	9835	9865	9896	9927	9958	9988	●●19	●●50	●●81	●111	3	6	9	12	15	18	22	25	28
1413	150142	0173	0204	0234	0265	0296	0326	0357	0388	0419	3	6	9	12	15	18	22	25	28
1414	0449	0480	0511	0541	0572	0603	0634	0664	0695	0726	3	6	9	12	15	18	22	25	28
1415	150756	0787	0818	0848	0879	0910	0941	0971	1002	1033	3	6	9	12	15	18	21	25	28
1416	1063	1094	1125	1155	1186	1217	1247	1278	1308	1339	3	6	9	12	15	18	21	25	28
1417	1370	1400	1431	1462	1492	1523	1554	1584	1615	1646	3	6	9	12	15	18	21	25	28
1418	1676	1707	1737	1768	1799	1829	1860	1891	1921	1952	3	6	9	12	15	18	21	25	28
1419	1982	2013	2044	2074	2105	2135	2166	2197	2227	2258	3	6	9	12	15	18	21	25	28
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
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1421	2594	2625	2655	2686	2716	2747	2777	2808	2838	2869	3	6	9	12	15	18	21	24	27
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1424	3510	3540	3571	3601	3632	3662	3693	3723	3754	3784	3	6	9	12	15	18	21	24	27
1425	153815	3845	3876	3906	3937	3967	3998	4028	4059	4089	3	6	9	12	15	18	21	24	27
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1427	4424	4454	4485	4515	4546	4576	4606	4637	4667	4698	3	6	9	12	15	18	21	24	27
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1431	5640	5670	5700	5731	5761	5791	5822	5852	5882	5913	3	6	9	12	15	18	21	24	27
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1435	156852	6882	6912	6943	6973	7003	7033	7064	7094	7124	3	6	9	12	15	18	21	24	27
1436	7154	7185	7215	7245	7275	7306	7336	7366	7396	7426	3	6	9	12	15	18	21	24	27
1437	7457	7487	7517	7547	7578	7608	7638	7668	7698	7729	3	6	9	12	15	18	21	24	27
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1439	8061	8091	8121	8151	8181	8212	8242	8272	8302	8332	3	6	9	12	15	18	21	24	27
1440	158362	8393	8423	8453	8483	8513	8543	8574	8604	8634	3	6	9	12	15	18	21	24	27
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1442	8965	8995	9025	9056	9086	9116	9146	9176	9206	9236	3	6	9	12	15	18	21	24	27
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1447	0468	0498	0529	0559	0589	0619	0649	0679	0709	0739	3	6	9	12	15	18	21	24	27
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1452	1967	1996	2026	2056	2086	2116	2146	2176	2206	2236	3	6	9	12	15	18	21	24	27
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1458	3757	3787	3817	3847	3877	3906	3936	3966	3996	4025	3	6	9	12	15	18	21	24	27
1459	4055	4085	4115	4145	4174	4204	4234	4264	4293	4323	3	6	9	12	15	18	21	24	27
1460	164353	4383	4412	4442	4472	4502	4531	4561	4591	4620	3	6	9	12	15	18	21	24	27
1461	4650	4680	4710	4739	4769	4799	4828	4858	4888	4918	3	6	9	12	15	18	21	24	27
1462	4947	4977	5007	5036	5066	5096	5126	5155	5185	5215	3	6	9	12	15	18	21	24	27
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1465	165838	5867	5897	5926	5956	5986	6015	6045	6075	6104	3	6	9	12	15	18	21	24	27
1466	6134	6164	6193	6223	6252	6282	6312	6341	6371	6400	3	6	9	12	15	18	21	24	27
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1468	6726	6756	6785	6815	6844	6874	6903	6933	6963	6992	3	6	9	12	15	18	21	24	27
1469	7022	7051	7081	7110	7140	7170	7199	7229	7258	7288	3	6	9	12	15	18	21	24	27
1470	167317	7347	7376	7406	7435	7465	7495	7524	7554	7583	3	6	9	12	15	18	21	24	27
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1472	7908	7937	7967	7996	8026	8055	8085	8114	8144	8173	3	6	9	12	15	18	21	24	27
1473	8203	8232	8262	8291	8321	8350	8380	8409	8439	8468	3	6	9	12	15	18	21	24	27
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1476	9086	9116	9145	9175	9204	9233	9263	9292	9322	9351	3	6	9	12	15	18	21	24	26
1477	9380	9410	9439	9469	9498	9527	9557	9586	9616	9645	3	6	9	12	15	18	21	24	26
1478	9674	9704	9733	9763	9792	9821	9851	9880	9909	9939	3	6	9	12	15	18	21	24	26
1479	9968	9997	••27	••56	••86	•115	•144	•174	•203	•232	3	6	9	12	15	18	21	24	26
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
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1481	0555	0584	0614	0643	0672	0702	0731	0760	0790	0819	3	6	9	12	15	18	21	23	26
1482	0848	0877	0907	0936	0965	0995	1024	1053	1083	1112	3	6	9	12	15	18	21	23	26
1483	1141	1170	1200	1229	1258	1288	1317	1346	1375	1405	3	6	9	12	15	18	21	23	26
1484	1434	1463	1492	1522	1551	1580	1609	1639	1668	1697	3	6	9	12	15	18	21	23	26
1485	171726	1756	1785	1814	1843	1873	1902	1931	1960	1990	3	6	9	12	15	18	20	23	26
1486	2019	2048	2077	2106	2136	2165	2194	2223	2253	2282	3	6	9	12	15	18	20	23	26
1487	2311	2340	2369	2399	2428	2457	2486	2515	2545	2574	3	6	9	12	15	18	20	23	26
1488	2603	2632	2661	2690	2720	2749	2778	2807	2836	2865	3	6	9	12	15	18	20	23	26
1489	2895	2924	2953	2982	3011	3040	3070	3099	3128	3157	3	6	9	12	15	18	20	23	26
1490	173186	3215	3245	3274	3303	3332	3361	3390	3419	3448	3	6	9	12	15	17	20	23	26
1491	3478	3507	3536	3565	3594	3623	3652	3681	3711	3740	3	6	9	12	15	17	20	23	26
1492	3769	3798	3827	3856	3885	3914	3943	3972	4002	4031	3	6	9	12	15	17	20	23	26
1493	4060	4089	4118	4147	4176	4205	4234	4263	4292	4321	3	6	9	12	15	17	20	23	26
1494	4351	4380	4409	4438	4467	4496	4525	4554	4583	4612	3	6	9	12	15	17	20	23	26
1495	174641	4670	4699	4728	4757	4786	4815	4844	4873	4903	3	6	9	12	15	17	20	23	26
1496	4932	4961	4990	5019	5048	5077	5106	5135	5164	5193	3	6	9	12	15	17	20	23	26
1497	5222	5251	5280	5309	5338	5367	5396	5425	5454	5483	3	6	9	12	15	17	20	23	26
1498	5512	5541	5570	5599	5628	5657	5686	5715	5744	5773	3	6	9	12	15	17	20	23	26
1499	5802	5831	5860	5888	5917	5946	5975	6004	6033	6062	3	6	9	12	15	17	20	23	26
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1504	7248	7277	7306	7334	7363	7392	7421	7450	7479	7508	3	6	9	12	14	17	20	23	26
1505	177536	7565	7594	7623	7652	7681	7710	7738	7767	7796	3	6	9	12	14	17	20	23	26
1506	7825	7854	7883	7911	7940	7969	7998	8027	8056	8084	3	6	9	12	14	17	20	23	26
1507	8113	8142	8171	8200	8228	8257	8286	8315	8344	8372	3	6	9	12	14	17	20	23	26
1508	8401	8430	8459	8488	8516	8545	8574	8603	8632	8660	3	6	9	12	14	17	20	23	26
1509	8689	8718	8747	8776	8804	8833	8862	8891	8919	8948	3	6	9	12	14	17	20	23	26
1510	178977	9006	9034	9063	9092	9121	9149	9178	9207	9236	3	6	9	11	14	17	20	23	26
1511	9264	9293	9322	9351	9379	9408	9437	9466	9494	9523	3	6	9	11	14	17	20	23	26
1512	9552	9580	9609	9638	9667	9695	9724	9753	9781	9810	3	6	9	11	14	17	20	23	26
1513	9839	9868	9896	9925	9954	9982	••11	••40	••68	••97	3	6	9	11	14	17	20	23	26
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1515	180413	0441	0470	0499	0527	0556	0585	0613	0642	0671	3	6	9	11	14	17	20	23	26
1516	0699	0728	0756	0785	0814	0842	0871	0900	0928	0957	3	6	9	11	14	17	20	23	26
1517	0986	1014	1043	1071	1100	1129	1157	1186	1214	1243	3	6	9	11	14	17	20	23	26
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1520	181844	1872	1901	1929	1958	1986	2015	2043	2072	2101	3	6	9	11	14	17	20	23	26
1521	2129	2158	2186	2215	2243	2272	2300	2329	2358	2386	3	6	9	11	14	17	20	23	26
1522	2415	2443	2472	2500	2529	2557	2586	2614	2643	2671	3	6	9	11	14	17	20	23	26
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1524	2985	3013	3042	3070	3099	3127	3156	3184	3213	3241	3	6	9	11	14	17	20	23	26
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1528	4123	4152	4180	4209	4237	4265	4294	4322	4351	4379	3	6	9	11	14	17	20	23	26
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											Proportional Parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1541	7803	7831	7859	7887	7915	7943	7972	8000	8028	8056	3	6	8	11	14	17	20	23	25
1542	8084	8112	8141	8169	8197	8225	8253	8281	8310	8338	3	6	8	11	14	17	20	23	25
1543	8366	8394	8422	8450	8478	8507	8535	8563	8591	8619	3	6	8	11	14	17	20	23	25
1544	8647	8675	8703	8732	8760	8788	8816	8844	8872	8900	3	6	8	11	14	17	20	23	25
1545	188928	8957	8985	9013	9041	9069	9097	9125	9153	9181	3	6	8	11	14	17	20	22	25
1546	9209	9238	9266	9294	9322	9350	9378	9406	9434	9462	3	6	8	11	14	17	20	22	25
1547	9490	9518	9546	9574	9603	9631	9659	9687	9715	9743	3	6	8	11	14	17	20	22	25
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1549	190051	0079	0107	0135	0164	0192	0220	0248	0276	0304	3	6	8	11	14	17	20	22	25
1550	190332	0360	0388	0416	0444	0472	0500	0528	0556	0584	3	6	8	11	14	17	20	22	25
1551	0612	0640	0668	0696	0724	0752	0780	0808	0836	0864	3	6	8	11	14	17	20	22	25
1552	0892	0920	0948	0976	1004	1032	1060	1088	1115	1143	3	6	8	11	14	17	20	22	25
1553	1171	1199	1227	1255	1283	1311	1339	1367	1395	1423	3	6	8	11	14	17	20	22	25
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1555	191730	1758	1786	1814	1842	1870	1898	1926	1954	1982	3	6	8	11	14	17	20	22	25
1556	2010	2037	2065	2093	2121	2149	2177	2205	2233	2261	3	6	8	11	14	17	20	22	25
1557	2289	2316	2344	2372	2400	2428	2456	2484	2512	2540	3	6	8	11	14	17	20	22	25
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1564	4237	4264	4292	4320	4348	4376	4403	4431	4459	4487	3	6	8	11	14	17	19	22	25
1565	194514	4542	4570	4598	4625	4653	4681	4709	4736	4764	3	6	8	11	14	17	19	22	25
1566	4792	4819	4847	4875	4903	4930	4958	4986	5014	5041	3	6	8	11	14	17	19	22	25
1567	5069	5097	5124	5152	5180	5207	5235	5263	5291	5318	3	6	8	11	14	17	19	22	25
1568	5346	5374	5401	5429	5457	5484	5512	5540	5568	5595	3	6	8	11	14	17	19	22	25
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1570	195900	5927	5955	5983	6010	6038	6066	6093	6121	6148	3	6	8	11	14	17	19	22	25
1571	6176	6204	6231	6259	6287	6314	6342	6370	6397	6425	3	6	8	11	14	17	19	22	25
1572	6452	6480	6508	6535	6563	6591	6618	6646	6673	6701	3	6	8	11	14	17	19	22	25
1573	6729	6756	6784	6811	6839	6867	6894	6922	6949	6977	3	6	8	11	14	17	19	22	25
1574	7005	7032	7060	7087	7115	7143	7170	7198	7225	7253	3	6	8	11	14	17	19	22	25
1575	197281	7308	7336	7363	7391	7418	7446	7473	7501	7529	3	6	8	11	14	17	19	22	25
1576	7556	7584	7611	7639	7666	7694	7721	7749	7777	7804	3	6	8	11	14	17	19	22	25
1577	7832	7859	7887	7914	7942	7969	7997	8024	8052	8079	3	6	8	11	14	17	19	22	25
1578	8107	8134	8162	8190	8217	8245	8272	8300	8327	8355	3	6	8	11	14	16	19	22	25
1579	8382	8410	8437	8465	8492	8520	8547	8575	8602	8630	3	6	8	11	14	16	19	22	25
1580	198657	8685	8712	8739	8767	8794	8822	8849	8877	8904	3	6	8	11	14	16	19	22	25
1581	8932	8959	8987	9014	9042	9069	9097	9124	9152	9179	3	6	8	11	14	16	19	22	25
1582	9206	9234	9261	9289	9316	9344	9371	9399	9426	9453	3	6	8	11	14	16	19	22	25
1583	9481	9508	9536	9563	9591	9618	9645	9673	9700	9728	3	6	8	11	14	16	19	22	25
1584	9755	9783	9810	9837	9865	9892	9920	9947	9974	••02	3	6	8	11	14	16	19	22	25
1585	200029	0057	0084	0111	0139	0166	0194	0221	0248	0276	3	6	8	11	14	16	19	22	25
1586	0303	0331	0358	0385	0413	0440	0467	0495	0522	0550	3	5	8	11	14	16	19	22	25
1587	0577	0604	0632	0659	0686	0714	0741	0768	0796	0823	3	5	8	11	14	16	19	22	25
1588	0850	0878	0905	0932	0960	0987	1015	1042	1069	1097	3	5	8	11	14	16	19	22	25
1589	1124	1151	1179	1206	1233	1260	1288	1315	1342	1370	3	5	8	11	14	16	19	22	25
1590	201397	1424	1452	1479	1506	1534	1561	1588	1616	1643	3	5	8	11	14	16	19	22	25
1591	1670	1697	1725	1752	1779	1807	1834	1861	1888	1916	3	5	8	11	14	16	19	22	25
1592	1943	1970	1998	2025	2052	2079	2107	2134	2161	2188	3	5	8	11	14	16	19	22	25
1593	2216	2243	2270	2298	2325	2352	2379	2407	2434	2461	3	5	8	11	14	16	19	22	25
1594	2488	2516	2543	2570	2597	2624	2652	2679	2706	2733	3	5	8	11	14	16	19	22	25
1595	202761	2788	2815	2842	2870	2897	2924	2951	2978	3006	3	5	8	11	14	16	19	22	25
1596	3033	3060	3087	3114	3142	3169	3196	3223	3250	3278	3	5	8	11	14	16	19	22	24
1597	3305	3332	3359	3386	3414	3441	3468	3495	3522	3550	3	5	8	11	14	16	19	22	24
1598	3577	3604	3631	3658	3685	3713	3740	3767	3794	3821	3	5	8	11	14	16	19	22	24
1599	3848	3876	3903	3930	3957	3984	4011	4038	4066	4093	3	5	8	11	14	16	19	22	24
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
1600	204120	4147	4174	4201	4228	4256	4283	4310	4337	4364	3	5	8	11	14	16	19	22	24
1601	4391	4418	4446	4473	4500	4527	4554	4581	4608	4635	3	5	8	11	14	16	19	22	24
1602	4662	4690	4717	4744	4771	4798	4825	4852	4879	4906	3	5	8	11	14	16	19	22	24
1603	4933	4961	4988	5015	5042	5069	5096	5123	5150	5177	3	5	8	11	14	16	19	22	24
1604	5204	5231	5258	5286	5313	5340	5367	5394	5421	5448	3	5	8	11	14	16	19	22	24
1605	205475	5502	5529	5556	5583	5610	5637	5664	5691	5718	3	5	8	11	14	16	19	22	24
1606	5745	5773	5800	5827	5854	5881	5908	5935	5962	5989	3	5	8	11	14	16	19	22	24
1607	6016	6043	6070	6097	6124	6151	6178	6205	6232	6259	3	5	8	11	14	16	19	22	24
1608	6286	6313	6340	6367	6394	6421	6448	6475	6502	6529	3	5	8	11	14	16	19	22	24
1609	6556	6583	6610	6637	6664	6691	6718	6745	6772	6799	3	5	8	11	14	16	19	22	24
1610	206826	6853	6880	6907	6934	6961	6988	7015	7042	7069	3	5	8	11	14	16	19	22	24
1611	7095	7122	7149	7176	7203	7230	7257	7284	7311	7338	3	5	8	11	14	16	19	22	24
1612	7365	7392	7419	7446	7473	7500	7527	7554	7580	7607	3	5	8	11	14	16	19	22	24
1613	7634	7661	7688	7715	7742	7769	7796	7823	7850	7877	3	5	8	11	14	16	19	22	24
1614	7903	7930	7957	7984	8011	8038	8065	8092	8119	8146	3	5	8	11	14	16	19	22	24
1615	208172	8199	8226	8253	8280	8307	8334	8361	8388	8414	3	5	8	11	13	16	19	21	24
1616	8441	8468	8495	8522	8549	8576	8603	8629	8656	8683	3	5	8	11	13	16	19	21	24
1617	8710	8737	8764	8791	8817	8844	8871	8898	8925	8952	3	5	8	11	13	16	19	21	24
1618	8978	9005	9032	9059	9086	9113	9139	9166	9193	9220	3	5	8	11	13	16	19	21	24
1619	9247	9274	9300	9327	9354	9381	9408	9435	9461	9488	3	5	8	11	13	16	19	21	24
1620	209515	9542	9569	9595	9622	9649	9676	9703	9729	9756	3	5	8	11	13	16	19	21	24
1621	9783	9810	9837	9863	9890	9917	9944	9970	9997	••24	3	5	8	11	13	16	19	21	24
1622	210051	0078	0104	0131	0158	0185	0211	0238	0265	0292	3	5	8	11	13	16	19	21	24
1623	0318	0345	0372	0399	0425	0452	0479	0506	0532	0559	3	5	8	11	13	16	19	21	24
1624	0586	0613	0639	0666	0693	0720	0746	0773	0800	0827	3	5	8	11	13	16	19	21	24
1625	210853	0880	0907	0933	0960	0987	1014	1040	1067	1094	3	5	8	11	13	16	19	21	24
1626	1120	1147	1174	1201	1227	1254	1281	1307	1334	1361	3	5	8	11	13	16	19	21	24
1627	1388	1414	1441	1468	1494	1521	1548	1574	1601	1628	3	5	8	11	13	16	19	21	24
1628	1654	1681	1708	1734	1761	1788	1814	1841	1868	1894	3	5	8	11	13	16	19	21	24
1629	1921	1948	1974	2001	2028	2054	2081	2108	2134	2161	3	5	8	11	13	16	19	21	24
1630	212188	2214	2241	2267	2294	2321	2347	2374	2401	2427	3	5	8	11	13	16	19	21	24
1631	2454	2481	2507	2534	2560	2587	2614	2640	2667	2693	3	5	8	11	13	16	19	21	24
1632	2720	2747	2773	2800	2827	2853	2880	2906	2933	2960	3	5	8	11	13	16	19	21	24
1633	2986	3013	3039	3066	3093	3119	3146	3172	3199	3225	3	5	8	11	13	16	19	21	24
1634	3252	3279	3305	3332	3358	3385	3411	3438	3465	3491	3	5	8	11	13	16	19	21	24
1635	213518	3544	3571	3597	3624	3650	3677	3704	3730	3757	3	5	8	11	13	16	19	21	24
1636	3783	3810	3836	3863	3889	3916	3942	3969	3996	4022	3	5	8	11	13	16	19	21	24
1637	4049	4075	4102	4128	4155	4181	4208	4234	4261	4287	3	5	8	11	13	16	19	21	24
1638	4314	4340	4367	4393	4420	4446	4473	4499	4526	4552	3	5	8	11	13	16	19	21	24
1639	4579	4605	4632	4658	4685	4711	4738	4764	4791	4817	3	5	8	11	13	16	19	21	24
1640	214844	4870	4897	4923	4950	4976	5003	5029	5056	5082	3	5	8	11	13	16	19	21	24
1641	5109	5135	5161	5188	5214	5241	5267	5294	5320	5347	3	5	8	11	13	16	19	21	24
1642	5373	5400	5426	5452	5479	5505	5532	5558	5585	5611	3	5	8	11	13	16	19	21	24
1643	5638	5664	5690	5717	5743	5770	5796	5823	5849	5875	3	5	8	11	13	16	19	21	24
1644	5902	5928	5955	5981	6007	6034	6060	6087	6113	6139	3	5	8	11	13	16	19	21	24
1645	216166	6192	6219	6245	6271	6298	6324	6351	6377	6403	3	5	8	11	13	16	18	21	24
1646	6430	6456	6483	6509	6535	6562	6588	6614	6641	6667	3	5	8	11	13	16	18	21	24
1647	6694	6720	6746	6773	6799	6825	6852	6878	6904	6931	3	5	8	11	13	16	18	21	24
1648	6957	6984	7010	7036	7063	7089	7115	7142	7168	7194	3	5	8	11	13	16	18	21	24
1649	7221	7247	7273	7300	7326	7352	7379	7405	7431	7458	3	5	8	11	13	16	18	21	24
1650	217484	7510	7537	7563	7589	7615	7642	7668	7694	7721	3	5	8	11	13	16	18	21	24
1651	7747	7773	7800	7826	7852	7879	7905	7931	7957	7984	3	5	8	11	13	16	18	21	24
1652	8010	8036	8063	8089	8115	8141	8168	8194	8220	8247	3	5	8	11	13	16	18	21	24
1653	8273	8299	8325	8352	8378	8404	8430	8457	8483	8509	3	5	8	11	13	16	18	21	24
1654	8535	8562	8588	8614	8640	8667	8693	8719	8745	8772	3	5	8	11	13	16	18	21	24
1655	218798	8824	8850	8877	8903	8929	8955	8982	9008	9034	3	5	8	10	13	16	18	21	24
1656	9060	9087	9113	9139	9165	9191	9218	9244	9270	9296	3	5	8	10	13	16	18	21	24
1657	9322	9349	9375	9401	9427	9453	9480	9506	9532	9558	3	5	8	10	13	16	18	21	24
1658	9584	9611	9637	9663	9689	9715	9742	9768	9794	9820	3	5	8	10	13	16	18	21	24
1659	9846	9873	9899	9925	9951	9977	••03	••30	••56	••82	3	5	8	10	13	16	18	21	24
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
940	973128	3174	3220	3266	3313	3359	3405	3451	3497	3544	5	9	14	18	23	28	32	37	41
941	3590	3636	3682	3728	3774	3820	3866	3913	3959	4005	5	9	14	18	23	28	32	37	41
942	4051	4097	4143	4189	4235	4281	4327	4374	4420	4466	5	9	14	18	23	28	32	37	41
943	4512	4558	4604	4650	4696	4742	4788	4834	4880	4926	5	9	14	18	23	28	32	37	41
944	4972	5018	5064	5110	5156	5202	5248	5294	5340	5386	5	9	14	18	23	28	32	37	41
945	975432	5478	5524	5570	5616	5662	5708	5753	5799	5845	5	9	14	18	23	28	32	37	41
946	5891	5937	5983	6029	6075	6121	6167	6212	6258	6304	5	9	14	18	23	28	32	37	41
947	6350	6396	6442	6488	6533	6579	6625	6671	6717	6763	5	9	14	18	23	28	32	37	41
948	6808	6854	6900	6946	6992	7037	7083	7129	7175	7220	5	9	14	18	23	27	32	37	41
949	7266	7312	7358	7404	7449	7495	7541	7586	7632	7678	5	9	14	18	23	27	32	37	41
950	977724	7769	7815	7861	7906	7952	7998	8044	8089	8135	5	9	14	18	23	27	32	37	41
951	8181	8226	8272	8318	8363	8409	8454	8500	8546	8591	5	9	14	18	23	27	32	37	41
952	8637	8683	8728	8774	8819	8865	8911	8956	9002	9047	5	9	14	18	23	27	32	36	41
953	9093	9139	9184	9230	9275	9321	9366	9412	9457	9503	5	9	14	18	23	27	32	36	41
954	9548	9594	9639	9685	9730	9776	9821	9867	9912	9958	5	9	14	18	23	27	32	36	41
955	980003	0049	0094	0140	0185	0231	0276	0322	0367	0413	5	9	14	18	23	27	32	36	41
956	0458	0503	0549	0594	0640	0685	0730	0776	0821	0867	5	9	14	18	23	27	32	36	41
957	0912	0957	1003	1048	1093	1139	1184	1230	1275	1320	5	9	14	18	23	27	32	36	41
958	1366	1411	1456	1502	1547	1592	1637	1683	1728	1773	5	9	14	18	23	27	32	36	41
959	1819	1864	1909	1954	2000	2045	2090	2136	2181	2226	5	9	14	18	23	27	32	36	41
960	982271	2317	2362	2407	2452	2497	2543	2588	2633	2678	5	9	14	18	23	27	32	36	41
961	2723	2769	2814	2859	2904	2949	2995	3040	3085	3130	5	9	14	18	23	27	32	36	41
962	3175	3220	3265	3311	3356	3401	3446	3491	3536	3581	5	9	14	18	23	27	32	36	41
963	3626	3671	3717	3762	3807	3852	3897	3942	3987	4032	5	9	14	18	23	27	32	36	41
964	4077	4122	4167	4212	4257	4302	4347	4392	4437	4482	5	9	14	18	23	27	32	36	41
965	984527	4572	4617	4662	4707	4752	4797	4842	4887	4932	5	9	14	18	23	27	32	36	41
966	4977	5022	5067	5112	5157	5202	5247	5292	5337	5382	5	9	14	18	23	27	32	36	41
967	5427	5471	5516	5561	5606	5651	5696	5741	5786	5831	4	9	13	18	22	27	31	36	40
968	5875	5920	5965	6010	6055	6100	6145	6189	6234	6279	4	9	13	18	22	27	31	36	40
969	6324	6369	6413	6458	6503	6548	6593	6637	6682	6727	4	9	13	18	22	27	31	36	40
970	986772	6817	6861	6906	6951	6996	7040	7085	7130	7175	4	9	13	18	22	27	31	36	40
971	7219	7264	7309	7353	7398	7443	7488	7532	7577	7622	4	9	13	18	22	27	31	36	40
972	7666	7711	7756	7800	7845	7890	7934	7979	8024	8068	4	9	13	18	22	27	31	36	40
973	8113	8158	8202	8247	8291	8336	8381	8425	8470	8514	4	9	13	18	22	27	31	36	40
974	8559	8604	8648	8693	8737	8782	8826	8871	8916	8960	4	9	13	18	22	27	31	36	40
975	989005	9049	9094	9138	9183	9227	9272	9316	9361	9405	4	9	13	18	22	27	31	36	40
976	9450	9494	9539	9583	9628	9672	9717	9761	9806	9850	4	9	13	18	22	27	31	36	40
977	9895	9939	9984	••28	••72	•117	•161	•206	•250	•294	4	9	13	18	22	27	31	36	40
978	990339	0383	0428	0472	0516	0561	0605	0650	0694	0738	4	9	13	18	22	27	31	36	40
979	0783	0827	0871	0916	0960	1004	1049	1093	1137	1182	4	9	13	18	22	27	31	36	40
980	991226	1270	1315	1359	1403	1448	1492	1536	1581	1625	4	9	13	18	22	27	31	36	40
981	1669	1713	1758	1802	1846	1890	1935	1979	2023	2067	4	9	13	18	22	27	31	36	40
982	2112	2156	2200	2244	2288	2333	2377	2421	2465	2509	4	9	13	18	22	26	31	35	40
983	2554	2598	2642	2686	2730	2774	2819	2863	2907	2951	4	9	13	18	22	26	31	35	40
984	2995	3039	3083	3128	3172	3216	3260	3304	3348	3392	4	9	13	18	22	26	31	35	40
985	993436	3480	3524	3569	3613	3657	3701	3745	3789	3833	4	9	13	18	22	26	31	35	40
986	3877	3921	3965	4009	4053	4097	4141	4185	4229	4273	4	9	13	18	22	26	31	35	40
987	4317	4361	4405	4449	4493	4537	4581	4625	4669	4713	4	9	13	18	22	26	31	35	40
988	4757	4801	4845	4889	4933	4977	5021	5065	5109	5152	4	9	13	18	22	26	31	35	40
989	5196	5240	5284	5328	5372	5416	5460	5504	5547	5591	4	9	13	18	22	26	31	35	40
990	995635	5679	5723	5767	5811	5855	5898	5942	5986	6030	4	9	13	18	22	26	31	35	40
991	6074	6118	6161	6205	6249	6293	6337	6380	6424	6468	4	9	13	18	22	26	31	35	40
992	6512	6555	6599	6643	6687	6731	6774	6818	6862	6906	4	9	13	18	22	26	31	35	40
993	6949	6993	7037	7080	7124	7168	7212	7255	7299	7343	4	9	13	18	22	26	31	35	39
994	7386	7430	7474	7517	7561	7605	7648	7692	7736	7779	4	9	13	17	22	26	30	35	39
995	997823	7867	7910	7954	7998	8041	8085	8129	8172	8216	4	9	13	17	22	26	30	35	39
996	8259	8303	8347	8390	8434	8477	8521	8565	8608	8652	4	9	13	17	22	26	30	35	39
997	8695	8739	8782	8826	8869	8913	8956	9000	9044	9087	4	9	13	17	22	26	30	35	39
998	9131	9174	9218	9261	9305	9348	9392	9435	9479	9522	4	9	13	17	22	26	30	35	39
999	9566	9609	9652	9696	9739	9783	9826	9870	9913	9957	4	9	13	17	22	26	30	35	39
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
1000	000000	0043	0087	0130	0174	0217	0260	0304	0347	0391	4	9	13	17	22	26	30	35	39
1001	0434	0477	0521	0564	0608	0651	0694	0738	0781	0824	4	9	13	17	22	26	30	35	39
1002	0868	0911	0954	0998	1041	1084	1128	1171	1214	1258	4	9	13	17	22	26	30	35	39
1003	1301	1344	1387	1431	1474	1517	1561	1604	1647	1690	4	9	13	17	22	26	30	35	39
1004	1734	1777	1820	1864	1907	1950	1993	2036	2080	2123	4	9	13	17	22	26	30	35	39
1005	002166	2209	2252	2296	2339	2382	2425	2468	2512	2555	4	9	13	17	22	26	30	35	39
1006	2598	2641	2684	2727	2771	2814	2857	2900	2943	2986	4	9	13	17	21	26	30	34	39
1007	3029	3073	3116	3159	3202	3245	3288	3331	3374	3417	4	9	13	17	21	26	30	34	39
1008	3460	3504	3547	3590	3633	3676	3719	3762	3805	3848	4	9	13	17	21	26	30	34	39
1009	3891	3934	3977	4020	4063	4106	4149	4192	4235	4278	4	9	13	17	21	26	30	34	39
1010	004321	4364	4407	4450	4493	4536	4579	4622	4665	4708	4	9	13	17	21	26	30	34	39
1011	4751	4794	4837	4880	4923	4966	5009	5052	5095	5138	4	9	13	17	21	26	30	34	39
1012	5180	5223	5266	5309	5352	5395	5438	5481	5524	5567	4	9	13	17	21	26	30	34	39
1013	5609	5652	5695	5738	5781	5824	5867	5909	5952	5995	4	9	13	17	21	26	30	34	39
1014	6038	6081	6124	6166	6209	6252	6295	6338	6380	6423	4	9	13	17	21	26	30	34	39
1015	006466	6509	6552	6594	6637	6680	6723	6765	6808	6851	4	9	13	17	21	26	30	34	38
1016	6894	6936	6979	7022	7065	7107	7150	7193	7235	7278	4	9	13	17	21	26	30	34	38
1017	7321	7364	7406	7449	7492	7534	7577	7620	7662	7705	4	9	13	17	21	26	30	34	38
1018	7748	7790	7833	7876	7918	7961	8004	8046	8089	8132	4	9	13	17	21	26	30	34	38
1019	8174	8217	8259	8302	8345	8387	8430	8472	8515	8558	4	9	13	17	21	26	30	34	38
1020	008600	8643	8685	8728	8770	8813	8856	8898	8941	8983	4	8	13	17	21	25	30	34	38
1021	9026	9068	9111	9153	9196	9238	9281	9323	9366	9408	4	8	13	17	21	25	30	34	38
1022	9451	9493	9536	9578	9621	9663	9706	9748	9791	9833	4	8	13	17	21	25	30	34	38
1023	9876	9918	9960	●●03	●●45	●●88	●130	●173	●215	●257	4	8	13	17	21	25	30	34	38
1024	010300	0342	0385	0427	0470	0512	0554	0597	0639	0681	4	8	13	17	21	25	30	34	38
1025	010724	0766	0809	0851	0893	0936	0978	1020	1063	1105	4	8	13	17	21	25	30	34	38
1026	1147	1190	1232	1274	1317	1359	1401	1444	1486	1528	4	8	13	17	21	25	30	34	38
1027	1570	1613	1655	1697	1740	1782	1824	1866	1909	1951	4	8	13	17	21	25	30	34	38
1028	1993	2035	2078	2120	2162	2204	2246	2289	2331	2373	4	8	13	17	21	25	30	34	38
1029	2415	2458	2500	2542	2584	2626	2668	2711	2753	2795	4	8	13	17	21	25	30	34	38
1030	012837	2879	2921	2964	3006	3048	3090	3132	3174	3216	4	8	13	17	21	25	29	34	38
1031	3259	3301	3343	3385	3427	3469	3511	3553	3595	3638	4	8	13	17	21	25	29	34	38
1032	3680	3722	3764	3806	3848	3890	3932	3974	4016	4058	4	8	13	17	21	25	29	34	38
1033	4100	4142	4184	4226	4268	4310	4352	4394	4436	4478	4	8	13	17	21	25	29	34	38
1034	4520	4562	4604	4646	4688	4730	4772	4814	4856	4898	4	8	13	17	21	25	29	34	38
1035	014940	4982	5024	5066	5108	5150	5192	5234	5276	5318	4	8	13	17	21	25	29	33	38
1036	5360	5402	5444	5485	5527	5569	5611	5653	5695	5737	4	8	13	17	21	25	29	33	38
1037	5779	5821	5862	5904	5946	5988	6030	6072	6114	6155	4	8	13	17	21	25	29	33	38
1038	6197	6239	6281	6323	6365	6406	6448	6490	6532	6574	4	8	13	17	21	25	29	33	38
1039	6615	6657	6699	6741	6783	6824	6866	6908	6950	6992	4	8	13	17	21	25	29	33	38
1040	017033	7075	7117	7159	7200	7242	7284	7326	7367	7409	4	8	12	17	21	25	29	33	37
1041	7451	7492	7534	7576	7618	7659	7701	7743	7784	7826	4	8	12	17	21	25	29	33	37
1042	7868	7909	7951	7993	8034	8076	8118	8159	8201	8243	4	8	12	17	21	25	29	33	37
1043	8284	8326	8368	8409	8451	8492	8534	8576	8617	8659	4	8	12	17	21	25	29	33	37
1044	8700	8742	8784	8825	8867	8908	8950	8992	9033	9075	4	8	12	17	21	25	29	33	37
1045	019116	9158	9199	9241	9282	9324	9366	9407	9449	9490	4	8	12	17	21	25	29	33	37
1046	9532	9573	9615	9656	9698	9739	9781	9822	9864	9905	4	8	12	17	21	25	29	33	37
1047	9947	9988	●●30	●●71	●113	●154	●195	●237	●278	●320	4	8	12	17	21	25	29	33	37
1048	020361	0403	0444	0486	0527	0568	0610	0651	0693	0734	4	8	12	17	21	25	29	33	37
1049	0775	0817	0858	0900	0941	0982	1024	1065	1107	1148	4	8	12	17	21	25	29	33	37
1050	021189	1231	1272	1313	1355	1396	1437	1479	1520	1561	4	8	12	16	21	25	29	33	37
1051	1603	1644	1685	1727	1768	1809	1851	1892	1933	1974	4	8	12	16	21	25	29	33	37
1052	2016	2057	2098	2140	2181	2222	2263	2305	2346	2387	4	8	12	16	21	25	29	33	37
1053	2428	2470	2511	2552	2593	2634	2676	2717	2758	2799	4	8	12	16	21	25	29	33	37
1054	2841	2882	2923	2964	3005	3047	3088	3129	3170	3211	4	8	12	16	21	25	29	33	37
1055	023252	3294	3335	3376	3417	3458	3499	3540	3582	3623	4	8	12	16	20	25	29	33	37
1056	3664	3705	3746	3787	3828	3869	3911	3952	3993	4034	4	8	12	16	20	25	29	33	37
1057	4075	4116	4157	4198	4239	4280	4321	4362	4404	4445	4	8	12	16	20	25	29	33	37
1058	4486	4527	4568	4609	4650	4691	4732	4773	4814	4855	4	8	12	16	20	25	29	33	37
1059	4896	4937	4978	5019	5060	5101	5142	5183	5224	5265	4	8	12	16	20	25	29	33	37
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

Note.—This part of the Table will be found particularly useful in computing the lunar observations by methods III. IV. V. in Vol. 1. pages 438, 439, 441 when the apparent distance exceeds 90 degrees.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
1060	025306	5347	5388	5429	5470	5511	5552	5593	5633	5674	4	8	12	16	20	24	29	33	37
1061	5715	5756	5797	5838	5879	5920	5961	6002	6043	6084	4	8	12	16	20	24	29	33	37
1062	6124	6165	6206	6247	6288	6329	6370	6411	6451	6492	4	8	12	16	20	24	29	33	37
1063	6533	6574	6615	6656	6697	6737	6778	6819	6860	6901	4	8	12	16	20	24	29	33	37
1064	6942	6982	7023	7064	7105	7146	7186	7227	7268	7309	4	8	12	16	20	24	29	33	37
1065	027350	7390	7431	7472	7513	7553	7594	7635	7676	7716	4	8	12	16	20	24	28	32	37
1066	7757	7798	7839	7879	7920	7961	8002	8042	8083	8124	4	8	12	16	20	24	28	32	37
1067	8164	8205	8246	8286	8327	8368	8409	8449	8490	8531	4	8	12	16	20	24	28	32	37
1068	8571	8612	8653	8693	8734	8774	8815	8856	8896	8937	4	8	12	16	20	24	28	32	37
1069	8978	9018	9059	9100	9140	9181	9221	9262	9303	9343	4	8	12	16	20	24	28	32	37
1070	029384	9424	9465	9505	9546	9587	9627	9668	9708	9749	4	8	12	16	20	24	28	32	36
1071	9789	9830	9871	9911	9952	9992	••33	••73	•114	•154	4	8	12	16	20	24	28	32	36
1072	030195	0235	0276	0316	0357	0397	0438	0478	0519	0559	4	8	12	16	20	24	28	32	36
1073	0600	0640	0681	0721	0762	0802	0842	0883	0923	0964	4	8	12	16	20	24	28	32	36
1074	1004	1045	1085	1126	1166	1206	1247	1287	1328	1368	4	8	12	16	20	24	28	32	36
1075	031408	1449	1489	1530	1570	1610	1651	1691	1731	1772	4	8	12	16	20	24	28	32	36
1076	1812	1853	1893	1933	1974	2014	2054	2095	2135	2175	4	8	12	16	20	24	28	32	36
1077	2216	2256	2296	2337	2377	2417	2458	2498	2538	2578	4	8	12	16	20	24	28	32	36
1078	2619	2659	2699	2740	2780	2820	2860	2901	2941	2981	4	8	12	16	20	24	28	32	36
1079	3021	3062	3102	3142	3182	3223	3263	3303	3343	3383	4	8	12	16	20	24	28	32	36
1080	033424	3464	3504	3544	3585	3625	3665	3705	3745	3785	4	8	12	16	20	24	28	32	36
1081	3826	3866	3906	3946	3986	4026	4067	4107	4147	4187	4	8	12	16	20	24	28	32	36
1082	4227	4267	4307	4348	4388	4428	4468	4508	4548	4588	4	8	12	16	20	24	28	32	36
1083	4628	4669	4709	4749	4789	4829	4869	4909	4949	4989	4	8	12	16	20	24	28	32	36
1084	5029	5069	5109	5149	5189	5230	5270	5310	5350	5390	4	8	12	16	20	24	28	32	36
1085	035430	5470	5510	5550	5590	5630	5670	5710	5750	5790	4	8	12	16	20	24	28	32	36
1086	5830	5870	5910	5950	5990	6030	6070	6110	6150	6190	4	8	12	16	20	24	28	32	36
1087	6229	6269	6309	6349	6389	6429	6469	6509	6549	6589	4	8	12	16	20	24	28	32	36
1088	6629	6669	6709	6749	6788	6828	6868	6908	6948	6988	4	8	12	16	20	24	28	32	36
1089	7028	7068	7108	7147	7187	7227	7267	7307	7347	7387	4	8	12	16	20	24	28	32	36
1090	037426	7466	7506	7546	7586	7626	7665	7705	7745	7785	4	8	12	16	20	24	28	32	36
1091	7825	7865	7904	7944	7984	8024	8063	8103	8143	8183	4	8	12	16	20	24	28	32	36
1092	8223	8262	8302	8342	8382	8421	8461	8501	8541	8580	4	8	12	16	20	24	28	32	36
1093	8620	8660	8700	8739	8779	8819	8858	8898	8938	8978	4	8	12	16	20	24	28	32	36
1094	9017	9057	9097	9136	9176	9216	9255	9295	9335	9374	4	8	12	16	20	24	28	32	36
1095	039414	9454	9493	9533	9573	9612	9652	9692	9731	9771	4	8	12	16	20	24	28	32	36
1096	9811	9850	9890	9929	9969	••09	••48	••88	•127	•167	4	8	12	16	20	24	28	32	36
1097	040207	0246	0286	0325	0365	0404	0444	0484	0523	0563	4	8	12	16	20	24	28	32	36
1098	0602	0642	0681	0721	0760	0800	0840	0879	0919	0958	4	8	12	16	20	24	28	32	36
1099	0998	1037	1077	1116	1156	1195	1235	1274	1314	1353	4	8	12	16	20	24	28	32	36
1100	041393	1432	1472	1511	1551	1590	1629	1669	1708	1748	4	8	12	16	20	24	27	31	35
1101	1787	1827	1866	1906	1945	1984	2024	2063	2103	2142	4	8	12	16	20	24	27	31	35
1102	2182	2221	2260	2300	2339	2379	2418	2457	2497	2536	4	8	12	16	20	24	27	31	35
1103	2575	2615	2654	2694	2733	2772	2812	2851	2890	2930	4	8	12	16	20	24	27	31	35
1104	2969	3008	3048	3087	3126	3166	3205	3244	3284	3323	4	8	12	16	20	24	27	31	35
1105	043362	3402	3441	3480	3519	3559	3598	3637	3677	3716	4	8	12	16	20	24	27	31	35
1106	3755	3794	3834	3873	3912	3951	3991	4030	4069	4108	4	8	12	16	20	24	27	31	35
1107	4148	4187	4226	4265	4304	4344	4383	4422	4461	4501	4	8	12	16	20	24	27	31	35
1108	4540	4579	4618	4657	4696	4736	4775	4814	4853	4892	4	8	12	16	20	24	27	31	35
1109	4931	4971	5010	5049	5088	5127	5166	5206	5245	5284	4	8	12	16	20	24	27	31	35
1110	045323	5362	5401	5440	5479	5519	5558	5597	5636	5675	4	8	12	16	20	23	27	31	35
1111	5714	5753	5792	5831	5870	5909	5948	5988	6027	6066	4	8	12	16	20	23	27	31	35
1112	6105	6144	6183	6222	6261	6300	6339	6378	6417	6456	4	8	12	16	20	23	27	31	35
1113	6495	6534	6573	6612	6651	6690	6729	6768	6807	6846	4	8	12	16	20	23	27	31	35
1114	6885	6924	6963	7002	7041	7080	7119	7158	7197	7236	4	8	12	16	20	23	27	31	35
1115	047275	7314	7353	7392	7431	7470	7508	7547	7586	7625	4	8	12	16	19	23	27	31	35
1116	7664	7703	7742	7781	7820	7859	7898	7936	7975	8014	4	8	12	16	19	23	27	31	35
1117	8053	8092	8131	8170	8209	8247	8286	8325	8364	8403	4	8	12	16	19	23	27	31	35
1118	8442	8481	8519	8558	8597	8636	8675	8714	8752	8791	4	8	12	16	19	23	27	31	35
1119	8830	8869	8908	8946	8985	9024	9063	9102	9140	9179	4	8	12	16	19	23	27	31	35
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
1120	049218	9257	9296	9334	9373	9412	9451	9489	9528	9567	4	8	12	15	19	23	27	31	35
1121	9606	9644	9683	9722	9761	9799	9838	9877	9915	9954	4	8	12	15	19	23	27	31	35
1122	9993	••32	••70	•109	•148	•186	•225	•264	•302	•341	4	8	12	15	19	23	27	31	35
1123	050380	0418	0457	0496	0534	0573	0612	0650	0689	0728	4	8	12	15	19	23	27	31	35
1124	0766	0805	0844	0882	0921	0959	0998	1037	1075	1114	4	8	12	15	19	23	27	31	35
1125	051152	1191	1230	1268	1307	1345	1384	1423	1461	1500	4	8	12	15	19	23	27	31	35
1126	1538	1577	1615	1654	1693	1731	1770	1808	1847	1885	4	8	12	15	19	23	27	31	35
1127	1924	1962	2001	2039	2078	2117	2155	2194	2232	2271	4	8	12	15	19	23	27	31	35
1128	2309	2348	2386	2425	2463	2502	2540	2578	2617	2655	4	8	12	15	19	23	27	31	35
1129	2694	2732	2771	2809	2848	2886	2925	2963	3002	3040	4	8	12	15	19	23	27	31	35
1130	053078	3117	3155	3194	3232	3271	3309	3347	3386	3424	4	8	11	15	19	23	27	31	34
1131	3463	3501	3539	3578	3616	3655	3693	3731	3770	3808	4	8	11	15	19	23	27	31	34
1132	3846	3885	3923	3961	4000	4038	4077	4115	4153	4192	4	8	11	15	19	23	27	31	34
1133	4230	4268	4307	4345	4383	4421	4460	4498	4536	4575	4	8	11	15	19	23	27	31	34
1134	4613	4651	4690	4728	4766	4804	4843	4881	4919	4958	4	8	11	15	19	23	27	31	34
1135	054996	5034	5072	5111	5149	5187	5225	5264	5302	5340	4	8	11	15	19	23	27	31	34
1136	5378	5417	5455	5493	5531	5569	5608	5646	5684	5722	4	8	11	15	19	23	27	31	34
1137	5760	5799	5837	5875	5913	5951	5990	6028	6066	6104	4	8	11	15	19	23	27	31	34
1138	6142	6180	6219	6257	6295	6333	6371	6409	6447	6486	4	8	11	15	19	23	27	31	34
1139	6524	6562	6600	6638	6676	6714	6752	6790	6829	6867	4	8	11	15	19	23	27	31	34
1140	056905	6943	6981	7019	7057	7095	7133	7171	7209	7248	4	8	11	15	19	23	27	30	34
1141	7286	7324	7362	7400	7438	7476	7514	7552	7590	7628	4	8	11	15	19	23	27	30	34
1142	7666	7704	7742	7780	7818	7856	7894	7932	7970	8008	4	8	11	15	19	23	27	30	34
1143	8046	8084	8122	8160	8198	8236	8274	8312	8350	8388	4	8	11	15	19	23	27	30	34
1144	8426	8464	8502	8540	8578	8616	8654	8692	8730	8768	4	8	11	15	19	23	27	30	34
1145	058805	8843	8881	8919	8957	8995	9033	9071	9109	9147	4	8	11	15	19	23	26	30	34
1146	9185	9222	9260	9298	9336	9374	9412	9450	9488	9526	4	8	11	15	19	23	26	30	34
1147	9563	9601	9639	9677	9715	9753	9790	9828	9866	9904	4	8	11	15	19	23	26	30	34
1148	9942	9980	••17	••55	••93	•131	•169	•207	•244	•282	4	8	11	15	19	23	26	30	34
1149	060320	0358	0396	0433	0471	0509	0547	0584	0622	0660	4	8	11	15	19	23	26	30	34
1150	060698	0736	0773	0811	0849	0887	0924	0962	1000	1038	4	8	11	15	19	23	26	30	34
1151	1075	1113	1151	1188	1226	1264	1302	1339	1377	1415	4	8	11	15	19	23	26	30	34
1152	1452	1490	1528	1566	1603	1641	1679	1716	1754	1792	4	8	11	15	19	23	26	30	34
1153	1829	1867	1905	1942	1980	2018	2055	2093	2130	2168	4	8	11	15	19	23	26	30	34
1154	2206	2243	2281	2319	2356	2394	2432	2469	2507	2544	4	8	11	15	19	23	26	30	34
1155	062582	2620	2657	2695	2732	2770	2807	2845	2883	2920	4	7	11	15	19	23	26	30	34
1156	2958	2995	3033	3070	3108	3146	3183	3221	3258	3296	4	7	11	15	19	23	26	30	34
1157	3333	3371	3408	3446	3483	3521	3558	3596	3633	3671	4	7	11	15	19	23	26	30	34
1158	3709	3746	3784	3821	3858	3896	3933	3971	4008	4046	4	7	11	15	19	23	26	30	34
1159	4083	4121	4158	4196	4233	4271	4308	4346	4383	4420	4	7	11	15	19	23	26	30	34
1160	064458	4495	4533	4570	4608	4645	4683	4720	4757	4795	4	7	11	15	19	22	26	30	34
1161	4832	4870	4907	4944	4982	5019	5057	5094	5131	5169	4	7	11	15	19	22	26	30	34
1162	5206	5243	5281	5318	5356	5393	5430	5468	5505	5542	4	7	11	15	19	22	26	30	34
1163	5580	5617	5654	5692	5729	5766	5804	5841	5878	5916	4	7	11	15	19	22	26	30	34
1164	5953	5990	6028	6065	6102	6139	6177	6214	6251	6289	4	7	11	15	19	22	26	30	34
1165	066326	6363	6400	6438	6475	6512	6549	6587	6624	6661	4	7	11	15	19	22	26	30	33
1166	6699	6736	6773	6810	6847	6885	6922	6959	6996	7034	4	7	11	15	19	22	26	30	33
1167	7071	7108	7145	7182	7220	7257	7294	7331	7368	7406	4	7	11	15	19	22	26	30	33
1168	7443	7480	7517	7554	7591	7629	7666	7703	7740	7777	4	7	11	15	19	22	26	30	33
1169	7814	7852	7889	7926	7963	8000	8037	8074	8112	8149	4	7	11	15	19	22	26	30	33
1170	068186	8223	8260	8297	8334	8371	8408	8446	8483	8520	4	7	11	15	19	22	26	30	33
1171	8557	8594	8631	8668	8705	8742	8779	8816	8853	8891	4	7	11	15	19	22	26	30	33
1172	8928	8965	9002	9039	9076	9113	9150	9187	9224	9261	4	7	11	15	19	22	26	30	33
1173	9298	9335	9372	9409	9446	9483	9520	9557	9594	9631	4	7	11	15	19	22	26	30	33
1174	9668	9705	9742	9779	9816	9853	9890	9927	9964	••01	4	7	11	15	19	22	26	30	33
1175	070038	0075	0112	0149	0186	0223	0260	0296	0333	0370	4	7	11	15	18	22	26	29	33
1176	0407	0444	0481	0518	0555	0592	0629	0666	0703	0740	4	7	11	15	18	22	26	29	33
1177	0776	0813	0850	0887	0924	0961	0998	1035	1071	1108	4	7	11	15	18	22	26	29	33
1178	1145	1182	1219	1256	1293	1330	1366	1403	1440	1477	4	7	11	15	18	22	26	29	33
1179	1514	1551	1587	1624	1661	1698	1735	1772	1808	1845	4	7	11	15	18	22	26	29	33
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1181	2250	2287	2323	2360	2397	2434	2470	2507	2544	2581	4	7	11	15	18	22	26	29	33
1182	2617	2654	2691	2728	2764	2801	2838	2875	2911	2948	4	7	11	15	18	22	26	29	33
1183	2985	3021	3058	3095	3132	3168	3205	3242	3278	3315	4	7	11	15	18	22	26	29	33
1184	3352	3388	3425	3462	3498	3535	3572	3608	3645	3682	4	7	11	15	18	22	26	29	33
1185	073718	3755	3792	3828	3865	3902	3938	3975	4011	4048	4	7	11	15	18	22	26	29	33
1186	4085	4121	4158	4194	4231	4268	4304	4341	4377	4414	4	7	11	15	18	22	26	29	33
1187	4451	4487	4524	4560	4597	4634	4670	4707	4743	4780	4	7	11	15	18	22	26	29	33
1188	4816	4853	4889	4926	4963	4999	5036	5072	5109	5145	4	7	11	15	18	22	26	29	33
1189	5182	5218	5255	5291	5328	5364	5401	5437	5474	5510	4	7	11	15	18	22	26	29	33
1190	075547	5583	5620	5656	5693	5729	5766	5802	5839	5875	4	7	11	15	18	22	25	29	33
1191	5912	5948	5985	6021	6058	6094	6130	6167	6203	6240	4	7	11	15	18	22	25	29	33
1192	6276	6313	6349	6385	6422	6458	6495	6531	6568	6604	4	7	11	15	18	22	25	29	33
1193	6640	6677	6713	6750	6786	6822	6859	6895	6932	6968	4	7	11	15	18	22	25	29	33
1194	7004	7041	7077	7113	7150	7186	7222	7259	7295	7332	4	7	11	15	18	22	25	29	33
1195	077368	7404	7441	7477	7513	7550	7586	7622	7658	7695	4	7	11	14	18	22	25	29	33
1196	7731	7767	7804	7840	7876	7913	7949	7985	8022	8058	4	7	11	14	18	22	25	29	33
1197	8094	8130	8167	8203	8239	8275	8312	8348	8384	8421	4	7	11	14	18	22	25	29	33
1198	8457	8493	8529	8566	8602	8638	8674	8710	8747	8783	4	7	11	14	18	22	25	29	33
1199	8819	8855	8892	8928	8964	9000	9036	9073	9109	9145	4	7	11	14	18	22	25	29	33
1200	079181	9217	9254	9290	9326	9362	9398	9434	9471	9507	4	7	11	14	18	22	25	29	33
1201	9543	9579	9615	9651	9688	9724	9760	9796	9832	9868	4	7	11	14	18	22	25	29	33
1202	9904	9941	9977	••13	••49	••85	•121	•157	•193	•229	4	7	11	14	18	22	25	29	32
1203	080266	0302	0338	0374	0410	0446	0482	0518	0554	0590	4	7	11	14	18	22	25	29	32
1204	0626	0663	0699	0735	0771	0807	0843	0879	0915	0951	4	7	11	14	18	22	25	29	32
1205	080987	1023	1059	1095	1131	1167	1203	1239	1275	1311	4	7	11	14	18	22	25	29	32
1206	1347	1383	1419	1455	1491	1527	1563	1599	1635	1671	4	7	11	14	18	22	25	29	32
1207	1707	1743	1779	1815	1851	1887	1923	1959	1995	2031	4	7	11	14	18	22	25	29	32
1208	2067	2103	2139	2175	2211	2247	2283	2318	2354	2390	4	7	11	14	18	22	25	29	32
1209	2426	2462	2498	2534	2570	2606	2642	2678	2714	2749	4	7	11	14	18	22	25	29	32
1210	082785	2821	2857	2893	2929	2965	3001	3036	3072	3108	4	7	11	14	18	22	25	29	32
1211	3144	3180	3216	3252	3288	3323	3359	3395	3431	3467	4	7	11	14	18	22	25	29	32
1212	3503	3538	3574	3610	3646	3682	3718	3753	3789	3825	4	7	11	14	18	22	25	29	32
1213	3861	3897	3932	3968	4004	4040	4076	4111	4147	4183	4	7	11	14	18	21	25	29	32
1214	4219	4254	4290	4326	4362	4397	4433	4469	4505	4540	4	7	11	14	18	21	25	29	32
1215	084576	4612	4648	4683	4719	4755	4791	4826	4862	4898	4	7	11	14	18	21	25	29	32
1216	4934	4969	5005	5041	5076	5112	5148	5183	5219	5255	4	7	11	14	18	21	25	29	32
1217	5291	5326	5362	5398	5433	5469	5505	5540	5576	5612	4	7	11	14	18	21	25	29	32
1218	5647	5683	5719	5754	5790	5825	5861	5897	5932	5968	4	7	11	14	18	21	25	29	32
1219	6004	6039	6075	6111	6146	6182	6217	6253	6289	6324	4	7	11	14	18	21	25	29	32
1220	086360	6395	6431	6467	6502	6538	6573	6609	6644	6680	4	7	11	14	18	21	25	28	32
1221	6716	6751	6787	6822	6858	6893	6929	6965	7000	7036	4	7	11	14	18	21	25	28	32
1222	7071	7107	7142	7178	7213	7249	7284	7320	7355	7391	4	7	11	14	18	21	25	28	32
1223	7426	7462	7497	7533	7568	7604	7639	7675	7710	7746	4	7	11	14	18	21	25	28	32
1224	7781	7817	7852	7888	7923	7959	7994	8030	8065	8101	4	7	11	14	18	21	23	28	32
1225	088136	8171	8207	8242	8278	8313	8349	8384	8420	8455	4	7	11	14	18	21	25	28	32
1226	8490	8526	8561	8597	8632	8668	8703	8738	8774	8809	4	7	11	14	18	21	25	28	32
1227	8845	8880	8915	8951	8986	9021	9057	9092	9128	9163	4	7	11	14	18	21	25	28	32
1228	9198	9234	9269	9304	9340	9375	9410	9446	9481	9516	4	7	11	14	18	21	25	28	32
1229	9552	9587	9623	9658	9693	9728	9764	9799	9834	9870	4	7	11	14	18	21	25	28	32
1230	089905	9940	9976	••11	••46	••82	•117	•152	•187	•223	4	7	11	14	18	21	25	28	32
1231	090258	0293	0329	0364	0399	0434	0470	0505	0540	0575	4	7	11	14	18	21	25	28	32
1232	0611	0646	0681	0716	0752	0787	0822	0857	0893	0928	4	7	11	14	18	21	25	28	32
1233	0963	0998	1033	1069	1104	1139	1174	1210	1245	1280	4	7	11	14	18	21	25	28	32
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1235	091667	1702	1737	1772	1808	1843	1878	1913	1948	1983	4	7	11	14	18	21	25	28	32
1236	2018	2054	2089	2124	2159	2194	2229	2264	2299	2335	4	7	11	14	18	21	25	28	32
1237	2370	2405	2440	2475	2510	2545	2580	2615	2650	2686	4	7	11	14	18	21	25	28	32
1238	2721	2756	2791	2826	2861	2896	2931	2966	3001	3036	4	7	11	14	18	21	25	28	32
1239	3071	3106	3141	3176	3211	3246	3282	3317	3352	3387	4	7	11	14	18	21	25	28	32
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1241	3772	3807	3842	3877	3912	3947	3982	4017	4052	4087	3	7	10	14	17	21	24	28	31
1242	4122	4157	4191	4226	4261	4296	4331	4366	4401	4436	3	7	10	14	17	21	24	28	31
1243	4471	4506	4541	4576	4611	4646	4681	4716	4751	4785	3	7	10	14	17	21	24	28	31
1244	4820	4855	4890	4925	4960	4995	5030	5065	5100	5134	3	7	10	14	17	21	24	28	31
1245	095169	5204	5239	5274	5309	5344	5379	5413	5448	5483	3	7	10	14	17	21	24	28	31
1246	5518	5553	5588	5623	5657	5692	5727	5762	5797	5832	3	7	10	14	17	21	24	28	31
1247	5866	5901	5936	5971	6006	6041	6075	6110	6145	6180	3	7	10	14	17	21	24	28	31
1248	6215	6249	6284	6319	6354	6388	6423	6458	6493	6528	3	7	10	14	17	21	24	28	31
1249	6562	6597	6632	6667	6701	6736	6771	6806	6840	6875	3	7	10	14	17	21	24	28	31
1250	096910	6945	6979	7014	7049	7084	7118	7153	7188	7223	3	7	10	14	17	21	24	28	31
1251	7257	7292	7327	7361	7396	7431	7466	7500	7535	7570	3	7	10	14	17	21	24	28	31
1252	7604	7639	7674	7708	7743	7778	7812	7847	7882	7916	3	7	10	14	17	21	24	28	31
1253	7951	7986	8020	8055	8090	8124	8159	8194	8228	8263	3	7	10	14	17	21	24	28	31
1254	8297	8332	8367	8401	8436	8471	8505	8540	8574	8609	3	7	10	14	17	21	24	28	31
1255	098644	8678	8713	8747	8782	8817	8851	8886	8920	8955	3	7	10	14	17	21	24	28	31
1256	8990	9024	9059	9093	9128	9162	9197	9232	9266	9301	3	7	10	14	17	21	24	28	31
1257	9335	9370	9404	9439	9473	9508	9542	9577	9612	9646	3	7	10	14	17	21	24	28	31
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1259	100026	0060	0095	0129	0164	0198	0233	0267	0302	0336	3	7	10	14	17	21	24	28	31
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1261	0715	0749	0784	0818	0853	0887	0922	0956	0990	1025	3	7	10	14	17	21	24	27	31
1262	1059	1094	1128	1163	1197	1231	1266	1300	1335	1369	3	7	10	14	17	21	24	27	31
1263	1403	1438	1472	1506	1541	1575	1610	1644	1678	1713	3	7	10	14	17	21	24	27	31
1264	1747	1781	1816	1850	1884	1919	1953	1987	2022	2056	3	7	10	14	17	21	24	27	31
1265	102090	2125	2159	2193	2228	2262	2296	2331	2365	2399	3	7	10	14	17	21	24	27	31
1266	2434	2468	2502	2537	2571	2605	2639	2674	2708	2742	3	7	10	14	17	21	24	27	31
1267	2777	2811	2845	2879	2914	2948	2982	3016	3051	3085	3	7	10	14	17	21	24	27	31
1268	3119	3153	3188	3222	3256	3290	3325	3359	3393	3427	3	7	10	14	17	21	24	27	31
1269	3462	3496	3530	3564	3598	3633	3667	3701	3735	3769	3	7	10	14	17	21	24	27	31
1270	103804	3838	3872	3906	3940	3975	4009	4043	4077	4111	3	7	10	14	17	20	24	27	31
1271	4146	4180	4214	4248	4282	4316	4350	4385	4419	4453	3	7	10	14	17	20	24	27	31
1272	4487	4521	4555	4589	4624	4658	4692	4726	4760	4794	3	7	10	14	17	20	24	27	31
1273	4828	4862	4897	4931	4965	4999	5033	5067	5101	5135	3	7	10	14	17	20	24	27	31
1274	5169	5203	5238	5272	5306	5340	5374	5408	5442	5476	3	7	10	14	17	20	24	27	31
1275	105510	5544	5578	5612	5646	5680	5714	5749	5783	5817	3	7	10	14	17	20	24	27	31
1276	5851	5885	5919	5953	5987	6021	6055	6089	6123	6157	3	7	10	14	17	20	24	27	31
1277	6191	6225	6259	6293	6327	6361	6395	6429	6463	6497	3	7	10	14	17	20	24	27	31
1278	6531	6565	6599	6633	6667	6701	6735	6769	6803	6837	3	7	10	14	17	20	24	27	31
1279	6870	6904	6938	6972	7006	7040	7074	7108	7142	7176	3	7	10	14	17	20	24	27	31
1280	107210	7244	7278	7312	7346	7380	7413	7447	7481	7515	3	7	10	14	17	20	24	27	30
1281	7549	7583	7617	7651	7685	7719	7752	7786	7820	7854	3	7	10	14	17	20	24	27	30
1282	7888	7922	7956	7990	8023	8057	8091	8125	8159	8193	3	7	10	14	17	20	24	27	30
1283	8227	8260	8294	8328	8362	8396	8430	8463	8497	8531	3	7	10	13	17	20	24	27	30
1284	8565	8599	8633	8666	8700	8734	8768	8802	8835	8869	3	7	10	13	17	20	24	27	30
1285	108903	8937	8971	9004	9038	9072	9106	9140	9173	9207	3	7	10	13	17	20	24	27	30
1286	9241	9275	9308	9342	9376	9410	9443	9477	9511	9545	3	7	10	13	17	20	24	27	30
1287	9578	9612	9646	9680	9713	9747	9781	9815	9848	9882	3	7	10	13	17	20	24	27	30
1288	9916	9950	9983	••17	••51	••84	•118	•152	•185	•219	3	7	10	13	17	20	24	27	30
1289	110253	0287	0320	0354	0388	0421	0455	0489	0522	0556	3	7	10	13	17	20	24	27	30
1290	110590	0623	0657	0691	0724	0758	0792	0825	0859	0893	3	7	10	13	17	20	24	27	30
1291	0926	0960	0993	1027	1061	1094	1128	1162	1195	1229	3	7	10	13	17	20	24	27	30
1292	1262	1296	1330	1363	1397	1431	1464	1498	1531	1565	3	7	10	13	17	20	24	27	30
1293	1598	1632	1666	1699	1733	1766	1800	1834	1867	1901	3	7	10	13	17	20	24	27	30
1294	1934	1968	2001	2035	2068	2102	2136	2169	2203	2236	3	7	10	13	17	20	24	27	30
1295	112270	2303	2337	2370	2404	2437	2471	2504	2538	2571	3	7	10	13	17	20	23	27	30
1296	2605	2638	2672	2705	2739	2772	2806	2839	2873	2906	3	7	10	13	17	20	23	27	30
1297	2940	2973	3007	3040	3074	3107	3141	3174	3208	3241	3	7	10	13	17	20	23	27	30
1298	3275	3308	3342	3375	3408	3442	3475	3509	3542	3576	3	7	10	13	17	20	23	27	30
1299	3609	3643	3676	3709	3743	3776	3810	3843	3876	3910	3	7	10	13	17	20	23	27	30
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
1300	113943	3977	4010	4044	4077	4110	4144	4177	4210	4244	3	7	10	13	17	20	23	27	30
1301	4277	4311	4344	4377	4411	4444	4477	4511	4544	4578	3	7	10	13	17	20	23	27	30
1302	4611	4644	4678	4711	4744	4778	4811	4844	4878	4911	3	7	10	13	17	20	23	27	30
1303	4944	4978	5011	5044	5078	5111	5144	5178	5211	5244	3	7	10	13	17	20	23	27	30
1304	5278	5311	5344	5377	5411	5444	5477	5511	5544	5577	3	7	10	13	17	20	23	27	30
1305	115610	5644	5677	5710	5744	5777	5810	5843	5877	5910	3	7	10	13	17	20	23	27	30
1306	5943	5976	6010	6043	6076	6109	6143	6176	6209	6242	3	7	10	13	17	20	23	27	30
1307	6276	6309	6342	6375	6408	6442	6475	6508	6541	6574	3	7	10	13	17	20	23	27	30
1308	6608	6641	6674	6707	6740	6774	6807	6840	6873	6906	3	7	10	13	17	20	23	27	30
1309	6940	6973	7006	7039	7072	7105	7139	7172	7205	7238	3	7	10	13	17	20	23	27	30
1310	117271	7304	7338	7371	7404	7437	7470	7503	7536	7570	3	7	10	13	17	20	23	26	30
1311	7603	7636	7669	7702	7735	7768	7801	7834	7868	7901	3	7	10	13	17	20	23	26	30
1312	7934	7967	8000	8033	8066	8099	8132	8165	8199	8232	3	7	10	13	17	20	23	26	30
1313	8265	8298	8331	8364	8397	8430	8463	8496	8529	8562	3	7	10	13	17	20	23	26	30
1314	8595	8628	8661	8694	8728	8761	8794	8827	8860	8893	3	7	10	13	17	20	23	26	30
1315	118926	8959	8992	9025	9058	9091	9124	9157	9190	9223	3	7	10	13	16	20	23	26	30
1316	9256	9289	9322	9355	9388	9421	9454	9487	9520	9553	3	7	10	13	16	20	23	26	30
1317	9586	9619	9652	9685	9718	9751	9784	9816	9849	9882	3	7	10	13	16	20	23	26	30
1318	9915	9948	9981	••14	••47	••80	•113	•146	•179	•212	3	7	10	13	16	20	23	26	30
1319	120245	0278	0311	0344	0376	0409	0442	0475	0508	0541	3	7	10	13	16	20	23	26	30
1320	120574	0607	0640	0673	0705	0738	0771	0804	0837	0870	3	7	10	13	16	20	23	26	30
1321	0903	0936	0969	1001	1034	1067	1100	1133	1166	1199	3	7	10	13	16	20	23	26	30
1322	1231	1264	1297	1330	1363	1396	1428	1461	1494	1527	3	7	10	13	16	20	23	26	30
1323	1560	1593	1625	1658	1691	1724	1757	1790	1822	1855	3	7	10	13	16	20	23	26	30
1324	1888	1921	1954	1986	2019	2052	2085	2117	2150	2183	3	7	10	13	16	20	23	26	30
1325	122216	2249	2281	2314	2347	2380	2412	2445	2478	2511	3	7	10	13	16	20	23	26	29
1326	2543	2576	2609	2642	2674	2707	2740	2773	2805	2838	3	7	10	13	16	20	23	26	29
1327	2871	2904	2936	2969	3002	3034	3067	3100	3133	3165	3	7	10	13	16	20	23	26	29
1328	3198	3231	3263	3296	3329	3362	3394	3427	3460	3492	3	7	10	13	16	20	23	26	29
1329	3525	3558	3590	3623	3656	3688	3721	3754	3786	3819	3	7	10	13	16	20	23	26	29
1330	123852	3884	3917	3950	3982	4015	4047	4080	4113	4145	3	7	10	13	16	20	23	26	29
1331	4178	4211	4243	4276	4309	4341	4374	4406	4439	4472	3	7	10	13	16	20	23	26	29
1332	4504	4537	4569	4602	4635	4667	4700	4732	4765	4798	3	7	10	13	16	20	23	26	29
1333	4830	4863	4895	4928	4960	4993	5026	5058	5091	5123	3	7	10	13	16	20	23	26	29
1334	5156	5188	5221	5253	5286	5319	5351	5384	5416	5449	3	7	10	13	16	20	23	26	29
1335	125481	5514	5546	5579	5611	5644	5676	5709	5741	5774	3	7	10	13	16	19	23	26	29
1336	5806	5839	5871	5904	5936	5969	6001	6034	6066	6099	3	7	10	13	16	19	23	26	29
1337	6131	6164	6196	6229	6261	6294	6326	6359	6391	6424	3	7	10	13	16	19	23	26	29
1338	6456	6489	6521	6553	6586	6618	6651	6683	6716	6748	3	7	10	13	16	19	23	26	29
1339	6781	6813	6845	6878	6910	6943	6975	7008	7040	7072	3	7	10	13	16	19	23	26	29
1340	127105	7137	7170	7202	7234	7267	7299	7332	7364	7396	3	6	10	13	16	19	23	26	29
1341	7429	7461	7493	7526	7558	7591	7623	7655	7688	7720	3	6	10	13	16	19	23	26	29
1342	7752	7785	7817	7850	7882	7914	7947	7979	8011	8044	3	6	10	13	16	19	23	26	29
1343	8076	8108	8141	8173	8205	8238	8270	8302	8335	8367	3	6	10	13	16	19	23	26	29
1344	8399	8432	8464	8496	8528	8561	8593	8625	8658	8690	3	6	10	13	16	19	23	26	29
1345	128722	8755	8787	8819	8851	8884	8916	8948	8980	9013	3	6	10	13	16	19	23	26	29
1346	9045	9077	9110	9142	9174	9206	9239	9271	9303	9335	3	6	10	13	16	19	23	26	29
1347	9368	9400	9432	9464	9496	9529	9561	9593	9625	9658	3	6	10	13	16	19	23	26	29
1348	9690	9722	9754	9786	9819	9851	9883	9915	9948	9980	3	6	10	13	16	19	23	26	29
1349	130012	0044	0076	0108	0141	0173	0205	0237	0269	0302	3	6	10	13	16	19	23	26	29
1350	130334	0366	0398	0430	0462	0495	0527	0559	0591	0623	3	6	10	13	16	19	22	26	29
1351	0655	0687	0720	0752	0784	0816	0848	0880	0912	0945	3	6	10	13	16	19	22	26	29
1352	0977	1009	1041	1073	1105	1137	1169	1201	1234	1266	3	6	10	13	16	19	22	26	29
1353	1298	1330	1362	1394	1426	1458	1490	1522	1554	1587	3	6	10	13	16	19	22	26	29
1354	1619	1651	1683	1715	1747	1779	1811	1843	1875	1907	3	6	10	13	16	19	22	26	29
1355	131939	1971	2003	2035	2067	2099	2132	2164	2196	2228	3	6	10	13	16	19	22	26	29
1356	2260	2292	2324	2356	2388	2420	2452	2484	2516	2548	3	6	10	13	16	19	22	26	29
1357	2580	2612	2644	2676	2708	2740	2772	2804	2836	2868	3	6	10	13	16	19	22	26	29
1358	2900	2932	2964	2996	3028	3060	3092	3124	3155	3187	3	6	10	13	16	19	22	26	29
1359	3219	3251	3283	3315	3347	3379	3411	3443	3475	3507	3	6	10	13	16	19	22	26	29
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1361	3858	3890	3922	3954	3986	4018	4049	4081	4113	4145	3	6	10	13	16	19	22	26	29
1362	4177	4209	4241	4273	4305	4336	4368	4400	4432	4464	3	6	10	13	16	19	22	26	29
1363	4496	4528	4560	4591	4623	4655	4687	4719	4751	4782	3	6	10	13	16	19	22	26	29
1364	4814	4846	4878	4910	4942	4973	5005	5037	5069	5101	3	6	10	13	16	19	22	26	29
1365	135133	5164	5196	5228	5260	5292	5323	5355	5387	5419	3	6	10	13	16	19	22	25	29
1366	5451	5482	5514	5546	5578	5610	5641	5673	5705	5737	3	6	10	13	16	19	22	25	29
1367	5768	5800	5832	5864	5896	5927	5959	5991	6023	6054	3	6	10	13	16	19	22	25	29
1368	6086	6118	6150	6181	6213	6245	6276	6308	6340	6372	3	6	10	13	16	19	22	25	29
1369	6403	6435	6467	6499	6530	6562	6594	6625	6657	6689	3	6	10	13	16	19	22	25	29
1370	136721	6752	6784	6816	6847	6879	6911	6942	6974	7006	3	6	10	13	16	19	22	25	28
1371	7037	7069	7101	7132	7164	7196	7227	7259	7291	7322	3	6	10	13	16	19	22	25	28
1372	7354	7386	7417	7449	7481	7512	7544	7576	7607	7639	3	6	10	13	16	19	22	25	28
1373	7670	7702	7734	7765	7797	7829	7860	7892	7923	7955	3	6	10	13	16	19	22	25	28
1374	7987	8018	8050	8081	8113	8145	8176	8208	8239	8271	3	6	10	13	16	19	22	25	28
1375	138303	8334	8366	8397	8429	8461	8492	8524	8555	8587	3	6	9	13	16	19	22	25	28
1376	8618	8650	8682	8713	8745	8776	8808	8839	8871	8902	3	6	9	13	16	19	22	25	28
1377	8934	8965	8997	9028	9060	9092	9123	9155	9186	9218	3	6	9	13	16	19	22	25	28
1378	9249	9281	9312	9344	9375	9407	9438	9470	9501	9533	3	6	9	13	16	19	22	25	28
1379	9564	9596	9627	9659	9690	9722	9753	9785	9816	9848	3	6	9	13	16	19	22	25	28
1380	139879	9911	9942	9973	••05	••36	••68	••99	•131	•162	3	6	9	13	16	19	22	25	28
1381	140194	0225	0257	0288	0319	0351	0382	0414	0445	0477	3	6	9	13	16	19	22	25	28
1382	0508	0539	0571	0602	0634	0665	0697	0728	0759	0791	3	6	9	13	16	19	22	25	28
1383	0822	0854	0885	0916	0948	0979	1011	1042	1073	1105	3	6	9	13	16	19	22	25	28
1384	1136	1167	1199	1230	1262	1293	1324	1356	1387	1418	3	6	9	13	16	19	22	25	28
1385	141450	1481	1512	1544	1575	1606	1638	1669	1701	1732	3	6	9	13	16	19	22	25	28
1386	1763	1795	1826	1857	1888	1920	1951	1982	2014	2045	3	6	9	13	16	19	22	25	28
1387	2076	2108	2139	2170	2202	2233	2264	2296	2327	2358	3	6	9	13	16	19	22	25	28
1388	2389	2421	2452	2483	2515	2546	2577	2608	2640	2671	3	6	9	13	16	19	22	25	28
1389	2702	2733	2765	2796	2827	2859	2890	2921	2952	2984	3	6	9	13	16	19	22	25	28
1390	143015	3046	3077	3108	3140	3171	3202	3233	3265	3296	3	6	9	12	16	19	22	25	28
1391	3327	3358	3390	3421	3452	3483	3514	3546	3577	3608	3	6	9	12	16	19	22	25	28
1392	3639	3670	3702	3733	3764	3795	3826	3858	3889	3920	3	6	9	12	16	19	22	25	28
1393	3951	3982	4013	4045	4076	4107	4138	4169	4200	4232	3	6	9	12	16	19	22	25	28
1394	4263	4294	4325	4356	4387	4418	4450	4481	4512	4543	3	6	9	12	16	19	22	25	28
1395	144574	4605	4636	4668	4699	4730	4761	4792	4823	4854	3	6	9	12	16	19	22	25	28
1396	4885	4916	4948	4979	5010	5041	5072	5103	5134	5165	3	6	9	12	16	19	22	25	28
1397	5196	5227	5259	5290	5321	5352	5383	5414	5445	5476	3	6	9	12	16	19	22	25	28
1398	5507	5538	5569	5600	5631	5662	5693	5725	5756	5787	3	6	9	12	16	19	22	25	28
1399	5818	5849	5880	5911	5942	5973	6004	6035	6066	6097	3	6	9	12	16	19	22	25	28
1400	146128	6159	6190	6221	6252	6283	6314	6345	6376	6407	3	6	9	12	15	19	22	25	28
1401	6438	6469	6500	6531	6562	6593	6624	6655	6686	6717	3	6	9	12	15	19	22	25	28
1402	6748	6779	6810	6841	6872	6903	6934	6965	6996	7027	3	6	9	12	15	19	22	25	28
1403	7058	7089	7120	7150	7181	7212	7243	7274	7305	7336	3	6	9	12	15	19	22	25	28
1404	7367	7398	7429	7460	7491	7522	7553	7584	7614	7645	3	6	9	12	15	19	22	25	28
1405	147676	7707	7738	7769	7800	7831	7862	7893	7923	7954	3	6	9	12	15	19	22	25	28
1406	7985	8016	8047	8078	8109	8140	8171	8201	8232	8263	3	6	9	12	15	19	22	25	28
1407	8294	8325	8356	8387	8417	8448	8479	8510	8541	8572	3	6	9	12	15	19	22	25	28
1408	8603	8633	8664	8695	8726	8757	8788	8818	8849	8880	3	6	9	12	15	19	22	25	28
1409	8911	8942	8973	9003	9034	9065	9096	9127	9157	9188	3	6	9	12	15	19	22	25	28
1410	149219	9250	9281	9311	9342	9373	9404	9435	9465	9496	3	6	9	12	15	18	22	25	28
1411	9527	9558	9589	9619	9650	9681	9712	9742	9773	9804	3	6	9	12	15	18	22	25	28
1412	9835	9865	9896	9927	9958	9988	••19	••50	••81	•111	3	6	9	12	15	18	22	25	28
1413	150142	0173	0204	0234	0265	0296	0326	0357	0388	0419	3	6	9	12	15	18	22	25	28
1414	0449	0480	0511	0541	0572	0603	0634	0664	0695	0726	3	6	9	12	15	18	22	25	28
1415	150756	0787	0818	0848	0879	0910	0941	0971	1002	1033	3	6	9	12	15	18	21	25	28
1416	1063	1094	1125	1155	1186	1217	1247	1278	1308	1339	3	6	9	12	15	18	21	25	28
1417	1370	1400	1431	1462	1492	1523	1554	1584	1615	1646	3	6	9	12	15	18	21	25	28
1418	1676	1707	1737	1768	1799	1829	1860	1891	1921	1952	3	6	9	12	15	18	21	25	28
1419	1982	2013	2044	2074	2105	2135	2166	2197	2227	2258	3	6	9	12	15	18	21	25	28
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
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1421	2594	2625	2655	2686	2716	2747	2777	2808	2838	2869	3	6	9	12	15	18	21	24	27
1422	2900	2930	2961	2991	3022	3052	3083	3113	3144	3174	3	6	9	12	15	18	21	24	27
1423	3205	3235	3266	3296	3327	3357	3388	3418	3449	3479	3	6	9	12	15	18	21	24	27
1424	3510	3540	3571	3601	3632	3662	3693	3723	3754	3784	3	6	9	12	15	18	21	24	27
1425	153815	3845	3876	3906	3937	3967	3998	4028	4059	4089	3	6	9	12	15	18	21	24	27
1426	4119	4150	4180	4211	4241	4272	4302	4333	4363	4393	3	6	9	12	15	18	21	24	27
1427	4424	4454	4485	4515	4546	4576	4606	4637	4667	4698	3	6	9	12	15	18	21	24	27
1428	4728	4759	4789	4819	4850	4880	4911	4941	4971	5002	3	6	9	12	15	18	21	24	27
1429	5032	5063	5093	5123	5154	5184	5214	5245	5275	5306	3	6	9	12	15	18	21	24	27
1430	155336	5366	5397	5427	5457	5488	5518	5549	5579	5609	3	6	9	12	15	18	21	24	27
1431	5640	5670	5700	5731	5761	5791	5822	5852	5882	5913	3	6	9	12	15	18	21	24	27
1432	5943	5973	6004	6034	6064	6095	6125	6155	6186	6216	3	6	9	12	15	18	21	24	27
1433	6246	6276	6307	6337	6367	6398	6428	6458	6489	6519	3	6	9	12	15	18	21	24	27
1434	6549	6579	6610	6640	6670	6701	6731	6761	6791	6822	3	6	9	12	15	18	21	24	27
1435	156852	6882	6912	6943	6973	7003	7033	7064	7094	7124	3	6	9	12	15	18	21	24	27
1436	7154	7185	7215	7245	7275	7306	7336	7366	7396	7426	3	6	9	12	15	18	21	24	27
1437	7457	7487	7517	7547	7578	7608	7638	7668	7698	7729	3	6	9	12	15	18	21	24	27
1438	7759	7789	7819	7849	7880	7910	7940	7970	8000	8031	3	6	9	12	15	18	21	24	27
1439	8061	8091	8121	8151	8181	8212	8242	8272	8302	8332	3	6	9	12	15	18	21	24	27
1440	158362	8393	8423	8453	8483	8513	8543	8574	8604	8634	3	6	9	12	15	18	21	24	27
1441	8664	8694	8724	8754	8784	8815	8845	8875	8905	8935	3	6	9	12	15	18	21	24	27
1442	8965	8995	9025	9056	9086	9116	9146	9176	9206	9236	3	6	9	12	15	18	21	24	27
1443	9266	9296	9326	9357	9387	9417	9447	9477	9507	9537	3	6	9	12	15	18	21	24	27
1444	9567	9597	9627	9657	9687	9717	9748	9778	9808	9838	3	6	9	12	15	18	21	24	27
1445	159868	9898	9928	9958	9988	••18	••48	••78	•108	•138	3	6	9	12	15	18	21	24	27
1446	160168	0198	0228	0258	0288	0318	0348	0378	0408	0438	3	6	9	12	15	18	21	24	27
1447	0468	0498	0529	0559	0589	0619	0649	0679	0709	0739	3	6	9	12	15	18	21	24	27
1448	0769	0799	0828	0858	0888	0918	0948	0978	1008	1038	3	6	9	12	15	18	21	24	27
1449	1068	1098	1128	1158	1188	1218	1248	1278	1308	1338	3	6	9	12	15	18	21	24	27
1450	161368	1398	1428	1458	1488	1518	1548	1578	1607	1637	3	6	9	12	15	18	21	24	27
1451	1667	1697	1727	1757	1787	1817	1847	1877	1907	1937	3	6	9	12	15	18	21	24	27
1452	1967	1996	2026	2056	2086	2116	2146	2176	2206	2236	3	6	9	12	15	18	21	24	27
1453	2266	2295	2325	2355	2385	2415	2445	2475	2505	2534	3	6	9	12	15	18	21	24	27
1454	2564	2594	2624	2654	2684	2714	2744	2773	2803	2833	3	6	9	12	15	18	21	24	27
1455	162863	2893	2923	2952	2982	3012	3042	3072	3102	3131	3	6	9	12	15	18	21	24	27
1456	3161	3191	3221	3251	3281	3310	3340	3370	3400	3430	3	6	9	12	15	18	21	24	27
1457	3460	3489	3519	3549	3579	3609	3638	3668	3698	3728	3	6	9	12	15	18	21	24	27
1458	3757	3787	3817	3847	3877	3906	3936	3966	3996	4025	3	6	9	12	15	18	21	24	27
1459	4055	4085	4115	4145	4174	4204	4234	4264	4293	4323	3	6	9	12	15	18	21	24	27
1460	164353	4383	4412	4442	4472	4502	4531	4561	4591	4620	3	6	9	12	15	18	21	24	27
1461	4650	4680	4710	4739	4769	4799	4828	4858	4888	4918	3	6	9	12	15	18	21	24	27
1462	4947	4977	5007	5036	5066	5096	5126	5155	5185	5215	3	6	9	12	15	18	21	24	27
1463	5244	5274	5304	5333	5363	5393	5422	5452	5482	5511	3	6	9	12	15	18	21	24	27
1464	5541	5571	5600	5630	5660	5689	5719	5749	5778	5808	3	6	9	12	15	18	21	24	27
1465	165838	5867	5897	5926	5956	5986	6015	6045	6075	6104	3	6	9	12	15	18	21	24	27
1466	6134	6164	6193	6223	6252	6282	6312	6341	6371	6400	3	6	9	12	15	18	21	24	27
1467	6430	6460	6489	6519	6548	6578	6608	6637	6667	6696	3	6	9	12	15	18	21	24	27
1468	6726	6756	6785	6815	6844	6874	6903	6933	6963	6992	3	6	9	12	15	18	21	24	27
1469	7022	7051	7081	7110	7140	7170	7199	7229	7258	7288	3	6	9	12	15	18	21	24	27
1470	167317	7347	7376	7406	7435	7465	7495	7524	7554	7583	3	6	9	12	15	18	21	24	27
1471	7613	7642	7672	7701	7731	7760	7790	7819	7849	7878	3	6	9	12	15	18	21	24	27
1472	7908	7937	7967	7996	8026	8055	8085	8114	8144	8173	3	6	9	12	15	18	21	24	27
1473	8203	8232	8262	8291	8321	8350	8380	8409	8439	8468	3	6	9	12	15	18	21	24	27
1474	8497	8527	8556	8586	8615	8645	8674	8704	8733	8763	3	6	9	12	15	18	21	24	27
1475	168792	8821	8851	8880	8910	8939	8969	8998	9027	9057	3	6	9	12	15	18	21	24	26
1476	9086	9116	9145	9175	9204	9233	9263	9292	9322	9351	3	6	9	12	15	18	21	24	26
1477	9380	9410	9439	9469	9498	9527	9557	9586	9616	9645	3	6	9	12	15	18	21	24	26
1478	9674	9704	9733	9763	9792	9821	9851	9880	9909	9939	3	6	9	12	15	18	21	24	26
1479	9968	9997	••27	••56	••86	•115	•144	•174	•203	•232	3	6	9	12	15	18	21	24	26
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
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1481	0555	0584	0614	0643	0672	0702	0731	0760	0790	0819	3	6	9	12	15	18	21	23	26
1482	0848	0877	0907	0936	0965	0995	1024	1053	1083	1112	3	6	9	12	15	18	21	23	26
1483	1141	1170	1200	1229	1258	1288	1317	1346	1375	1405	3	6	9	12	15	18	21	23	26
1484	1434	1463	1492	1522	1551	1580	1609	1639	1668	1697	3	6	9	12	15	18	21	23	26
1485	171726	1756	1785	1814	1843	1873	1902	1931	1960	1990	3	6	9	12	15	18	20	23	26
1486	2019	2048	2077	2106	2136	2165	2194	2223	2253	2282	3	6	9	12	15	18	20	23	26
1487	2311	2340	2369	2399	2428	2457	2486	2515	2545	2574	3	6	9	12	15	18	20	23	26
1488	2603	2632	2661	2690	2720	2749	2778	2807	2836	2865	3	6	9	12	15	18	20	23	26
1489	2895	2924	2953	2982	3011	3040	3070	3099	3128	3157	3	6	9	12	15	18	20	23	26
1490	173186	3215	3245	3274	3303	3332	3361	3390	3419	3448	3	6	9	12	15	17	20	23	26
1491	3478	3507	3536	3565	3594	3623	3652	3681	3711	3740	3	6	9	12	15	17	20	23	26
1492	3769	3798	3827	3856	3885	3914	3943	3972	4002	4031	3	6	9	12	15	17	20	23	26
1493	4060	4089	4118	4147	4176	4205	4234	4263	4292	4321	3	6	9	12	15	17	20	23	26
1494	4351	4380	4409	4438	4467	4496	4525	4554	4583	4612	3	6	9	12	15	17	20	23	26
1495	174641	4670	4699	4728	4757	4786	4815	4844	4873	4903	3	6	9	12	15	17	20	23	26
1496	4932	4961	4990	5019	5048	5077	5106	5135	5164	5193	3	6	9	12	15	17	20	23	26
1497	5222	5251	5280	5309	5338	5367	5396	5425	5454	5483	3	6	9	12	15	17	20	23	26
1498	5512	5541	5570	5599	5628	5657	5686	5715	5744	5773	3	6	9	12	15	17	20	23	26
1499	5802	5831	5860	5888	5917	5946	5975	6004	6033	6062	3	6	9	12	15	17	20	23	26
1500	176091	6120	6149	6178	6207	6236	6265	6294	6323	6352	3	6	9	12	14	17	20	23	26
1501	6381	6410	6439	6467	6496	6525	6554	6583	6612	6641	3	6	9	12	14	17	20	23	26
1502	6670	6699	6728	6757	6786	6814	6843	6872	6901	6930	3	6	9	12	14	17	20	23	26
1503	6959	6988	7017	7046	7074	7103	7132	7161	7190	7219	3	6	9	12	14	17	20	23	26
1504	7248	7277	7306	7334	7363	7392	7421	7450	7479	7508	3	6	9	12	14	17	20	23	26
1505	177536	7565	7594	7623	7652	7681	7710	7738	7767	7796	3	6	9	12	14	17	20	23	26
1506	7825	7854	7883	7911	7940	7969	7998	8027	8056	8084	3	6	9	12	14	17	20	23	26
1507	8113	8142	8171	8200	8228	8257	8286	8315	8344	8372	3	6	9	12	14	17	20	23	26
1508	8401	8430	8459	8488	8516	8545	8574	8603	8632	8660	3	6	9	12	14	17	20	23	26
1509	8689	8718	8747	8776	8804	8833	8862	8891	8919	8948	3	6	9	12	14	17	20	23	26
1510	178977	9006	9034	9063	9092	9121	9149	9178	9207	9236	3	6	9	11	14	17	20	23	26
1511	9264	9293	9322	9351	9379	9408	9437	9466	9494	9523	3	6	9	11	14	17	20	23	26
1512	9552	9580	9609	9638	9667	9695	9724	9753	9781	9810	3	6	9	11	14	17	20	23	26
1513	9839	9868	9896	9925	9954	9982	••11	••40	••68	••97	3	6	9	11	14	17	20	23	26
1514	180126	0155	0183	0212	0241	0269	0298	0327	0355	0384	3	6	9	11	14	17	20	23	26
1515	180413	0441	0470	0499	0527	0556	0585	0613	0642	0671	3	6	9	11	14	17	20	23	26
1516	0699	0728	0756	0785	0814	0842	0871	0900	0928	0957	3	6	9	11	14	17	20	23	26
1517	0986	1014	1043	1071	1100	1129	1157	1186	1214	1243	3	6	9	11	14	17	20	23	26
1518	1272	1300	1329	1358	1386	1415	1443	1472	1501	1529	3	6	9	11	14	17	20	23	26
1519	1558	1586	1615	1643	1672	1701	1729	1758	1786	1815	3	6	9	11	14	17	20	23	26
1520	181844	1872	1901	1929	1958	1986	2015	2043	2072	2101	3	6	9	11	14	17	20	23	26
1521	2129	2158	2186	2215	2243	2272	2300	2329	2358	2386	3	6	9	11	14	17	20	23	26
1522	2415	2443	2472	2500	2529	2557	2586	2614	2643	2671	3	6	9	11	14	17	20	23	26
1523	2700	2728	2757	2785	2814	2842	2871	2899	2928	2956	3	6	9	11	14	17	20	23	26
1524	2985	3013	3042	3070	3099	3127	3156	3184	3213	3241	3	6	9	11	14	17	20	23	26
1525	183270	3298	3327	3355	3384	3412	3441	3469	3498	3526	3	6	9	11	14	17	20	23	26
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1527	3839	3867	3896	3924	3953	3981	4010	4038	4066	4095	3	6	9	11	14	17	20	23	26
1528	4123	4152	4180	4209	4237	4265	4294	4322	4351	4379	3	6	9	11	14	17	20	23	26
1529	4407	4436	4464	4493	4521	4549	4578	4606	4635	4663	3	6	9	11	14	17	20	23	26
1530	184691	4720	4748	4777	4805	4833	4862	4890	4918	4947	3	6	9	11	14	17	20	23	26
1531	4975	5004	5032	5060	5089	5117	5145	5174	5202	5230	3	6	9	11	14	17	20	23	26
1532	5259	5287	5315	5344	5372	5400	5429	5457	5485	5514	3	6	9	11	14	17	20	23	26
1533	5542	5570	5599	5627	5655	5684	5712	5740	5769	5797	3	6	9	11	14	17	20	23	26
1534	5825	5854	5882	5910	5939	5967	5995	6023	6052	6080	3	6	9	11	14	17	20	23	26
1535	186108	6137	6165	6193	6221	6250	6278	6306	6335	6363	3	6	8	11	14	17	20	23	25
1536	6391	6419	6448	6476	6504	6533	6561	6589	6617	6646	3	6	8	11	14	17	20	23	25
1537	6674	6702	6730	6759	6787	6815	6843	6872	6900	6928	3	6	8	11	14	17	20	23	25
1538	6956	6985	7013	7041	7069	7097	7126	7154	7182	7210	3	6	8	11	14	17	20	23	25
1539	7239	7267	7295	7323	7351	7380	7408	7436	7464	7492	3	6	8	11	14	17	20	23	25
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
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1541	7803	7831	7859	7887	7915	7943	7972	8000	8028	8056	3	6	8	11	14	17	20	23	25
1542	8084	8112	8141	8169	8197	8225	8253	8281	8310	8338	3	6	8	11	14	17	20	23	25
1543	8366	8394	8422	8450	8478	8507	8535	8563	8591	8619	3	6	8	11	14	17	20	23	25
1544	8647	8675	8703	8732	8760	8788	8816	8844	8872	8900	3	6	8	11	14	17	20	23	25
1545	188928	8957	8985	9013	9041	9069	9097	9125	9153	9181	3	6	8	11	14	17	20	22	25
1546	9209	9238	9266	9294	9322	9350	9378	9406	9434	9462	3	6	8	11	14	17	20	22	25
1547	9490	9518	9546	9574	9603	9631	9659	9687	9715	9743	3	6	8	11	14	17	20	22	25
1548	9771	9799	9827	9855	9883	9911	9939	9967	9995	••23	3	6	8	11	14	17	20	22	25
1549	190051	0079	0107	0135	0164	0192	0220	0248	0276	0304	3	6	8	11	14	17	20	22	25
1550	190332	0360	0388	0416	0444	0472	0500	0528	0556	0584	3	6	8	11	14	17	20	22	25
1551	0612	0640	0668	0696	0724	0752	0780	0808	0836	0864	3	6	8	11	14	17	20	22	25
1552	0892	0920	0948	0976	1004	1032	1060	1088	1115	1143	3	6	8	11	14	17	20	22	25
1553	1171	1199	1227	1255	1283	1311	1339	1367	1395	1423	3	6	8	11	14	17	20	22	25
1554	1451	1479	1507	1535	1563	1591	1619	1647	1674	1702	3	6	8	11	14	17	20	22	25
1555	191730	1758	1786	1814	1842	1870	1898	1926	1954	1982	3	6	8	11	14	17	20	22	25
1556	2010	2037	2065	2093	2121	2149	2177	2205	2233	2261	3	6	8	11	14	17	20	22	25
1557	2289	2316	2344	2372	2400	2428	2456	2484	2512	2540	3	6	8	11	14	17	20	22	25
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1559	2846	2874	2902	2930	2957	2985	3013	3041	3069	3097	3	6	8	11	14	17	19	22	25
1560	193125	3152	3180	3208	3236	3264	3292	3319	3347	3375	3	6	8	11	14	17	19	22	25
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1563	3959	3987	4014	4042	4070	4098	4126	4153	4181	4209	3	6	8	11	14	17	19	22	25
1564	4237	4264	4292	4320	4348	4376	4403	4431	4459	4487	3	6	8	11	14	17	19	22	25
1565	194514	4542	4570	4598	4625	4653	4681	4709	4736	4764	3	6	8	11	14	17	19	22	25
1566	4792	4819	4847	4875	4903	4930	4958	4986	5014	5041	3	6	8	11	14	17	19	22	25
1567	5069	5097	5124	5152	5180	5207	5235	5263	5291	5318	3	6	8	11	14	17	19	22	25
1568	5346	5374	5401	5429	5457	5484	5512	5540	5568	5595	3	6	8	11	14	17	19	22	25
1569	5623	5651	5678	5706	5734	5761	5789	5817	5844	5872	3	6	8	11	14	17	19	22	25
1570	195900	5927	5955	5983	6010	6038	6066	6093	6121	6148	3	6	8	11	14	17	19	22	25
1571	6176	6204	6231	6259	6287	6314	6342	6370	6397	6425	3	6	8	11	14	17	19	22	25
1572	6452	6480	6508	6535	6563	6591	6618	6646	6673	6701	3	6	8	11	14	17	19	22	25
1573	6729	6756	6784	6811	6839	6867	6894	6922	6949	6977	3	6	8	11	14	17	19	22	25
1574	7005	7032	7060	7087	7115	7143	7170	7198	7225	7253	3	6	8	11	14	17	19	22	25
1575	197281	7308	7336	7363	7391	7418	7446	7473	7501	7529	3	6	8	11	14	17	19	22	25
1576	7556	7584	7611	7639	7666	7694	7721	7749	7777	7804	3	6	8	11	14	17	19	22	25
1577	7832	7859	7887	7914	7942	7969	7997	8024	8052	8079	3	6	8	11	14	17	19	22	25
1578	8107	8134	8162	8190	8217	8245	8272	8300	8327	8355	3	6	8	11	14	16	19	22	25
1579	8382	8410	8437	8465	8492	8520	8547	8575	8602	8630	3	6	8	11	14	16	19	22	25
1580	198657	8685	8712	8739	8767	8794	8822	8849	8877	8904	3	6	8	11	14	16	19	22	25
1581	8932	8959	8987	9014	9042	9069	9097	9124	9152	9179	3	6	8	11	14	16	19	22	25
1582	9206	9234	9261	9289	9316	9344	9371	9399	9426	9453	3	6	8	11	14	16	19	22	25
1583	9481	9508	9536	9563	9591	9618	9645	9673	9700	9728	3	6	8	11	14	16	19	22	25
1584	9755	9783	9810	9837	9865	9892	9920	9947	9974	••02	3	6	8	11	14	16	19	22	25
1585	200029	0057	0084	0111	0139	0166	0194	0221	0248	0276	3	6	8	11	14	16	19	22	25
1586	0303	0331	0358	0385	0413	0440	0467	0495	0522	0550	3	5	8	11	14	16	19	22	25
1587	0577	0604	0632	0659	0686	0714	0741	0768	0796	0823	3	5	8	11	14	16	19	22	25
1588	0850	0878	0905	0932	0960	0987	1015	1042	1069	1097	3	5	8	11	14	16	19	22	25
1589	1124	1151	1179	1206	1233	1260	1288	1315	1342	1370	3	5	8	11	14	16	19	22	25
1590	201397	1424	1452	1479	1506	1534	1561	1588	1616	1643	3	5	8	11	14	16	19	22	25
1591	1670	1697	1725	1752	1779	1807	1834	1861	1888	1916	3	5	8	11	14	16	19	22	25
1592	1943	1970	1998	2025	2052	2079	2107	2134	2161	2188	3	5	8	11	14	16	19	22	25
1593	2216	2243	2270	2298	2325	2352	2379	2407	2434	2461	3	5	8	11	14	16	19	22	25
1594	2488	2516	2543	2570	2597	2624	2652	2679	2706	2733	3	5	8	11	14	16	19	22	25
1595	202761	2788	2815	2842	2870	2897	2924	2951	2978	3006	3	5	8	11	14	16	19	22	25
1596	3033	3060	3087	3114	3142	3169	3196	3223	3250	3278	3	5	8	11	14	16	19	22	24
1597	3305	3332	3359	3386	3414	3441	3468	3495	3522	3550	3	5	8	11	14	16	19	22	24
1598	3577	3604	3631	3658	3685	3713	3740	3767	3794	3821	3	5	8	11	14	16	19	22	24
1599	3848	3876	3903	3930	3957	3984	4011	4038	4066	4093	3	5	8	11	14	16	19	22	24
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
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1601	4391	4418	4446	4473	4500	4527	4554	4581	4608	4635	3	5	8	11	14	16	19	22	24
1602	4662	4690	4717	4744	4771	4798	4825	4852	4879	4906	3	5	8	11	14	16	19	22	24
1603	4933	4961	4988	5015	5042	5069	5096	5123	5150	5177	3	5	8	11	14	16	19	22	24
1604	5204	5231	5258	5286	5313	5340	5367	5394	5421	5448	3	5	8	11	14	16	19	22	24
1605	205475	5502	5529	5556	5583	5610	5637	5664	5691	5718	3	5	8	11	14	16	19	22	24
1606	5745	5773	5800	5827	5854	5881	5908	5935	5962	5989	3	5	8	11	14	16	19	22	24
1607	6016	6043	6070	6097	6124	6151	6178	6205	6232	6259	3	5	8	11	14	16	19	22	24
1608	6286	6313	6340	6367	6394	6421	6448	6475	6502	6529	3	5	8	11	14	16	19	22	24
1609	6556	6583	6610	6637	6664	6691	6718	6745	6772	6799	3	5	8	11	14	16	19	22	24
1610	206826	6853	6880	6907	6934	6961	6988	7015	7042	7069	3	5	8	11	14	16	19	22	24
1611	7095	7122	7149	7176	7203	7230	7257	7284	7311	7338	3	5	8	11	14	16	19	22	24
1612	7365	7392	7419	7446	7473	7500	7527	7554	7580	7607	3	5	8	11	14	16	19	22	24
1613	7634	7661	7688	7715	7742	7769	7796	7823	7850	7877	3	5	8	11	14	16	19	22	24
1614	7903	7930	7957	7984	8011	8038	8065	8092	8119	8146	3	5	8	11	14	16	19	22	24
1615	208172	8199	8226	8253	8280	8307	8334	8361	8388	8414	3	5	8	11	13	16	19	21	24
1616	8441	8468	8495	8522	8549	8576	8603	8629	8656	8683	3	5	8	11	13	16	19	21	24
1617	8710	8737	8764	8791	8817	8844	8871	8898	8925	8952	3	5	8	11	13	16	19	21	24
1618	8978	9005	9032	9059	9086	9113	9139	9166	9193	9220	3	5	8	11	13	16	19	21	24
1619	9247	9274	9300	9327	9354	9381	9408	9435	9461	9488	3	5	8	11	13	16	19	21	24
1620	209515	9542	9569	9595	9622	9649	9676	9703	9729	9756	3	5	8	11	13	16	19	21	24
1621	9783	9810	9837	9863	9890	9917	9944	9970	9997	••24	3	5	8	11	13	16	19	21	24
1622	210051	0078	0104	0131	0158	0185	0211	0238	0265	0292	3	5	8	11	13	16	19	21	24
1623	0318	0345	0372	0399	0425	0452	0479	0506	0532	0559	3	5	8	11	13	16	19	21	24
1624	0586	0613	0639	0666	0693	0720	0746	0773	0800	0827	3	5	8	11	13	16	19	21	24
1625	210853	0880	0907	0933	0960	0987	1014	1040	1067	1094	3	5	8	11	13	16	19	21	24
1626	1120	1147	1174	1201	1227	1254	1281	1307	1334	1361	3	5	8	11	13	16	19	21	24
1627	1388	1414	1441	1468	1494	1521	1548	1574	1601	1628	3	5	8	11	13	16	19	21	24
1628	1654	1681	1708	1734	1761	1788	1814	1841	1868	1894	3	5	8	11	13	16	19	21	24
1629	1921	1948	1974	2001	2028	2054	2081	2108	2134	2161	3	5	8	11	13	16	19	21	24
1630	212188	2214	2241	2267	2294	2321	2347	2374	2401	2427	3	5	8	11	13	16	19	21	24
1631	2454	2481	2507	2534	2560	2587	2614	2640	2667	2693	3	5	8	11	13	16	19	21	24
1632	2720	2747	2773	2800	2827	2853	2880	2906	2933	2960	3	5	8	11	13	16	19	21	24
1633	2986	3013	3039	3066	3093	3119	3146	3172	3199	3225	3	5	8	11	13	16	19	21	24
1634	3252	3279	3305	3332	3358	3385	3411	3438	3465	3491	3	5	8	11	13	16	19	21	24
1635	213518	3544	3571	3597	3624	3650	3677	3704	3730	3757	3	5	8	11	13	16	19	21	24
1636	3783	3810	3836	3863	3889	3916	3942	3969	3996	4022	3	5	8	11	13	16	19	21	24
1637	4049	4075	4102	4128	4155	4181	4208	4234	4261	4287	3	5	8	11	13	16	19	21	24
1638	4314	4340	4367	4393	4420	4446	4473	4499	4526	4552	3	5	8	11	13	16	19	21	24
1639	4579	4605	4632	4658	4685	4711	4738	4764	4791	4817	3	5	8	11	13	16	19	21	24
1640	214844	4870	4897	4923	4950	4976	5003	5029	5056	5082	3	5	8	11	13	16	19	21	24
1641	5109	5135	5161	5188	5214	5241	5267	5294	5320	5347	3	5	8	11	13	16	19	21	24
1642	5373	5400	5426	5452	5479	5505	5532	5558	5585	5611	3	5	8	11	13	16	19	21	24
1643	5638	5664	5690	5717	5743	5770	5796	5823	5849	5875	3	5	8	11	13	16	19	21	24
1644	5902	5928	5955	5981	6007	6034	6060	6087	6113	6139	3	5	8	11	13	16	19	21	24
1645	216166	6192	6219	6245	6271	6298	6324	6351	6377	6403	3	5	8	11	13	16	18	21	24
1646	6430	6456	6483	6509	6535	6562	6588	6614	6641	6667	3	5	8	11	13	16	18	21	24
1647	6694	6720	6746	6773	6799	6825	6852	6878	6904	6931	3	5	8	11	13	16	18	21	24
1648	6957	6984	7010	7036	7063	7089	7115	7142	7168	7194	3	5	8	11	13	16	18	21	24
1649	7221	7247	7273	7300	7326	7352	7379	7405	7431	7458	3	5	8	11	13	16	18	21	24
1650	217484	7510	7537	7563	7589	7615	7642	7668	7694	7721	3	5	8	11	13	16	18	21	24
1651	7747	7773	7800	7826	7852	7879	7905	7931	7957	7984	3	5	8	11	13	16	18	21	24
1652	8010	8036	8063	8089	8115	8141	8168	8194	8220	8247	3	5	8	11	13	16	18	21	24
1653	8273	8299	8325	8352	8378	8404	8430	8457	8483	8509	3	5	8	11	13	16	18	21	24
1654	8535	8562	8588	8614	8640	8667	8693	8719	8745	8772	3	5	8	11	13	16	18	21	24
1655	218798	8824	8850	8877	8903	8929	8955	8982	9008	9034	3	5	8	10	13	16	18	21	24
1656	9060	9087	9113	9139	9165	9191	9218	9244	9270	9296	3	5	8	10	13	16	18	21	24
1657	9322	9349	9375	9401	9427	9453	9480	9506	9532	9558	3	5	8	10	13	16	18	21	24
1658	9584	9611	9637	9663	9689	9715	9742	9768	9794	9820	3	5	8	10	13	16	18	21	24
1659	9846	9873	9899	9925	9951	9977	•••3	••30	••56	••82	3	5	8	10	13	16	18	21	24
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
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1661	0370	0396	0422	0448	0474	0500	0526	0553	0579	0605	3	5	8	10	13	16	18	21	24
1662	0631	0657	0683	0709	0735	0762	0788	0814	0840	0866	3	5	8	10	13	16	18	21	24
1663	0892	0918	0944	0971	0997	1023	1049	1075	1101	1127	3	5	8	10	13	16	18	21	24
1664	1153	1179	1205	1232	1258	1284	1310	1336	1362	1388	3	5	8	10	13	16	18	21	24
1665	221414	1440	1466	1492	1519	1545	1571	1597	1623	1649	3	5	8	10	13	16	18	21	23
1666	1675	1701	1727	1753	1779	1805	1831	1857	1883	1909	3	5	8	10	13	16	18	21	23
1667	1936	1962	1988	2014	2040	2066	2092	2118	2144	2170	3	5	8	10	13	16	18	21	23
1668	2196	2222	2248	2274	2300	2326	2352	2378	2404	2430	3	5	8	10	13	16	18	21	23
1669	2456	2482	2508	2534	2560	2586	2612	2638	2664	2690	3	5	8	10	13	16	18	21	23
1670	222716	2742	2768	2794	2820	2846	2872	2898	2924	2950	3	5	8	10	13	16	18	21	23
1671	2976	3002	3028	3054	3080	3106	3132	3158	3184	3210	3	5	8	10	13	16	18	21	23
1672	3236	3262	3288	3314	3340	3366	3392	3418	3444	3470	3	5	8	10	13	16	18	21	23
1673	3496	3522	3548	3574	3600	3626	3652	3678	3704	3729	3	5	8	10	13	16	18	21	23
1674	3755	3781	3807	3833	3859	3885	3911	3937	3963	3989	3	5	8	10	13	16	18	21	23
1675	224015	4041	4067	4093	4118	4144	4170	4196	4222	4248	3	5	8	10	13	16	18	21	23
1676	4274	4300	4326	4352	4378	4404	4429	4455	4481	4507	3	5	8	10	13	16	18	21	23
1677	4533	4559	4585	4611	4637	4662	4688	4714	4740	4766	3	5	8	10	13	16	18	21	23
1678	4792	4818	4844	4870	4895	4921	4947	4973	4999	5025	3	5	8	10	13	16	18	21	23
1679	5051	5077	5102	5128	5154	5180	5206	5232	5258	5283	3	5	8	10	13	16	18	21	23
1680	225309	5335	5361	5387	5413	5438	5464	5490	5516	5542	3	5	8	10	13	16	18	21	23
1681	5568	5594	5619	5645	5671	5697	5723	5748	5774	5800	3	5	8	10	13	16	18	21	23
1682	5826	5852	5878	5903	5929	5955	5981	6007	6032	6058	3	5	8	10	13	16	18	21	23
1683	6084	6110	6136	6161	6187	6213	6239	6265	6290	6316	3	5	8	10	13	16	18	21	23
1684	6342	6368	6394	6419	6445	6471	6497	6523	6548	6574	3	5	8	10	13	16	18	21	23
1685	226600	6626	6652	6677	6703	6729	6754	6780	6806	6832	3	5	8	10	13	15	18	21	23
1686	6858	6883	6909	6935	6961	6986	7012	7038	7064	7089	3	5	8	10	13	15	18	21	23
1687	7115	7141	7167	7192	7218	7244	7269	7295	7321	7347	3	5	8	10	13	15	18	21	23
1688	7372	7398	7424	7450	7475	7501	7527	7552	7578	7604	3	5	8	10	13	15	18	21	23
1689	7630	7655	7681	7707	7732	7758	7784	7810	7835	7861	3	5	8	10	13	15	18	21	23
1690	227887	7912	7938	7964	7989	8015	8041	8067	8092	8118	3	5	8	10	13	15	18	21	23
1691	8144	8169	8195	8221	8246	8272	8298	8323	8349	8375	3	5	8	10	13	15	18	21	23
1692	8400	8426	8452	8477	8503	8529	8554	8580	8606	8631	3	5	8	10	13	15	18	21	23
1693	8657	8683	8708	8734	8760	8785	8811	8836	8862	8888	3	5	8	10	13	15	18	21	23
1694	8913	8939	8965	8990	9016	9042	9067	9093	9118	9144	3	5	8	10	13	15	18	21	23
1695	229170	9195	9221	9247	9272	9298	9323	9349	9375	9400	3	5	8	10	13	15	18	20	23
1696	9426	9451	9477	9503	9528	9554	9579	9605	9631	9656	3	5	8	10	13	15	18	20	23
1697	9682	9707	9733	9759	9784	9810	9835	9861	9886	9912	3	5	8	10	13	15	18	20	23
1698	9938	9963	9989	••14	••40	••66	••91	•117	•142	•168	3	5	8	10	13	15	18	20	23
1699	230193	0219	0244	0270	0296	0321	0347	0372	0398	0423	3	5	8	10	13	15	18	20	23
1700	230449	0474	0500	0526	0551	0577	0602	0628	0653	0679	3	5	8	10	13	15	18	20	23
1701	0704	0730	0755	0781	0806	0832	0857	0883	0908	0934	3	5	8	10	13	15	18	20	23
1702	0960	0985	1011	1036	1062	1087	1113	1138	1164	1189	3	5	8	10	13	15	18	20	23
1703	1215	1240	1266	1291	1317	1342	1368	1393	1419	1444	3	5	8	10	13	15	18	20	23
1704	1470	1495	1521	1546	1571	1597	1622	1648	1673	1699	3	5	8	10	13	15	18	20	23
1705	231724	1750	1775	1801	1826	1852	1877	1903	1928	1954	3	5	8	10	13	15	18	20	23
1706	1979	2004	2030	2055	2081	2106	2132	2157	2183	2208	3	5	8	10	13	15	18	20	23
1707	2233	2259	2284	2310	2335	2361	2386	2412	2437	2462	3	5	8	10	13	15	18	20	23
1708	2488	2513	2539	2564	2590	2615	2640	2666	2691	2717	3	5	8	10	13	15	18	20	23
1709	2742	2767	2793	2818	2844	2869	2894	2920	2945	2971	3	5	8	10	13	15	18	20	23
1710	232996	3021	3047	3072	3098	3123	3148	3174	3199	3225	3	5	8	10	13	15	18	20	23
1711	3250	3275	3301	3326	3351	3377	3402	3428	3453	3478	3	5	8	10	13	15	18	20	23
1712	3504	3529	3554	3580	3605	3631	3656	3681	3707	3732	3	5	8	10	13	15	18	20	23
1713	3757	3783	3808	3833	3859	3884	3909	3935	3960	3985	3	5	8	10	13	15	18	20	23
1714	4011	4036	4061	4087	4112	4137	4163	4188	4213	4239	3	5	8	10	13	15	18	20	23
1715	234264	4289	4315	4340	4365	4391	4416	4441	4467	4492	3	5	8	10	13	15	18	20	23
1716	4517	4543	4568	4593	4618	4644	4669	4694	4720	4745	3	5	8	10	13	15	18	20	23
1717	4770	4796	4821	4846	4871	4897	4922	4947	4973	4998	3	5	8	10	13	15	18	20	23
1718	5023	5048	5074	5099	5124	5149	5175	5200	5225	5251	3	5	8	10	13	15	18	20	23
1719	5276	5301	5326	5352	5377	5402	5427	5453	5478	5503	3	5	8	10	13	15	18	20	23
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Proportional Parts.								

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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts. 1	2	3	4	5	6	7	8	9
1720	235528	5554	5579	5604	5629	5655	5680	5705	5730	5756	3	5	8	10	13	15	18	20	23
1721	5781	5806	5831	5857	5882	5907	5932	5957	5983	6008	3	5	8	10	13	15	18	20	23
1722	6033	6058	6084	6109	6134	6159	6184	6210	6235	6260	3	5	8	10	13	15	18	20	23
1723	6285	6310	6336	6361	6386	6411	6436	6462	6487	6512	3	5	8	10	13	15	18	20	23
1724	6537	6562	6588	6613	6638	6663	6688	6714	6739	6764	3	5	8	10	13	15	18	20	23
1725	236789	6814	6839	6865	6890	6915	6940	6965	6990	7016	3	5	8	10	13	15	18	20	23
1726	7041	7066	7091	7116	7141	7167	7192	7217	7242	7267	3	5	8	10	13	15	18	20	23
1727	7292	7317	7343	7368	7393	7418	7443	7468	7493	7519	3	5	8	10	13	15	18	20	23
1728	7544	7569	7594	7619	7644	7669	7694	7720	7745	7770	3	5	8	10	13	15	18	20	23
1729	7795	7820	7845	7870	7895	7921	7946	7971	7996	8021	3	5	8	10	13	15	18	20	23
1730	238046	8071	8096	8121	8146	8172	8197	8222	8247	8272	3	5	8	10	13	15	18	20	23
1731	8297	8322	8347	8372	8397	8422	8448	8473	8498	8523	3	5	8	10	13	15	18	20	23
1732	8548	8573	8598	8623	8648	8673	8698	8723	8748	8773	3	5	8	10	13	15	18	20	23
1733	8799	8824	8849	8874	8899	8924	8949	8974	8999	9024	3	5	8	10	13	15	18	20	23
1734	9049	9074	9099	9124	9149	9174	9199	9224	9249	9274	3	5	8	10	13	15	18	20	23
1735	239299	9324	9349	9375	9400	9425	9450	9475	9500	9525	3	5	8	10	12	15	17	20	22
1736	9550	9575	9600	9625	9650	9675	9700	9725	9750	9775	3	5	8	10	12	15	17	20	22
1737	9800	9825	9850	9875	9900	9925	9950	9975	••••5	••••25	3	5	8	10	12	15	17	20	22
1738	240050	0075	0100	0125	0150	0175	0200	0225	0250	0275	3	5	8	10	12	15	17	20	22
1739	0300	0325	0350	0374	0399	0424	0449	0474	0499	0524	3	5	8	10	12	15	17	20	22
1740	240549	0574	0599	0624	0649	0674	0699	0724	0749	0774	3	5	8	10	12	15	17	20	22
1741	0799	0824	0849	0874	0898	0923	0948	0973	0998	1023	3	5	8	10	12	15	17	20	22
1742	1048	1073	1098	1123	1148	1173	1198	1223	1248	1272	3	5	8	10	12	15	17	20	22
1743	1297	1322	1347	1372	1397	1422	1447	1472	1497	1522	3	5	8	10	12	15	17	20	22
1744	1546	1571	1596	1621	1646	1671	1696	1721	1746	1770	3	5	8	10	12	15	17	20	22
1745	241795	1820	1845	1870	1895	1920	1945	1970	1994	2019	3	5	7	10	12	15	17	20	22
1746	2044	2069	2094	2119	2144	2169	2193	2218	2243	2268	3	5	7	10	12	15	17	20	22
1747	2293	2318	2343	2367	2392	2417	2442	2467	2492	2517	3	5	7	10	12	15	17	20	22
1748	2541	2566	2591	2616	2641	2666	2690	2715	2740	2765	3	5	7	10	12	15	17	20	22
1749	2790	2815	2839	2864	2889	2914	2939	2964	2988	3013	3	5	7	10	12	15	17	20	22
1750	243038	3063	3088	3112	3137	3162	3187	3212	3236	3261	3	5	7	10	12	15	17	20	22
1751	3286	3311	3336	3360	3385	3410	3435	3460	3484	3509	3	5	7	10	12	15	17	20	22
1752	3534	3559	3584	3608	3633	3658	3683	3708	3732	3757	3	5	7	10	12	15	17	20	22
1753	3782	3807	3831	3856	3881	3906	3930	3955	3980	4005	3	5	7	10	12	15	17	20	22
1754	4030	4054	4079	4104	4129	4153	4178	4203	4228	4252	3	5	7	10	12	15	17	20	22
1755	244277	4302	4327	4351	4376	4401	4426	4450	4475	4500	3	5	7	10	12	15	17	20	22
1756	4524	4549	4574	4599	4623	4648	4673	4698	4722	4747	3	5	7	10	12	15	17	20	22
1757	4772	4796	4821	4846	4871	4895	4920	4945	4969	4994	3	5	7	10	12	15	17	20	22
1758	5019	5044	5068	5093	5118	5142	5167	5192	5216	5241	3	5	7	10	12	15	17	20	22
1759	5266	5290	5315	5340	5365	5389	5414	5439	5463	5488	3	5	7	10	12	15	17	20	22
1760	245513	5537	5562	5587	5611	5636	5661	5685	5710	5735	3	5	7	10	12	15	17	20	22
1761	5759	5784	5809	5833	5858	5883	5907	5932	5957	5981	3	5	7	10	12	15	17	20	22
1762	6006	6031	6055	6080	6104	6129	6154	6178	6203	6228	3	5	7	10	12	15	17	20	22
1763	6252	6277	6302	6326	6351	6375	6400	6425	6449	6474	3	5	7	10	12	15	17	20	22
1764	6499	6523	6548	6572	6597	6622	6646	6671	6695	6720	3	5	7	10	12	15	17	20	22
1765	246745	6769	6794	6818	6843	6868	6892	6917	6941	6966	3	5	7	10	12	15	17	20	22
1766	6991	7015	7040	7064	7089	7114	7138	7163	7187	7212	3	5	7	10	12	15	17	20	22
1767	7236	7261	7286	7310	7335	7359	7384	7409	7433	7458	3	5	7	10	12	15	17	20	22
1768	7482	7507	7531	7556	7580	7605	7630	7654	7679	7703	3	5	7	10	12	15	17	20	22
1769	7728	7752	7777	7801	7826	7851	7875	7900	7924	7949	3	5	7	10	12	15	17	20	22
1770	247973	7998	8022	8047	8071	8096	8120	8145	8169	8194	3	5	7	10	12	15	17	20	22
1771	8219	8243	8268	8292	8317	8341	8366	8390	8415	8439	3	5	7	10	12	15	17	20	22
1772	8464	8488	8513	8537	8562	8586	8611	8635	8660	8684	3	5	7	10	12	15	17	20	22
1773	8709	8733	8758	8782	8807	8831	8856	8880	8905	8929	3	5	7	10	12	15	17	20	22
1774	8954	8978	9003	9027	9051	9076	9100	9125	9149	9174	3	5	7	10	12	15	17	20	22
1775	249198	9223	9247	9272	9296	9321	9345	9370	9394	9418	3	5	7	10	12	15	17	20	22
1776	9443	9467	9492	9516	9541	9565	9590	9614	9638	9663	2	5	7	10	12	15	17	20	22
1777	9687	9712	9736	9761	9785	9810	9834	9858	9883	9907	2	5	7	10	12	15	17	20	22
1778	9932	9956	9981	••••5	••••29	••••54	••••78	•••103	•••127	•••151	2	5	7	10	12	15	17	20	22
1779	250176	0200	0225	0249	0274	0298	0322	0347	0371	0396	2	5	7	10	12	15	17	20	22
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional Parts.

LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts. 1	2	3	4	5	6	7	8	9
1780	250420	0444	0469	0493	0518	0542	0566	0591	0615	0639	2	5	7	10	12	15	17	20	22
1781	0664	0688	0713	0737	0761	0786	0810	0835	0859	0883	2	5	7	10	12	15	17	20	22
1782	0908	0932	0956	0981	1005	1029	1054	1078	1103	1127	2	5	7	10	12	15	17	20	22
1783	1151	1176	1200	1224	1249	1273	1297	1322	1346	1370	2	5	7	10	12	15	17	20	22
1784	1395	1419	1443	1468	1492	1517	1541	1565	1590	1614	2	5	7	10	12	15	17	20	22
1785	251638	1662	1687	1711	1735	1760	1784	1808	1833	1857	2	5	7	10	12	15	17	19	22
1786	1881	1906	1930	1954	1979	2003	2027	2052	2076	2100	2	5	7	10	12	15	17	19	22
1787	2125	2149	2173	2197	2222	2246	2270	2295	2319	2343	2	5	7	10	12	15	17	19	22
1788	2367	2392	2416	2440	2465	2489	2513	2537	2562	2586	2	5	7	10	12	15	17	19	22
1789	2610	2635	2659	2683	2707	2732	2756	2780	2804	2829	2	5	7	10	12	15	17	19	22
1790	252853	2877	2902	2926	2950	2974	2999	3023	3047	3071	2	5	7	10	12	15	17	19	22
1791	3096	3120	3144	3168	3193	3217	3241	3265	3289	3314	2	5	7	10	12	15	17	19	22
1792	3338	3362	3386	3411	3435	3459	3483	3508	3532	3556	2	5	7	10	12	15	17	19	22
1793	3580	3604	3629	3653	3677	3701	3726	3750	3774	3798	2	5	7	10	12	15	17	19	22
1794	3822	3847	3871	3895	3919	3943	3968	3992	4016	4040	2	5	7	10	12	15	17	19	22
1795	254064	4089	4113	4137	4161	4185	4210	4234	4258	4282	2	5	7	10	12	14	17	19	22
1796	4306	4330	4355	4379	4403	4427	4451	4476	4500	4524	2	5	7	10	12	14	17	19	22
1797	4548	4572	4596	4621	4645	4669	4693	4717	4741	4765	2	5	7	10	12	14	17	19	22
1798	4790	4814	4838	4862	4886	4910	4935	4959	4983	5007	2	5	7	10	12	14	17	19	22
1799	5031	5055	5079	5104	5128	5152	5176	5200	5224	5248	2	5	7	10	12	14	17	19	22
1800	255272	5297	5321	5345	5369	5393	5417	5441	5465	5490	2	5	7	10	12	14	17	19	22
1801	5514	5538	5562	5586	5610	5634	5658	5682	5707	5731	2	5	7	10	12	14	17	19	22
1802	5755	5779	5803	5827	5851	5875	5899	5923	5947	5972	2	5	7	10	12	14	17	19	22
1803	5996	6020	6044	6068	6092	6116	6140	6164	6188	6212	2	5	7	10	12	14	17	19	22
1804	6236	6261	6285	6309	6333	6357	6381	6405	6429	6453	2	5	7	10	12	14	17	19	22
1805	256477	6501	6525	6549	6573	6597	6621	6646	6670	6694	2	5	7	10	12	14	17	19	22
1806	6718	6742	6766	6790	6814	6838	6862	6886	6910	6934	2	5	7	10	12	14	17	19	22
1807	6958	6982	7006	7030	7054	7078	7102	7126	7150	7174	2	5	7	10	12	14	17	19	22
1808	7198	7222	7246	7270	7294	7318	7342	7366	7391	7415	2	5	7	10	12	14	17	19	22
1809	7439	7463	7487	7511	7535	7559	7583	7607	7631	7655	2	5	7	10	12	14	17	19	22
1810	257679	7703	7727	7751	7775	7799	7823	7846	7870	7894	2	5	7	10	12	14	17	19	22
1811	7918	7942	7966	7990	8014	8038	8062	8086	8110	8134	2	5	7	10	12	14	17	19	22
1812	8158	8182	8206	8230	8254	8278	8302	8326	8350	8374	2	5	7	10	12	14	17	19	22
1813	8398	8422	8446	8470	8494	8518	8541	8565	8589	8613	2	5	7	10	12	14	17	19	22
1814	8637	8661	8685	8709	8733	8757	8781	8805	8829	8853	2	5	7	10	12	14	17	19	22
1815	258877	8901	8924	8948	8972	8996	9020	9044	9068	9092	2	5	7	10	12	14	17	19	21
1816	9116	9140	9164	9188	9211	9235	9259	9283	9307	9331	2	5	7	10	12	14	17	19	21
1817	9355	9379	9403	9427	9450	9474	9498	9522	9546	9570	2	5	7	10	12	14	17	19	21
1818	9594	9618	9642	9665	9689	9713	9737	9761	9785	9809	2	5	7	10	12	14	17	19	21
1819	9833	9857	9880	9904	9928	9952	9976	••••	••24	••47	2	5	7	10	12	14	17	19	21
1820	260071	0095	0119	0143	0167	0191	0214	0238	0262	0286	2	5	7	10	12	14	17	19	21
1821	0310	0334	0358	0381	0405	0429	0453	0477	0501	0524	2	5	7	10	12	14	17	19	21
1822	0548	0572	0596	0620	0644	0667	0691	0715	0739	0763	2	5	7	10	12	14	17	19	21
1823	0787	0810	0834	0858	0882	0906	0930	0953	0977	1001	2	5	7	10	12	14	17	19	21
1824	1025	1049	1072	1096	1120	1144	1168	1191	1215	1239	2	5	7	10	12	14	17	19	21
1825	261263	1287	1310	1334	1358	1382	1406	1429	1453	1477	2	5	7	10	12	14	17	19	21
1826	1501	1525	1548	1572	1596	1620	1643	1667	1691	1715	2	5	7	10	12	14	17	19	21
1827	1738	1762	1786	1810	1834	1857	1881	1905	1929	1952	2	5	7	10	12	14	17	19	21
1828	1976	2000	2024	2047	2071	2095	2119	2142	2166	2190	2	5	7	10	12	14	17	19	21
1829	2214	2237	2261	2285	2309	2332	2356	2380	2404	2427	2	5	7	10	12	14	17	19	21
1830	262451	2475	2499	2522	2546	2570	2593	2617	2641	2665	2	5	7	10	12	14	17	19	21
1831	2688	2712	2736	2759	2783	2807	2831	2854	2878	2902	2	5	7	10	12	14	17	19	21
1832	2925	2949	2973	2997	3020	3044	3068	3091	3115	3139	2	5	7	10	12	14	17	19	21
1833	3162	3186	3210	3233	3257	3281	3305	3328	3352	3376	2	5	7	10	12	14	17	19	21
1834	3399	3423	3447	3470	3494	3518	3541	3565	3589	3612	2	5	7	10	12	14	17	19	21
1835	263636	3660	3683	3707	3731	3754	3778	3802	3825	3849	2	5	7	9	12	14	17	19	21
1836	3873	3896	3920	3944	3967	3991	4015	4038	4062	4085	2	5	7	9	12	14	17	19	21
1837	4109	4133	4156	4180	4204	4227	4251	4275	4298	4322	2	5	7	9	12	14	17	19	21
1838	4345	4369	4393	4416	4440	4464	4487	4511	4534	4558	2	5	7	9	12	14	17	19	21
1839	4582	4605	4629	4653	4676	4700	4723	4747	4771	4794	2	5	7	9	12	14	17	19	21
Nat. No.	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Proportional parts.

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PROPORTIONAL LOGARITHMS.

Seconds	0 HOUR, or 0 DEGREE.												Seconds
	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	
0	0.0000	2.2553	1.9542	1.7782	1.6532	1.5563	1.4771	1.4102	1.3522	1.3010	1.2553	1.2139	0
1	4.0334	2.2481	1.9506	1.7757	1.6514	1.5549	1.4759	1.4091	1.3513	1.3002	1.2545	1.2132	1
2	3.7324	2.2410	1.9471	1.7734	1.6496	1.5534	1.4747	1.4081	1.3504	1.2994	1.2538	1.2126	2
3	3.5563	2.2341	1.9435	1.7710	1.6478	1.5520	1.4735	1.4071	1.3495	1.2986	1.2531	1.2119	3
4	3.4314	2.2272	1.9400	1.7686	1.6460	1.5506	1.4723	1.4061	1.3486	1.2978	1.2524	1.2113	4
5	3.3345	2.2205	1.9365	1.7663	1.6443	1.5491	1.4711	1.4050	1.3477	1.2970	1.2517	1.2106	5
6	3.2553	2.2139	1.9331	1.7639	1.6425	1.5477	1.4699	1.4040	1.3468	1.2962	1.2510	1.2099	6
7	3.1883	2.2073	1.9296	1.7616	1.6407	1.5463	1.4688	1.4030	1.3459	1.2954	1.2502	1.2093	7
8	3.1303	2.2009	1.9262	1.7593	1.6390	1.5449	1.4676	1.4020	1.3450	1.2946	1.2495	1.2086	8
9	3.0792	2.1946	1.9228	1.7570	1.6372	1.5435	1.4664	1.4010	1.3441	1.2939	1.2488	1.2080	9
10	3.0334	2.1883	1.9195	1.7547	1.6355	1.5421	1.4652	1.4000	1.3432	1.2931	1.2481	1.2073	10
11	2.9920	2.1822	1.9162	1.7524	1.6338	1.5407	1.4640	1.3989	1.3423	1.2923	1.2474	1.2067	11
12	2.9542	2.1761	1.9128	1.7501	1.6320	1.5393	1.4629	1.3979	1.3415	1.2915	1.2467	1.2061	12
13	2.9195	2.1701	1.9096	1.7479	1.6303	1.5379	1.4617	1.3969	1.3406	1.2907	1.2460	1.2054	13
14	2.8873	2.1642	1.9063	1.7456	1.6286	1.5365	1.4606	1.3959	1.3397	1.2899	1.2453	1.2048	14
15	2.8573	2.1584	1.9031	1.7434	1.6269	1.5351	1.4594	1.3949	1.3388	1.2891	1.2445	1.2041	15
16	2.8293	2.1526	1.8999	1.7412	1.6252	1.5337	1.4582	1.3939	1.3379	1.2883	1.2438	1.2035	16
17	2.8030	2.1469	1.8967	1.7390	1.6235	1.5324	1.4571	1.3929	1.3371	1.2876	1.2431	1.2028	17
18	2.7782	2.1413	1.8935	1.7368	1.6218	1.5310	1.4559	1.3919	1.3362	1.2868	1.2424	1.2022	18
19	2.7547	2.1358	1.8904	1.7346	1.6201	1.5296	1.4548	1.3910	1.3353	1.2860	1.2417	1.2016	19
20	2.7324	2.1303	1.8873	1.7324	1.6185	1.5283	1.4536	1.3900	1.3345	1.2852	1.2410	1.2009	20
21	2.7112	2.1249	1.8842	1.7302	1.6168	1.5269	1.4525	1.3890	1.3336	1.2845	1.2403	1.2003	21
22	2.6910	2.1196	1.8811	1.7281	1.6151	1.5256	1.4514	1.3880	1.3327	1.2837	1.2396	1.1996	22
23	2.6717	2.1143	1.8781	1.7259	1.6135	1.5242	1.4502	1.3870	1.3319	1.2829	1.2389	1.1990	23
24	2.6532	2.1091	1.8751	1.7238	1.6118	1.5229	1.4491	1.3860	1.3310	1.2821	1.2382	1.1984	24
25	2.6355	2.1040	1.8721	1.7217	1.6102	1.5215	1.4480	1.3851	1.3301	1.2814	1.2375	1.1977	25
26	2.6185	2.0989	1.8691	1.7196	1.6085	1.5202	1.4468	1.3841	1.3293	1.2806	1.2368	1.1971	26
27	2.6021	2.0939	1.8661	1.7175	1.6069	1.5189	1.4457	1.3831	1.3284	1.2798	1.2362	1.1965	27
28	2.5863	2.0889	1.8632	1.7154	1.6053	1.5175	1.4446	1.3821	1.3276	1.2791	1.2355	1.1958	28
29	2.5710	2.0840	1.8602	1.7133	1.6037	1.5162	1.4435	1.3812	1.3267	1.2783	1.2348	1.1952	29
30	2.5563	2.0792	1.8573	1.7112	1.6021	1.5149	1.4424	1.3802	1.3259	1.2775	1.2341	1.1946	30
31	2.5421	2.0744	1.8544	1.7091	1.6005	1.5136	1.4412	1.3792	1.3250	1.2768	1.2334	1.1939	31
32	2.5283	2.0696	1.8516	1.7071	1.5989	1.5123	1.4401	1.3783	1.3242	1.2760	1.2327	1.1933	32
33	2.5149	2.0649	1.8487	1.7050	1.5973	1.5110	1.4390	1.3773	1.3233	1.2753	1.2320	1.1927	33
34	2.5019	2.0603	1.8459	1.7030	1.5957	1.5097	1.4379	1.3764	1.3225	1.2745	1.2313	1.1921	34
35	2.4894	2.0557	1.8431	1.7010	1.5941	1.5084	1.4368	1.3754	1.3216	1.2738	1.2307	1.1914	35
36	2.4771	2.0512	1.8403	1.6990	1.5925	1.5071	1.4357	1.3745	1.3208	1.2730	1.2300	1.1908	36
37	2.4652	2.0467	1.8375	1.6970	1.5909	1.5058	1.4346	1.3735	1.3199	1.2722	1.2293	1.1902	37
38	2.4536	2.0422	1.8348	1.6950	1.5894	1.5045	1.4335	1.3726	1.3191	1.2715	1.2286	1.1896	38
39	2.4424	2.0378	1.8320	1.6930	1.5878	1.5032	1.4325	1.3716	1.3183	1.2707	1.2279	1.1889	39
40	2.4314	2.0334	1.8293	1.6910	1.5863	1.5019	1.4314	1.3707	1.3174	1.2700	1.2272	1.1883	40
41	2.4206	2.0291	1.8266	1.6890	1.5847	1.5007	1.4303	1.3697	1.3166	1.2692	1.2266	1.1877	41
42	2.4102	2.0248	1.8239	1.6871	1.5832	1.4994	1.4292	1.3688	1.3158	1.2685	1.2259	1.1871	42
43	2.4000	2.0206	1.8212	1.6851	1.5816	1.4981	1.4281	1.3678	1.3149	1.2678	1.2252	1.1865	43
44	2.3900	2.0164	1.8186	1.6832	1.5801	1.4969	1.4270	1.3669	1.3141	1.2670	1.2245	1.1859	44
45	2.3802	2.0122	1.8159	1.6812	1.5786	1.4956	1.4260	1.3660	1.3133	1.2663	1.2239	1.1852	45
46	2.3707	2.0081	1.8133	1.6793	1.5771	1.4943	1.4249	1.3650	1.3124	1.2655	1.2232	1.1846	46
47	2.3613	2.0040	1.8107	1.6774	1.5755	1.4931	1.4238	1.3641	1.3116	1.2648	1.2225	1.1840	47
48	2.3522	2.0000	1.8081	1.6755	1.5740	1.4918	1.4228	1.3632	1.3108	1.2640	1.2218	1.1834	48
49	2.3432	1.9960	1.8055	1.6736	1.5725	1.4906	1.4217	1.3623	1.3100	1.2633	1.2212	1.1828	49
50	2.3345	1.9920	1.8030	1.6717	1.5710	1.4894	1.4206	1.3613	1.3091	1.2626	1.2205	1.1822	50
51	2.3259	1.9881	1.8004	1.6698	1.5695	1.4881	1.4196	1.3604	1.3083	1.2618	1.2198	1.1816	51
52	2.3174	1.9842	1.7979	1.6679	1.5680	1.4869	1.4185	1.3595	1.3075	1.2611	1.2192	1.1809	52
53	2.3091	1.9803	1.7954	1.6661	1.5666	1.4856	1.4175	1.3586	1.3067	1.2604	1.2185	1.1803	53
54	2.3010	1.9765	1.7929	1.6642	1.5651	1.4844	1.4164	1.3576	1.3059	1.2596	1.2178	1.1797	54
55	2.2931	1.9727	1.7904	1.6624	1.5636	1.4832	1.4154	1.3567	1.3051	1.2589	1.2172	1.1791	55
56	2.2852	1.9690	1.7879	1.6605	1.5621	1.4820	1.4143	1.3558	1.3043	1.2582	1.2165	1.1785	56
57	2.2775	1.9652	1.7855	1.6587	1.5607	1.4808	1.4133	1.3549	1.3034	1.2574	1.2159	1.1779	57
58	2.2700	1.9615	1.7830	1.6568	1.5592	1.4795	1.4122	1.3540	1.3026	1.2567	1.2152	1.1773	58
59	2.2626	1.9579	1.7806	1.6550	1.5578	1.4783	1.4112	1.3531	1.3018	1.2560	1.2145	1.1767	59
Seconds	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	Seconds
	0 HOUR, or 0 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	0 HOUR, or 0 DEGREE.												Seconds
	12′	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	
0	1.1761	1.1413	1.1091	1.0792	1.0512	1.0248	1.0000	9765	9542	9331	9128	8935	0
1	1.1755	1.1408	1.1086	1.0787	1.0507	1.0244	9996	9761	9539	9327	9125	8932	1
2	1.1749	1.1402	1.1081	1.0782	1.0502	1.0240	9992	9758	9535	9324	9122	8929	2
3	1.1743	1.1397	1.1076	1.0777	1.0498	1.0235	9988	9754	9532	9320	9119	8926	3
4	1.1737	1.1391	1.1071	1.0773	1.0493	1.0231	9984	9750	9528	9317	9115	8923	4
5	1.1731	1.1386	1.1066	1.0768	1.0489	1.0227	9980	9746	9524	9313	9112	8920	5
6	1.1725	1.1380	1.1061	1.0763	1.0484	1.0223	9976	9742	9521	9310	9109	8917	6
7	1.1719	1.1374	1.1055	1.0758	1.0480	1.0219	9972	9739	9517	9306	9106	8913	7
8	1.1713	1.1369	1.1050	1.0753	1.0475	1.0214	9968	9735	9514	9303	9102	8910	8
9	1.1707	1.1363	1.1045	1.0749	1.0471	1.0210	9964	9731	9510	9300	9099	8907	9
10	1.1701	1.1358	1.1040	1.0744	1.0467	1.0206	9960	9727	9506	9296	9096	8904	10
11	1.1695	1.1352	1.1035	1.0739	1.0462	1.0202	9956	9723	9503	9293	9092	8901	11
12	1.1689	1.1347	1.1030	1.0734	1.0458	1.0197	9952	9720	9499	9289	9089	8898	12
13	1.1683	1.1342	1.1025	1.0730	1.0453	1.0193	9948	9716	9496	9286	9086	8895	13
14	1.1677	1.1336	1.1020	1.0725	1.0449	1.0189	9944	9712	9492	9283	9083	8892	14
15	1.1671	1.1331	1.1015	1.0720	1.0444	1.0185	9940	9708	9488	9279	9079	8888	15
16	1.1665	1.1325	1.1009	1.0715	1.0440	1.0181	9936	9705	9485	9276	9076	8885	16
17	1.1660	1.1320	1.1004	1.0711	1.0435	1.0176	9932	9701	9481	9272	9073	8882	17
18	1.1654	1.1314	1.0999	1.0706	1.0431	1.0172	9928	9697	9478	9269	9070	8879	18
19	1.1648	1.1309	1.0994	1.0701	1.0426	1.0168	9924	9693	9474	9266	9066	8876	19
20	1.1642	1.1303	1.0989	1.0696	1.0422	1.0164	9920	9690	9471	9262	9063	8873	20
21	1.1636	1.1298	1.0984	1.0692	1.0418	1.0160	9916	9686	9467	9259	9060	8870	21
22	1.1630	1.1292	1.0979	1.0687	1.0413	1.0156	9912	9682	9464	9255	9057	8867	22
23	1.1624	1.1287	1.0974	1.0682	1.0409	1.0151	9908	9678	9460	9252	9053	8864	23
24	1.1619	1.1282	1.0969	1.0678	1.0404	1.0147	9905	9675	9456	9249	9050	8861	24
25	1.1613	1.1276	1.0964	1.0673	1.0400	1.0143	9901	9671	9453	9245	9047	8857	25
26	1.1607	1.1271	1.0959	1.0668	1.0395	1.0139	9897	9667	9449	9242	9044	8854	26
27	1.1601	1.1266	1.0954	1.0663	1.0391	1.0135	9893	9664	9446	9238	9041	8851	27
28	1.1595	1.1260	1.0949	1.0659	1.0387	1.0131	9889	9660	9442	9235	9037	8848	28
29	1.1589	1.1255	1.0944	1.0654	1.0382	1.0126	9885	9656	9439	9232	9034	8845	29
30	1.1584	1.1249	1.0939	1.0649	1.0378	1.0122	9881	9652	9435	9228	9031	8842	30
31	1.1578	1.1244	1.0934	1.0645	1.0374	1.0118	9877	9649	9432	9225	9028	8839	31
32	1.1572	1.1239	1.0929	1.0640	1.0369	1.0114	9873	9645	9428	9222	9024	8836	32
33	1.1566	1.1233	1.0924	1.0635	1.0365	1.0110	9869	9641	9425	9218	9021	8833	33
34	1.1561	1.1228	1.0919	1.0631	1.0360	1.0106	9865	9638	9421	9215	9018	8830	34
35	1.1555	1.1223	1.0914	1.0626	1.0356	1.0102	9861	9634	9418	9212	9015	8827	35
36	1.1549	1.1217	1.0909	1.0621	1.0352	1.0098	9858	9630	9414	9208	9012	8824	36
37	1.1543	1.1212	1.0904	1.0617	1.0347	1.0093	9854	9626	9411	9205	9008	8821	37
38	1.1538	1.1207	1.0899	1.0612	1.0343	1.0089	9850	9623	9407	9201	9005	8817	38
39	1.1532	1.1201	1.0894	1.0608	1.0339	1.0085	9846	9619	9404	9198	9002	8814	39
40	1.1526	1.1196	1.0889	1.0603	1.0334	1.0081	9842	9615	9400	9195	8999	8811	40
41	1.1520	1.1191	1.0884	1.0598	1.0330	1.0077	9838	9612	9397	9191	8996	8808	41
42	1.1515	1.1186	1.0880	1.0594	1.0326	1.0073	9834	9608	9393	9188	8992	8805	42
43	1.1509	1.1180	1.0875	1.0589	1.0321	1.0069	9830	9604	9390	9185	8989	8802	43
44	1.1503	1.1175	1.0870	1.0585	1.0317	1.0065	9827	9601	9386	9181	8986	8799	44
45	1.1498	1.1170	1.0865	1.0580	1.0313	1.0061	9823	9597	9383	9178	8983	8796	45
46	1.1492	1.1164	1.0860	1.0575	1.0308	1.0057	9819	9593	9379	9175	8980	8793	46
47	1.1486	1.1159	1.0855	1.0571	1.0304	1.0053	9815	9590	9376	9171	8977	8790	47
48	1.1481	1.1154	1.0850	1.0566	1.0300	1.0049	9811	9586	9372	9168	8973	8787	48
49	1.1475	1.1149	1.0845	1.0562	1.0295	1.0044	9807	9582	9369	9165	8970	8784	49
50	1.1469	1.1143	1.0840	1.0557	1.0291	1.0040	9803	9579	9365	9162	8967	8781	50
51	1.1464	1.1138	1.0835	1.0552	1.0287	1.0036	9800	9575	9362	9158	8964	8778	51
52	1.1458	1.1133	1.0831	1.0548	1.0282	1.0032	9796	9571	9358	9155	8961	8775	52
53	1.1452	1.1128	1.0826	1.0543	1.0278	1.0028	9792	9568	9355	9152	8958	8772	53
54	1.1447	1.1123	1.0821	1.0539	1.0274	1.0024	9788	9564	9351	9148	8954	8769	54
55	1.1441	1.1117	1.0816	1.0534	1.0270	1.0020	9784	9561	9348	9145	8951	8766	55
56	1.1436	1.1112	1.0811	1.0530	1.0265	1.0016	9780	9557	9344	9142	8948	8763	56
57	1.1430	1.1107	1.0806	1.0525	1.0261	1.0012	9777	9553	9341	9138	8945	8760	57
58	1.1424	1.1102	1.0801	1.0521	1.0257	1.0008	9773	9550	9337	9135	8942	8757	58
59	1.1419	1.1097	1.0797	1.0516	1.0252	1.0004	9769	9546	9334	9132	8939	8754	59
Seconds	12′	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	Seconds
	0 HOUR, or 0 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	0 HOUR, or 0 DEGREE.												Seconds
	24′	25′	26′	27′	28′	29′	30′	31′	32′	33′	34′	35′	
0	8751	8573	8403	8239	8081	7929	7782	7639	7501	7368	7238	7112	0
1	8748	8570	8400	8236	8079	7926	7779	7637	7499	7365	7236	7110	1
2	8745	8568	8397	8234	8076	7924	7777	7634	7497	7363	7234	7108	2
3	8742	8565	8395	8231	8073	7921	7774	7632	7494	7361	7232	7106	3
4	8739	8562	8392	8228	8071	7919	7772	7630	7492	7359	7229	7104	4
5	8736	8559	8389	8226	8068	7916	7769	7627	7490	7357	7227	7102	5
6	8733	8556	8386	8223	8066	7914	7767	7625	7488	7354	7225	7100	6
7	8730	8553	8384	8220	8063	7911	7765	7623	7485	7352	7223	7098	7
8	8727	8550	8381	8218	8061	7909	7762	7620	7483	7350	7221	7096	8
9	8724	8547	8378	8215	8058	7906	7760	7618	7481	7348	7219	7093	9
10	8721	8544	8375	8212	8055	7904	7757	7616	7479	7346	7217	7091	10
11	8718	8542	8372	8210	8053	7901	7755	7613	7476	7344	7215	7089	11
12	8715	8539	8370	8207	8050	7899	7753	7611	7474	7341	7212	7087	12
13	8712	8536	8367	8204	8048	7896	7750	7609	7472	7339	7210	7085	13
14	8709	8533	8364	8202	8045	7894	7748	7607	7470	7337	7208	7083	14
15	8706	8530	8361	8199	8043	7891	7745	7604	7467	7335	7206	7081	15
16	8703	8527	8359	8196	8040	7889	7743	7602	7465	7333	7204	7079	16
17	8700	8524	8356	8194	8037	7887	7741	7600	7463	7330	7202	7077	17
18	8697	8522	8353	8191	8035	7884	7738	7597	7461	7328	7200	7075	18
19	8694	8519	8350	8188	8032	7882	7736	7595	7458	7326	7198	7073	19
20	8691	8516	8348	8186	8030	7879	7734	7593	7456	7324	7196	7071	20
21	8688	8513	8345	8183	8027	7877	7731	7590	7454	7322	7193	7069	21
22	8685	8510	8342	8181	8025	7874	7729	7588	7452	7320	7191	7067	22
23	8682	8507	8339	8178	8022	7872	7726	7586	7450	7317	7189	7065	23
24	8679	8504	8337	8175	8020	7869	7724	7583	7447	7315	7187	7063	24
25	8676	8502	8334	8173	8017	7867	7722	7581	7445	7313	7185	7061	25
26	8673	8499	8331	8170	8014	7864	7719	7579	7443	7311	7183	7059	26
27	8670	8496	8328	8167	8012	7862	7717	7577	7441	7309	7181	7057	27
28	8667	8493	8326	8165	8009	7859	7714	7574	7438	7307	7179	7055	28
29	8664	8490	8323	8162	8007	7857	7712	7572	7436	7304	7177	7052	29
30	8661	8487	8320	8159	8004	7855	7710	7570	7434	7302	7175	7050	30
31	8658	8484	8318	8157	8002	7852	7707	7567	7432	7300	7172	7048	31
32	8655	8482	8315	8154	7999	7850	7705	7565	7429	7298	7170	7046	32
33	8652	8479	8312	8152	7997	7847	7703	7563	7427	7296	7168	7044	33
34	8649	8476	8309	8149	7994	7845	7700	7560	7425	7294	7166	7042	34
35	8646	8473	8307	8146	7992	7842	7698	7558	7423	7291	7164	7040	35
36	8643	8470	8304	8144	7989	7840	7696	7556	7421	7289	7162	7038	36
37	8640	8467	8301	8141	7987	7837	7693	7554	7418	7287	7160	7036	37
38	8637	8465	8298	8138	7984	7835	7691	7551	7416	7285	7158	7034	38
39	8635	8462	8296	8136	7981	7832	7688	7549	7414	7283	7156	7032	39
40	8632	8459	8293	8133	7979	7830	7686	7547	7412	7281	7154	7030	40
41	8629	8456	8290	8131	7976	7828	7684	7544	7409	7279	7152	7028	41
42	8626	8453	8288	8128	7974	7825	7681	7542	7407	7276	7149	7026	42
43	8623	8451	8285	8125	7971	7823	7679	7540	7405	7274	7147	7024	43
44	8620	8448	8282	8123	7969	7820	7677	7538	7403	7272	7145	7022	44
45	8617	8445	8279	8120	7966	7818	7674	7535	7401	7270	7143	7020	45
46	8614	8442	8277	8117	7964	7815	7672	7533	7398	7268	7141	7018	46
47	8611	8439	8274	8115	7961	7813	7670	7531	7396	7266	7139	7016	47
48	8608	8437	8271	8112	7959	7811	7667	7528	7394	7264	7137	7014	48
49	8605	8434	8269	8110	7956	7808	7665	7526	7392	7261	7135	7012	49
50	8602	8431	8266	8107	7954	7806	7663	7524	7390	7259	7133	7010	50
51	8599	8428	8263	8104	7951	7803	7660	7522	7387	7257	7131	7008	51
52	8597	8425	8261	8102	7949	7801	7658	7519	7385	7255	7129	7006	52
53	8594	8423	8258	8099	7946	7798	7655	7517	7383	7253	7127	7004	53
54	8591	8420	8255	8097	7944	7796	7653	7515	7381	7251	7124	7002	54
55	8588	8417	8253	8094	7941	7794	7651	7513	7379	7249	7122	7000	55
56	8585	8414	8250	8091	7939	7791	7648	7510	7376	7246	7120	6998	56
57	8582	8411	8247	8089	7936	7789	7646	7508	7374	7244	7118	6996	57
58	8579	8409	8244	8086	7934	7786	7644	7506	7372	7242	7116	6994	58
59	8576	8406	8242	8084	7931	7784	7641	7503	7370	7240	7114	6992	59
Seconds	24′	25′	26′	27′	28′	29′	30′	31′	32′	33′	34′	35′	Seconds
	0 HOUR, or 0 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	0 HOUR or 0 DEGREE.												Seconds
	36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′	47′	
0	6990	6871	6755	6642	6532	6425	6320	6218	6118	6021	5925	5832	0
1	6988	6869	6753	6640	6530	6423	6319	6216	6117	6019	5924	5830	1
2	6986	6867	6751	6638	6529	6421	6317	6215	6115	6017	5922	5829	2
3	6984	6865	6749	6637	6527	6420	6315	6213	6113	6016	5920	5827	3
4	6982	6863	6747	6635	6525	6418	6313	6211	6112	6014	5919	5826	4
5	6980	6861	6745	6633	6523	6416	6312	6210	6110	6013	5917	5824	5
6	6978	6859	6743	6631	6521	6414	6310	6208	6108	6011	5916	5823	6
7	6976	6857	6742	6629	6519	6413	6308	6206	6107	6009	5914	5821	7
8	6974	6855	6740	6627	6518	6411	6306	6205	6105	6008	5913	5819	8
9	6972	6853	6738	6625	6516	6409	6305	6203	6103	6006	5911	5818	9
10	6970	6851	6736	6624	6514	6407	6303	6201	6102	6005	5909	5816	10
11	6968	6849	6734	6622	6512	6406	6301	6200	6100	6003	5908	5815	11
12	6966	6847	6732	6620	6510	6404	6300	6198	6099	6001	5906	5813	12
13	6964	6845	6730	6618	6509	6402	6298	6196	6097	6000	5905	5812	13
14	6962	6843	6728	6616	6507	6400	6296	6195	6095	5998	5903	5810	14
15	6960	6841	6726	6614	6505	6398	6294	6193	6094	5997	5902	5809	15
16	6958	6840	6725	6612	6503	6397	6293	6191	6092	5995	5900	5807	16
17	6956	6838	6723	6611	6501	6395	6291	6190	6090	5993	5898	5806	17
18	6954	6836	6721	6609	6500	6393	6289	6188	6089	5992	5897	5804	18
19	6952	6834	6719	6607	6498	6391	6288	6186	6087	5990	5895	5803	19
20	6950	6832	6717	6605	6496	6390	6286	6185	6085	5989	5894	5801	20
21	6948	6830	6715	6603	6494	6388	6284	6183	6084	5987	5892	5800	21
22	6946	6828	6713	6601	6492	6386	6282	6181	6082	5985	5891	5798	22
23	6944	6826	6711	6600	6491	6384	6281	6179	6081	5984	5889	5796	23
24	6942	6824	6709	6598	6489	6383	6279	6178	6079	5982	5888	5795	24
25	6940	6822	6708	6596	6487	6381	6277	6176	6077	5981	5886	5793	25
26	6938	6820	6706	6594	6485	6379	6276	6174	6076	5979	5884	5792	26
27	6936	6818	6704	6592	6484	6377	6274	6173	6074	5977	5883	5790	27
28	6934	6816	6702	6590	6482	6376	6272	6171	6072	5976	5881	5789	28
29	6932	6814	6700	6589	6480	6374	6271	6169	6071	5974	5880	5787	29
30	6930	6812	6698	6587	6478	6372	6269	6168	6069	5973	5878	5786	30
31	6928	6810	6696	6585	6476	6371	6267	6166	6067	5971	5877	5784	31
32	6926	6809	6694	6583	6475	6369	6265	6165	6066	5969	5875	5783	32
33	6924	6807	6692	6581	6473	6367	6264	6163	6064	5968	5874	5781	33
34	6922	6805	6691	6579	6471	6365	6262	6161	6063	5966	5872	5780	34
35	6920	6803	6689	6578	6469	6364	6260	6160	6061	5965	5870	5778	35
36	6918	6801	6687	6576	6467	6362	6259	6158	6059	5963	5869	5777	36
37	6916	6799	6685	6574	6466	6360	6257	6156	6058	5961	5867	5775	37
38	6914	6797	6683	6572	6464	6358	6255	6155	6056	5960	5866	5774	38
39	6912	6795	6681	6570	6462	6357	6254	6153	6055	5958	5864	5772	39
40	6910	6793	6679	6568	6460	6355	6252	6151	6053	5957	5863	5771	40
41	6908	6791	6677	6567	6459	6353	6250	6150	6051	5955	5861	5769	41
42	6906	6789	6676	6565	6457	6351	6248	6148	6050	5954	5860	5768	42
43	6904	6787	6674	6563	6455	6350	6247	6146	6048	5952	5858	5766	43
44	6902	6785	6672	6561	6453	6348	6245	6145	6046	5950	5856	5765	44
45	6900	6784	6670	6559	6451	6346	6243	6143	6045	5949	5855	5763	45
46	6898	6782	6668	6558	6450	6344	6242	6141	6043	5947	5853	5761	46
47	6896	6780	6666	6556	6448	6343	6240	6140	6042	5946	5852	5760	47
48	6894	6778	6664	6554	6446	6341	6238	6138	6040	5944	5850	5758	48
49	6892	6776	6663	6552	6444	6339	6237	6136	6038	5942	5849	5757	49
50	6890	6774	6661	6550	6443	6338	6235	6135	6037	5941	5847	5755	50
51	6888	6772	6659	6548	6441	6336	6233	6133	6035	5939	5846	5754	51
52	6886	6770	6657	6547	6439	6334	6232	6131	6033	5938	5844	5752	52
53	6884	6768	6655	6545	6437	6332	6230	6130	6032	5936	5843	5751	53
54	6882	6766	6653	6543	6435	6331	6228	6128	6030	5935	5841	5749	54
55	6881	6764	6651	6541	6434	6329	6226	6126	6029	5933	5839	5748	55
56	6879	6763	6650	6539	6432	6327	6225	6125	6027	5931	5838	5746	56
57	6877	6761	6648	6538	6430	6325	6223	6123	6025	5930	5836	5745	57
58	6875	6759	6646	6536	6428	6324	6221	6121	6024	5928	5835	5743	58
59	6873	6757	6644	6534	6427	6322	6220	6120	6022	5927	5833	5742	59
Seconds	36	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′	47′	Seconds
	0 HOUR or 0 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	0 HOUR or 0 DEGREE.												Seconds
	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	
0	5740	5651	5563	5477	5393	5310	5229	5149	5071	4994	4918	4844	0
1	5739	5649	5562	5476	5391	5309	5227	5148	5070	4993	4917	4843	1
2	5737	5648	5560	5474	5390	5307	5226	5146	5068	4991	4916	4842	2
3	5736	5646	5559	5473	5389	5306	5225	5145	5067	4990	4915	4841	3
4	5734	5645	5557	5471	5387	5305	5223	5144	5066	4989	4913	4839	4
5	5733	5643	5556	5470	5386	5303	5222	5143	5064	4988	4912	4838	5
6	5731	5642	5554	5469	5384	5302	5221	5141	5063	4986	4911	4837	6
7	5730	5640	5553	5467	5383	5300	5219	5140	5062	4985	4910	4836	7
8	5728	5639	5551	5466	5382	5299	5218	5139	5061	4984	4908	4834	8
9	5727	5637	5550	5464	5380	5298	5217	5137	5059	4983	4907	4833	9
10	5725	5636	5549	5463	5379	5296	5215	5136	5058	4981	4906	4832	10
11	5724	5635	5547	5461	5377	5295	5214	5135	5057	4980	4905	4831	11
12	5722	5633	5546	5460	5376	5294	5213	5133	5055	4979	4903	4830	12
13	5721	5632	5544	5459	5375	5292	5211	5132	5054	4977	4902	4828	13
14	5719	5630	5543	5457	5373	5291	5210	5131	5053	4976	4901	4827	14
15	5718	5629	5541	5456	5372	5290	5209	5129	5051	4975	4900	4826	15
16	5716	5627	5540	5454	5370	5288	5207	5128	5050	4974	4899	4825	16
17	5715	5626	5538	5453	5369	5287	5206	5127	5049	4972	4897	4823	17
18	5713	5624	5537	5452	5368	5285	5205	5125	5048	4971	4896	4822	18
19	5712	5623	5536	5450	5366	5284	5203	5124	5046	4970	4895	4821	19
20	5710	5621	5534	5449	5365	5283	5202	5123	5045	4969	4894	4820	20
21	5709	5620	5533	5447	5364	5281	5201	5122	5044	4967	4892	4819	21
22	5707	5618	5531	5446	5362	5280	5199	5120	5043	4966	4891	4817	22
23	5706	5617	5530	5445	5361	5279	5198	5119	5041	4965	4890	4816	23
24	5704	5615	5528	5443	5359	5277	5197	5118	5040	4964	4889	4815	24
25	5703	5614	5527	5442	5358	5276	5195	5116	5039	4962	4887	4814	25
26	5701	5613	5526	5440	5357	5275	5194	5115	5037	4961	4886	4812	26
27	5700	5611	5524	5439	5355	5273	5193	5114	5036	4960	4885	4811	27
28	5698	5610	5522	5437	5354	5272	5191	5112	5035	4959	4884	4810	28
29	5697	5608	5521	5436	5353	5271	5190	5111	5034	4957	4882	4809	29
30	5695	5607	5520	5435	5351	5269	5189	5110	5032	4956	4881	4808	30
31	5694	5605	5518	5433	5350	5268	5187	5108	5031	4955	4880	4806	31
32	5692	5604	5517	5432	5348	5266	5186	5107	5030	4954	4879	4805	32
33	5691	5602	5516	5430	5347	5265	5185	5106	5028	4952	4877	4804	33
34	5689	5601	5514	5429	5346	5264	5183	5105	5027	4951	4876	4803	34
35	5688	5599	5513	5428	5344	5262	5182	5103	5026	4950	4875	4801	35
36	5686	5598	5511	5426	5343	5261	5181	5102	5025	4949	4874	4800	36
37	5685	5596	5510	5425	5341	5260	5179	5101	5023	4947	4873	4799	37
38	5683	5595	5508	5423	5340	5258	5178	5099	5022	4946	4871	4798	38
39	5682	5594	5507	5422	5339	5257	5177	5098	5021	4945	4870	4797	39
40	5680	5592	5506	5421	5337	5256	5175	5097	5019	4943	4869	4795	40
41	5679	5591	5504	5419	5336	5254	5174	5095	5018	4942	4868	4794	41
42	5677	5589	5503	5418	5335	5253	5173	5094	5017	4941	4866	4793	42
43	5676	5588	5501	5416	5333	5252	5172	5093	5016	4940	4865	4792	43
44	5674	5586	5500	5415	5332	5250	5170	5092	5014	4938	4864	4791	44
45	5673	5585	5498	5414	5331	5249	5169	5090	5013	4937	4863	4789	45
46	5671	5583	5497	5412	5329	5248	5168	5089	5012	4936	4861	4788	46
47	5670	5582	5496	5411	5328	5246	5166	5088	5011	4935	4860	4787	47
48	5669	5580	5494	5409	5326	5245	5165	5086	5009	4933	4859	4786	48
49	5667	5579	5493	5408	5325	5244	5164	5085	5008	4932	4858	4785	49
50	5666	5578	5491	5407	5324	5242	5162	5084	5007	4931	4856	4783	50
51	5664	5576	5490	5405	5322	5241	5161	5082	5005	4930	4855	4782	51
52	5663	5575	5488	5404	5321	5240	5160	5081	5004	4928	4854	4781	52
53	5661	5573	5487	5402	5320	5238	5158	5080	5003	4927	4853	4780	53
54	5660	5572	5486	5401	5318	5237	5157	5079	5002	4926	4852	4778	54
55	5658	5570	5484	5400	5317	5235	5156	5077	5000	4925	4850	4777	55
56	5657	5569	5483	5398	5315	5234	5154	5076	4999	4923	4849	4776	56
57	5655	5567	5481	5397	5314	5233	5153	5075	4998	4922	4848	4775	57
58	5654	5566	5480	5395	5313	5231	5152	5073	4997	4921	4847	4774	58
59	5652	5564	5478	5394	5311	5230	5150	5072	4995	4920	4845	4772	59
Seconds	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	Seconds
	0 HOUR or 0 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	1 HOUR, or 1 DEGREE.												Seconds
	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	
0	4771	4699	4629	4559	4491	4424	4357	4292	4228	4164	4102	4040	0
1	4770	4698	4628	4558	4490	4422	4356	4291	4227	4163	4101	4039	1
2	4769	4697	4626	4557	4489	4421	4355	4290	4226	4162	4100	4038	2
3	4768	4696	4625	4556	4488	4420	4354	4289	4224	4161	4099	4037	3
4	4766	4695	4624	4555	4486	4419	4353	4288	4223	4160	4098	4036	4
5	4765	4693	4623	4554	4485	4418	4352	4287	4222	4159	4097	4035	5
6	4764	4692	4622	4552	4484	4417	4351	4285	4221	4158	4096	4034	6
7	4763	4691	4621	4551	4483	4416	4350	4284	4220	4157	4095	4033	7
8	4762	4690	4619	4550	4482	4415	4349	4283	4219	4156	4093	4032	8
9	4760	4689	4618	4549	4481	4414	4347	4282	4218	4155	4092	4031	9
10	4759	4688	4617	4548	4480	4412	4346	4281	4217	4154	4091	4030	10
11	4758	4686	4616	4547	4479	4411	4345	4280	4216	4153	4090	4029	11
12	4757	4685	4615	4546	4477	4410	4344	4279	4215	4152	4089	4028	12
13	4756	4684	4614	4544	4476	4409	4343	4278	4214	4151	4088	4027	13
14	4754	4683	4612	4543	4475	4408	4342	4277	4213	4150	4087	4026	14
15	4753	4682	4611	4542	4474	4407	4341	4276	4212	4149	4086	4025	15
16	4752	4680	4610	4541	4473	4406	4340	4275	4211	4147	4085	4024	16
17	4751	4679	4609	4540	4472	4405	4339	4274	4210	4146	4084	4023	17
18	4750	4678	4608	4539	4471	4404	4338	4273	4209	4145	4083	4022	18
19	4748	4677	4607	4538	4469	4402	4336	4271	4207	4144	4082	4021	19
20	4747	4676	4606	4536	4468	4401	4335	4270	4206	4143	4081	4020	20
21	4746	4675	4604	4535	4467	4400	4334	4269	4205	4142	4080	4019	21
22	4745	4673	4603	4534	4466	4399	4333	4268	4204	4141	4079	4018	22
23	4744	4672	4602	4533	4465	4398	4332	4267	4203	4140	4078	4017	23
24	4742	4671	4601	4532	4464	4397	4331	4266	4202	4139	4077	4016	24
25	4741	4670	4600	4531	4463	4396	4330	4265	4201	4138	4076	4015	25
26	4740	4669	4599	4530	4462	4395	4329	4264	4200	4137	4075	4014	26
27	4739	4668	4597	4528	4460	4394	4328	4263	4199	4136	4074	4013	27
28	4738	4666	4596	4527	4459	4393	4327	4262	4198	4135	4073	4012	28
29	4736	4665	4595	4526	4458	4391	4326	4261	4197	4134	4072	4011	29
30	4735	4664	4594	4525	4457	4390	4325	4260	4196	4133	4071	4010	30
31	4734	4663	4593	4524	4456	4389	4323	4259	4195	4132	4070	4009	31
32	4733	4662	4592	4523	4455	4388	4322	4258	4194	4131	4069	4008	32
33	4732	4660	4590	4522	4454	4387	4321	4256	4193	4130	4068	4007	33
34	4730	4659	4589	4520	4453	4386	4320	4255	4192	4129	4067	4006	34
35	4729	4658	4588	4519	4452	4385	4319	4254	4191	4128	4066	4005	35
36	4728	4657	4587	4518	4450	4384	4318	4253	4189	4127	4065	4004	36
37	4727	4656	4586	4517	4449	4383	4317	4252	4188	4126	4064	4003	37
38	4726	4655	4585	4516	4448	4381	4316	4251	4187	4125	4063	4002	38
39	4724	4653	4584	4515	4447	4380	4315	4250	4186	4124	4062	4001	39
40	4723	4652	4582	4514	4446	4379	4314	4249	4185	4122	4061	4000	40
41	4722	4651	4581	4512	4445	4378	4313	4248	4184	4121	4060	3999	41
42	4721	4650	4580	4511	4444	4377	4311	4247	4183	4120	4059	3998	42
43	4720	4649	4579	4510	4443	4376	4310	4246	4182	4119	4058	3997	43
44	4718	4648	4578	4509	4441	4375	4309	4245	4181	4118	4056	3996	44
45	4717	4646	4577	4508	4440	4374	4308	4244	4180	4117	4055	3995	45
46	4716	4645	4575	4507	4439	4373	4307	4243	4179	4116	4054	3993	46
47	4715	4644	4574	4506	4438	4372	4306	4241	4178	4115	4053	3992	47
48	4714	4643	4573	4505	4437	4370	4305	4240	4177	4114	4052	3991	48
49	4712	4642	4572	4503	4436	4369	4304	4239	4176	4113	4051	3990	49
50	4711	4640	4571	4502	4435	4368	4303	4238	4175	4112	4050	3989	50
51	4710	4639	4570	4501	4434	4367	4302	4237	4174	4111	4049	3988	51
52	4709	4638	4569	4500	4433	4366	4301	4236	4173	4110	4048	3987	52
53	4708	4637	4567	4499	4431	4365	4300	4235	4172	4109	4047	3986	53
54	4707	4636	4566	4498	4430	4364	4298	4234	4171	4108	4046	3985	54
55	4705	4635	4565	4497	4429	4363	4297	4233	4169	4107	4045	3984	55
56	4704	4633	4564	4495	4428	4362	4296	4232	4168	4106	4044	3983	56
57	4703	4632	4563	4494	4427	4361	4295	4231	4167	4105	4043	3982	57
58	4702	4631	4562	4493	4426	4359	4294	4230	4166	4104	4042	3981	58
59	4701	4630	4560	4492	4425	4358	4293	4229	4165	4103	4041	3980	59
Seconds	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	11′	Seconds
	1 HOUR, or 1 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	1 HOUR, or 1 DEGREE.												Seconds
	12′	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	
0	3979	3919	3860	3802	3745	3688	3632	3576	3522	3468	3415	3362	0
1	3978	3919	3859	3801	3744	3687	3631	3576	3521	3467	3414	3361	1
2	3977	3918	3858	3800	3743	3686	3630	3575	3520	3466	3413	3360	2
3	3976	3917	3857	3799	3742	3685	3629	3574	3519	3465	3412	3359	3
4	3975	3916	3856	3798	3741	3684	3628	3573	3518	3464	3411	3358	4
5	3974	3915	3856	3797	3740	3683	3627	3572	3517	3463	3410	3358	5
6	3973	3914	3855	3796	3739	3682	3626	3571	3516	3463	3409	3357	6
7	3972	3913	3854	3795	3738	3681	3625	3570	3515	3462	3408	3356	7
8	3971	3912	3853	3794	3737	3680	3624	3569	3514	3461	3408	3355	8
9	3970	3911	3852	3793	3736	3679	3623	3568	3514	3460	3407	3354	9
10	3969	3910	3851	3792	3735	3678	3623	3567	3513	3459	3406	3353	10
11	3968	3909	3850	3792	3734	3677	3622	3566	3512	3458	3405	3352	11
12	3967	3908	3849	3791	3733	3677	3621	3565	3511	3457	3404	3351	12
13	3966	3907	3848	3790	3732	3676	3620	3565	3510	3456	3403	3351	13
14	3965	3906	3847	3789	3731	3675	3619	3564	3509	3455	3402	3350	14
15	3964	3905	3846	3788	3730	3674	3618	3563	3508	3454	3401	3349	15
16	3963	3904	3845	3787	3729	3673	3617	3562	3507	3454	3400	3348	16
17	3962	3903	3844	3786	3728	3672	3616	3561	3506	3453	3400	3347	17
18	3961	3902	3843	3785	3727	3671	3615	3560	3506	3452	3399	3346	18
19	3960	3901	3842	3784	3727	3670	3614	3559	3505	3451	3398	3345	19
20	3959	3900	3841	3783	3726	3669	3613	3558	3504	3450	3397	3345	20
21	3958	3899	3840	3782	3725	3668	3612	3557	3503	3449	3396	3344	21
22	3957	3898	3839	3781	3724	3667	3611	3556	3502	3448	3395	3343	22
23	3956	3897	3838	3780	3723	3666	3610	3555	3501	3447	3394	3342	23
24	3955	3896	3837	3779	3722	3665	3610	3555	3500	3446	3393	3341	24
25	3954	3895	3836	3778	3721	3664	3609	3554	3499	3446	3393	3340	25
26	3953	3894	3835	3777	3720	3663	3608	3553	3498	3445	3392	3339	26
27	3952	3893	3834	3776	3719	3663	3607	3552	3497	3444	3391	3338	27
28	3951	3892	3833	3775	3718	3662	3606	3551	3497	3443	3390	3338	28
29	3950	3891	3832	3774	3717	3661	3605	3550	3496	3442	3389	3337	29
30	3949	3890	3831	3773	3716	3660	3604	3549	3495	3441	3388	3336	30
31	3948	3889	3830	3772	3715	3659	3603	3548	3494	3440	3387	3335	31
32	3947	3888	3829	3771	3714	3658	3602	3547	3493	3439	3386	3334	32
33	3946	3887	3828	3770	3713	3657	3601	3546	3492	3438	3386	3333	33
34	3945	3886	3827	3769	3712	3656	3600	3545	3491	3438	3385	3332	34
35	3944	3885	3826	3768	3711	3655	3599	3545	3490	3437	3384	3332	35
36	3943	3884	3825	3768	3710	3654	3598	3544	3489	3436	3383	3331	36
37	3942	3883	3824	3767	3709	3653	3598	3543	3488	3435	3382	3330	37
38	3941	3882	3823	3766	3709	3652	3597	3542	3488	3434	3381	3329	38
39	3940	3881	3822	3765	3708	3651	3596	3541	3487	3433	3380	3328	39
40	3939	3880	3821	3764	3707	3650	3595	3540	3486	3432	3379	3327	40
41	3938	3879	3820	3763	3706	3649	3594	3539	3485	3431	3379	3326	41
42	3937	3878	3820	3762	3705	3649	3593	3538	3484	3431	3378	3325	42
43	3936	3877	3819	3761	3704	3648	3592	3537	3483	3430	3377	3325	43
44	3935	3876	3818	3760	3703	3647	3591	3536	3482	3429	3376	3324	44
45	3934	3875	3817	3759	3702	3646	3590	3535	3481	3428	3375	3323	45
46	3933	3874	3816	3758	3701	3645	3589	3535	3480	3427	3374	3322	46
47	3932	3873	3815	3757	3700	3644	3588	3534	3480	3426	3373	3321	47
48	3931	3872	3814	3756	3699	3643	3587	3533	3479	3425	3372	3320	48
49	3930	3871	3813	3755	3698	3642	3587	3532	3478	3424	3372	3319	49
50	3929	3870	3812	3754	3697	3641	3586	3531	3477	3423	3371	3319	50
51	3928	3869	3811	3753	3696	3640	3585	3530	3476	3423	3370	3318	51
52	3927	3868	3810	3752	3695	3639	3584	3529	3475	3422	3369	3317	52
53	3926	3867	3809	3751	3694	3638	3583	3528	3474	3421	3368	3316	53
54	3925	3866	3808	3750	3693	3637	3582	3527	3473	3420	3367	3315	54
55	3924	3865	3807	3749	3693	3636	3581	3526	3472	3419	3366	3314	55
56	3923	3864	3806	3748	3692	3635	3580	3525	3471	3418	3365	3313	56
57	3922	3863	3805	3747	3691	3635	3579	3525	3471	3417	3365	3313	57
58	3921	3862	3804	3746	3690	3634	3578	3524	3470	3416	3364	3312	58
59	3920	3861	3803	3746	3689	3633	3577	3523	3469	3415	3363	3311	59
Seconds	12′	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	Seconds
	1 HOUR, or 1 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	1 HOUR, or 1 DEGREE.												Seconds
	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	
0	2218	2178	2139	2099	2061	2022	1984	1946	1908	1871	1834	1797	0
1	2218	2178	2138	2099	2060	2021	1983	1945	1908	1870	1833	1797	1
2	2217	2177	2137	2098	2059	2021	1982	1944	1907	1870	1833	1796	2
3	2216	2176	2137	2098	2059	2020	1982	1944	1906	1869	1832	1795	3
4	2216	2176	2136	2097	2058	2019	1981	1943	1906	1868	1831	1795	4
5	2215	2175	2136	2096	2057	2019	1981	1943	1905	1868	1831	1794	5
6	2214	2174	2135	2096	2057	2018	1980	1942	1904	1867	1830	1794	6
7	2214	2174	2134	2095	2056	2017	1979	1941	1904	1867	1830	1793	7
8	2213	2173	2134	2094	2055	2017	1979	1941	1903	1866	1829	1792	8
9	2212	2172	2133	2094	2055	2016	1978	1940	1903	1865	1828	1792	9
10	2212	2172	2132	2093	2054	2016	1977	1939	1902	1865	1828	1791	10
11	2211	2171	2132	2092	2053	2015	1977	1939	1901	1864	1827	1791	11
12	2210	2170	2131	2092	2053	2014	1976	1938	1901	1863	1827	1790	12
13	2210	2170	2130	2091	2052	2014	1975	1938	1900	1863	1826	1789	13
14	2209	2169	2130	2090	2052	2013	1975	1937	1899	1862	1825	1789	14
15	2208	2169	2129	2090	2051	2012	1974	1936	1899	1862	1825	1788	15
16	2208	2168	2128	2089	2050	2012	1974	1936	1898	1861	1824	1788	16
17	2207	2167	2128	2088	2050	2011	1973	1935	1898	1860	1823	1787	17
18	2206	2167	2127	2088	2049	2010	1972	1934	1897	1860	1823	1786	18
19	2206	2166	2126	2087	2048	2010	1972	1934	1896	1859	1822	1786	19
20	2205	2165	2126	2086	2048	2009	1971	1933	1896	1859	1822	1785	20
21	2204	2165	2125	2086	2047	2009	1970	1933	1895	1858	1821	1785	21
22	2204	2164	2124	2085	2046	2008	1970	1932	1894	1857	1820	1784	22
23	2203	2163	2124	2085	2046	2007	1969	1931	1894	1857	1820	1783	23
24	2202	2163	2123	2084	2045	2007	1968	1931	1893	1856	1819	1783	24
25	2202	2162	2122	2083	2044	2006	1968	1930	1893	1855	1819	1782	25
26	2201	2161	2122	2083	2044	2005	1967	1929	1892	1855	1818	1781	26
27	2200	2161	2121	2082	2043	2005	1967	1929	1891	1854	1817	1781	27
28	2200	2160	2120	2081	2042	2004	1966	1928	1891	1854	1817	1780	28
29	2199	2159	2120	2081	2042	2003	1965	1928	1890	1853	1816	1780	29
30	2198	2159	2119	2080	2041	2003	1965	1927	1889	1852	1816	1779	30
31	2198	2158	2118	2079	2041	2002	1964	1926	1889	1852	1815	1778	31
32	2197	2157	2118	2079	2040	2001	1963	1926	1888	1851	1814	1778	32
33	2196	2157	2117	2078	2039	2001	1963	1925	1888	1850	1814	1777	33
34	2196	2156	2116	2077	2039	2000	1962	1924	1887	1850	1813	1777	34
35	2195	2155	2116	2077	2038	2000	1962	1924	1886	1849	1812	1776	35
36	2194	2155	2115	2076	2037	1999	1961	1923	1886	1849	1812	1775	36
37	2194	2154	2115	2075	2037	1998	1960	1923	1885	1848	1811	1775	37
38	2193	2153	2114	2075	2036	1998	1960	1922	1884	1847	1811	1774	38
39	2192	2153	2113	2074	2035	1997	1959	1921	1884	1847	1810	1774	39
40	2192	2152	2113	2073	2035	1996	1958	1921	1883	1846	1809	1773	40
41	2191	2151	2112	2073	2034	1996	1958	1920	1883	1846	1809	1772	41
42	2190	2151	2111	2072	2033	1995	1957	1919	1882	1845	1808	1772	42
43	2190	2150	2111	2072	2033	1994	1956	1919	1881	1844	1808	1771	43
44	2189	2149	2110	2071	2032	1994	1956	1918	1881	1844	1807	1771	44
45	2188	2149	2109	2070	2032	1993	1955	1918	1880	1843	1806	1770	45
46	2188	2148	2109	2070	2031	1993	1955	1917	1880	1843	1806	1769	46
47	2187	2147	2108	2069	2030	1992	1954	1916	1879	1842	1805	1769	47
48	2186	2147	2107	2068	2030	1991	1953	1916	1878	1841	1805	1768	48
49	2186	2146	2107	2068	2029	1991	1953	1915	1878	1841	1804	1768	49
50	2185	2145	2106	2067	2028	1990	1952	1914	1877	1840	1803	1767	50
51	2184	2145	2105	2066	2028	1989	1951	1914	1876	1839	1803	1766	51
52	2184	2144	2105	2066	2027	1989	1951	1913	1876	1839	1802	1766	52
53	2183	2143	2104	2065	2026	1988	1950	1913	1875	1838	1802	1765	53
54	2182	2143	2103	2064	2026	1987	1950	1912	1875	1838	1801	1765	54
55	2182	2142	2103	2064	2025	1987	1949	1911	1874	1837	1800	1764	55
56	2181	2141	2102	2063	2025	1986	1948	1911	1873	1836	1800	1763	56
57	2180	2141	2101	2062	2024	1986	1948	1910	1873	1836	1799	1763	57
58	2180	2140	2101	2062	2023	1985	1947	1909	1872	1835	1798	1762	58
59	2179	2139	2100	2061	2023	1984	1946	1909	1871	1835	1798	1762	59
Seconds	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	Seconds
	1 HOUR, or 1 DEGREE.												

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PROPORTIONAL LOGARITHMS.

Seconds	2 HOURS, or 2 DEGREES.												Seconds
	0′.	1′.	2′.	3′.	4′.	5′.	6′.	7′.	8′.	9′.	10′.	11′.	
0	1761	1725	1689	1654	1619	1584	1549	1515	1481	1447	1413	1380	0
1	1760	1724	1689	1653	1618	1583	1548	1514	1480	1446	1413	1379	1
2	1760	1724	1688	1652	1617	1582	1548	1514	1479	1446	1412	1379	2
3	1759	1723	1687	1652	1617	1582	1547	1513	1479	1445	1412	1378	3
4	1759	1722	1687	1651	1616	1581	1547	1512	1478	1445	1411	1378	4
5	1758	1722	1686	1651	1616	1581	1546	1512	1478	1444	1411	1377	5
6	1757	1721	1686	1650	1615	1580	1546	1511	1477	1443	1410	1377	6
7	1757	1721	1685	1650	1614	1580	1545	1511	1477	1443	1409	1376	7
8	1756	1720	1684	1649	1614	1579	1544	1510	1476	1442	1409	1376	8
9	1755	1719	1684	1648	1613	1578	1544	1510	1476	1442	1408	1375	9
10	1755	1719	1683	1648	1613	1578	1543	1509	1475	1441	1408	1374	10
11	1754	1718	1683	1647	1612	1577	1543	1508	1474	1441	1407	1374	11
12	1754	1718	1682	1647	1612	1577	1542	1508	1474	1440	1407	1373	12
13	1753	1717	1681	1646	1611	1576	1542	1507	1473	1440	1406	1373	13
14	1752	1717	1681	1645	1610	1576	1541	1507	1473	1439	1406	1372	14
15	1752	1716	1680	1645	1610	1575	1540	1506	1472	1438	1405	1372	15
16	1751	1715	1680	1644	1609	1574	1540	1506	1472	1438	1404	1371	16
17	1751	1715	1679	1644	1609	1574	1539	1505	1471	1437	1404	1371	17
18	1750	1714	1678	1643	1608	1573	1539	1504	1470	1437	1403	1370	18
19	1749	1714	1678	1643	1607	1573	1538	1504	1470	1436	1403	1370	19
20	1749	1713	1677	1642	1607	1572	1538	1503	1469	1436	1402	1369	20
21	1748	1712	1677	1641	1606	1571	1537	1503	1469	1435	1402	1368	21
22	1748	1712	1676	1641	1606	1571	1536	1502	1468	1435	1401	1368	22
23	1747	1711	1676	1640	1605	1570	1536	1502	1468	1434	1401	1367	23
24	1746	1711	1675	1640	1605	1570	1535	1501	1467	1433	1400	1367	24
25	1746	1710	1675	1639	1604	1569	1535	1500	1467	1433	1399	1366	25
26	1745	1709	1674	1638	1603	1569	1534	1500	1466	1432	1399	1366	26
27	1745	1709	1673	1638	1603	1568	1534	1499	1465	1432	1398	1365	27
28	1744	1708	1673	1637	1602	1567	1533	1499	1465	1431	1398	1365	28
29	1743	1708	1672	1637	1602	1567	1532	1498	1464	1431	1397	1364	29
30	1743	1707	1671	1636	1601	1566	1532	1498	1464	1430	1397	1363	30
31	1742	1706	1671	1635	1600	1566	1531	1497	1463	1429	1396	1363	31
32	1742	1706	1670	1635	1600	1565	1531	1496	1463	1429	1396	1362	32
33	1741	1705	1670	1634	1599	1565	1530	1496	1462	1428	1395	1362	33
34	1740	1705	1669	1634	1599	1564	1530	1495	1461	1428	1394	1361	34
35	1740	1704	1668	1633	1598	1563	1529	1495	1461	1427	1394	1361	35
36	1739	1703	1668	1633	1598	1563	1528	1494	1460	1427	1393	1360	36
37	1739	1703	1667	1632	1597	1562	1528	1494	1460	1426	1393	1360	37
38	1738	1702	1667	1631	1596	1562	1527	1493	1459	1426	1392	1359	38
39	1737	1702	1666	1631	1596	1561	1527	1493	1459	1425	1392	1359	39
40	1737	1701	1665	1630	1595	1561	1526	1492	1458	1424	1391	1358	40
41	1736	1700	1665	1630	1595	1560	1526	1491	1458	1424	1391	1357	41
42	1736	1700	1664	1629	1594	1559	1525	1491	1457	1423	1390	1357	42
43	1735	1699	1664	1628	1593	1559	1524	1490	1456	1423	1389	1356	43
44	1734	1699	1663	1628	1593	1558	1524	1490	1456	1422	1389	1356	44
45	1734	1698	1663	1627	1592	1558	1523	1489	1455	1422	1388	1355	45
46	1733	1697	1662	1627	1592	1557	1523	1489	1455	1421	1388	1355	46
47	1733	1697	1661	1626	1591	1556	1522	1488	1454	1421	1387	1354	47
48	1732	1696	1661	1626	1591	1556	1522	1487	1454	1420	1387	1354	48
49	1731	1696	1660	1625	1590	1555	1521	1487	1453	1419	1386	1353	49
50	1731	1695	1660	1624	1589	1555	1520	1486	1452	1419	1386	1352	50
51	1730	1694	1659	1624	1589	1554	1520	1486	1452	1418	1385	1352	51
52	1730	1694	1658	1623	1588	1554	1519	1485	1451	1418	1384	1351	52
53	1729	1693	1658	1623	1588	1553	1519	1485	1451	1417	1384	1351	53
54	1728	1693	1657	1622	1587	1552	1518	1484	1450	1417	1383	1350	54
55	1728	1692	1657	1621	1587	1552	1518	1483	1450	1416	1383	1350	55
56	1727	1692	1656	1621	1586	1551	1517	1483	1449	1416	1382	1349	56
57	1727	1691	1655	1620	1585	1551	1516	1482	1449	1415	1382	1349	57
58	1726	1690	1655	1620	1585	1550	1516	1482	1448	1414	1381	1348	58
59	1725	1690	1654	1619	1584	1550	1515	1481	1447	1414	1381	1348	59
Seconds	0′.	1′.	2′.	3′.	4′.	5′.	6′.	7′.	8′.	9′.	10′.	11′.	Seconds
	2 HOURS, or 2 DEGREES.												

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PROPORTIONAL LOGARITHMS.

Seconds	2 HOURS, or 2 DEGREES.												Seconds
	12′	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	
0	1347	1314	1282	1249	1217	1186	1154	1123	1091	1061	1030	0999	0
1	1346	1314	1281	1249	1217	1185	1153	1122	1091	1060	1029	0999	1
2	1346	1313	1281	1248	1216	1184	1153	1122	1090	1060	1029	0998	2
3	1345	1313	1280	1248	1216	1184	1152	1121	1090	1059	1028	0998	3
4	1345	1312	1280	1247	1215	1183	1152	1120	1089	1058	1028	0997	4
5	1344	1311	1279	1247	1215	1183	1151	1120	1089	1058	1027	0997	5
6	1344	1311	1278	1246	1214	1182	1151	1119	1088	1057	1027	0996	6
7	1343	1310	1278	1246	1214	1182	1150	1119	1088	1057	1026	0996	7
8	1343	1310	1277	1245	1213	1181	1150	1118	1087	1056	1026	0995	8
9	1342	1309	1277	1245	1213	1181	1149	1118	1087	1056	1025	0995	9
10	1342	1309	1276	1244	1212	1180	1149	1117	1086	1055	1025	0994	10
11	1341	1308	1276	1243	1211	1180	1148	1117	1086	1055	1024	0994	11
12	1340	1308	1275	1243	1211	1179	1148	1116	1085	1054	1024	0993	12
13	1340	1307	1275	1242	1210	1179	1147	1116	1085	1054	1023	0993	13
14	1339	1307	1274	1242	1210	1178	1147	1115	1084	1053	1023	0992	14
15	1339	1306	1274	1241	1209	1178	1146	1115	1084	1053	1022	0992	15
16	1338	1306	1273	1241	1209	1177	1146	1114	1083	1052	1022	0991	16
17	1338	1305	1273	1240	1208	1177	1145	1114	1083	1052	1021	0991	17
18	1337	1304	1272	1240	1208	1176	1145	1113	1082	1051	1021	0990	18
19	1337	1304	1271	1239	1207	1175	1144	1113	1082	1051	1020	0990	19
20	1336	1303	1271	1239	1207	1175	1143	1112	1081	1050	1020	0989	20
21	1335	1303	1270	1238	1206	1174	1143	1112	1081	1050	1019	0989	21
22	1335	1302	1270	1238	1206	1174	1142	1111	1080	1049	1019	0988	22
23	1334	1302	1269	1237	1205	1173	1142	1111	1080	1049	1018	0988	23
24	1334	1301	1269	1237	1205	1173	1141	1110	1079	1048	1018	0987	24
25	1333	1301	1268	1236	1204	1172	1141	1110	1079	1048	1017	0987	25
26	1333	1300	1268	1235	1204	1172	1140	1109	1078	1047	1017	0986	26
27	1332	1300	1267	1235	1203	1171	1140	1109	1078	1047	1016	0986	27
28	1332	1299	1267	1234	1202	1171	1139	1108	1077	1046	1016	0985	28
29	1331	1298	1266	1234	1202	1170	1139	1108	1076	1046	1015	0985	29
30	1331	1298	1266	1233	1201	1170	1138	1107	1076	1045	1015	0984	30
31	1330	1297	1265	1233	1201	1169	1138	1106	1075	1045	1014	0984	31
32	1329	1297	1264	1232	1200	1169	1137	1106	1075	1044	1014	0983	32
33	1329	1296	1264	1232	1200	1168	1137	1105	1074	1044	1013	0983	33
34	1328	1296	1263	1231	1199	1168	1136	1105	1074	1043	1013	0982	34
35	1328	1295	1263	1231	1199	1167	1136	1104	1073	1043	1012	0982	35
36	1327	1295	1262	1230	1198	1167	1135	1104	1073	1042	1012	0981	36
37	1327	1294	1262	1230	1198	1166	1135	1103	1072	1042	1011	0981	37
38	1326	1294	1261	1229	1197	1165	1134	1103	1072	1041	1011	0980	38
39	1326	1293	1261	1229	1197	1165	1134	1102	1071	1041	1010	0980	39
40	1325	1292	1260	1228	1196	1164	1133	1102	1071	1040	1009	0979	40
41	1325	1292	1260	1227	1196	1164	1132	1101	1070	1040	1009	0979	41
42	1324	1291	1259	1227	1195	1163	1132	1101	1070	1039	1008	0978	42
43	1323	1291	1259	1226	1195	1163	1131	1100	1069	1039	1008	0978	43
44	1323	1290	1258	1226	1194	1162	1131	1100	1069	1038	1007	0977	44
45	1322	1290	1257	1225	1193	1162	1130	1099	1068	1037	1007	0977	45
46	1322	1289	1257	1225	1193	1161	1130	1099	1068	1037	1006	0976	46
47	1321	1289	1256	1224	1192	1161	1129	1098	1067	1036	1006	0976	47
48	1321	1288	1256	1224	1192	1160	1129	1098	1067	1036	1005	0975	48
49	1320	1288	1255	1223	1191	1160	1128	1097	1066	1035	1005	0975	49
50	1320	1287	1255	1223	1191	1159	1128	1097	1066	1035	1004	0974	50
51	1319	1287	1254	1222	1190	1159	1127	1096	1065	1034	1004	0974	51
52	1319	1286	1254	1222	1190	1158	1127	1096	1065	1034	1003	0973	52
53	1318	1285	1253	1221	1189	1158	1126	1095	1064	1033	1003	0973	53
54	1317	1285	1253	1221	1189	1157	1126	1095	1064	1033	1002	0972	54
55	1317	1284	1252	1220	1188	1157	1125	1094	1063	1032	1002	0972	55
56	1316	1284	1252	1219	1188	1156	1125	1094	1063	1032	1001	0971	56
57	1316	1283	1251	1219	1187	1156	1124	1093	1062	1031	1001	0971	57
58	1315	1283	1250	1218	1187	1155	1124	1092	1062	1031	1000	0970	58
59	1315	1282	1250	1218	1186	1154	1123	1092	1061	1030	1000	0970	59
Seconds	12′	13′	14′	15′	16′	17′	18′	19′	20′	21′	22′	23′	Seconds
	2 HOURS, or 2 DEGREES.												

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PROPORTIONAL LOGARITHMS.

Seconds	2 HOURS, or 2 DEGREES.												Seconds
	24′	25′	26′	27′	28′	29′	30′	31′	32′	33′	34′	35′	
0	0969	0939	0909	0880	0850	0821	0792	0763	0734	0706	0678	0649	0
1	0969	0939	0909	0879	0850	0820	0791	0762	0734	0705	0677	0649	1
2	0968	0938	0908	0879	0849	0820	0791	0762	0733	0705	0677	0648	2
3	0968	0938	0908	0878	0849	0819	0790	0762	0733	0704	0676	0648	3
4	0967	0937	0907	0878	0848	0819	0790	0761	0732	0704	0676	0648	4
5	0967	0937	0907	0877	0848	0818	0789	0761	0732	0703	0675	0647	5
6	0966	0936	0906	0877	0847	0818	0789	0760	0731	0703	0675	0647	6
7	0966	0936	0906	0876	0847	0817	0788	0760	0731	0703	0674	0646	7
8	0965	0935	0905	0876	0846	0817	0788	0759	0730	0702	0674	0646	8
9	0965	0935	0905	0875	0846	0816	0787	0759	0730	0702	0673	0645	9
10	0964	0934	0904	0875	0845	0816	0787	0758	0730	0701	0673	0645	10
11	0964	0934	0904	0874	0845	0816	0787	0758	0729	0701	0672	0644	11
12	0963	0933	0903	0874	0844	0815	0786	0757	0729	0700	0672	0644	12
13	0963	0933	0903	0873	0844	0815	0786	0757	0728	0700	0671	0643	13
14	0962	0932	0902	0873	0843	0814	0785	0756	0728	0699	0671	0643	14
15	0962	0932	0902	0872	0843	0814	0785	0756	0727	0699	0670	0642	15
16	0961	0931	0901	0872	0842	0813	0784	0755	0727	0698	0670	0642	16
17	0961	0931	0901	0871	0842	0813	0784	0755	0726	0698	0670	0641	17
18	0960	0930	0900	0871	0841	0812	0783	0754	0726	0697	0669	0641	18
19	0960	0930	0900	0870	0841	0812	0783	0754	0725	0697	0669	0641	19
20	0959	0929	0899	0870	0840	0811	0782	0753	0725	0696	0668	0640	20
21	0959	0929	0899	0869	0840	0811	0782	0753	0724	0696	0668	0640	21
22	0958	0928	0898	0869	0839	0810	0781	0752	0724	0695	0667	0639	22
23	0958	0928	0898	0868	0839	0810	0781	0752	0723	0695	0667	0639	23
24	0957	0927	0897	0868	0838	0809	0780	0751	0723	0694	0666	0638	24
25	0957	0927	0897	0867	0838	0809	0780	0751	0722	0694	0666	0638	25
26	0956	0926	0896	0867	0837	0808	0779	0751	0722	0694	0665	0637	26
27	0956	0926	0896	0866	0837	0808	0779	0750	0721	0693	0665	0637	27
28	0955	0925	0895	0866	0836	0807	0778	0750	0721	0693	0664	0636	28
29	0955	0925	0895	0865	0836	0807	0778	0749	0721	0692	0664	0636	29
30	0954	0924	0894	0865	0835	0806	0777	0749	0720	0692	0663	0635	30
31	0954	0924	0894	0864	0835	0806	0777	0748	0720	0691	0663	0635	31
32	0953	0923	0893	0864	0834	0805	0776	0748	0719	0691	0663	0634	32
33	0953	0923	0893	0863	0834	0805	0776	0747	0719	0690	0662	0634	33
34	0952	0922	0892	0863	0834	0804	0775	0747	0718	0690	0662	0634	34
35	0952	0922	0892	0862	0833	0804	0775	0746	0718	0689	0661	0633	35
36	0951	0921	0891	0862	0833	0803	0774	0746	0717	0689	0661	0633	36
37	0951	0921	0891	0861	0832	0803	0774	0745	0717	0688	0660	0632	37
38	0950	0920	0890	0861	0832	0802	0774	0745	0716	0688	0660	0632	38
39	0950	0920	0890	0860	0831	0802	0773	0744	0716	0687	0659	0631	39
40	0949	0919	0889	0860	0831	0801	0773	0744	0715	0687	0659	0631	40
41	0949	0919	0889	0859	0830	0801	0772	0743	0715	0686	0658	0630	41
42	0948	0918	0888	0859	0830	0801	0772	0743	0714	0686	0658	0630	42
43	0948	0918	0888	0858	0829	0800	0771	0742	0714	0686	0657	0629	43
44	0947	0917	0887	0858	0829	0800	0771	0742	0713	0685	0657	0629	44
45	0947	0917	0887	0857	0828	0799	0770	0741	0713	0685	0656	0628	45
46	0946	0916	0886	0857	0828	0799	0770	0741	0712	0684	0656	0628	46
47	0946	0916	0886	0856	0827	0798	0769	0740	0712	0684	0655	0628	47
48	0945	0915	0885	0856	0827	0798	0769	0740	0711	0683	0655	0627	48
49	0945	0915	0885	0855	0826	0797	0768	0740	0711	0683	0655	0627	49
50	0944	0914	0884	0855	0826	0797	0768	0739	0711	0682	0654	0626	50
51	0944	0914	0884	0855	0825	0796	0767	0739	0710	0682	0654	0626	51
52	0943	0913	0883	0854	0825	0796	0767	0738	0710	0681	0653	0625	52
53	0943	0913	0883	0854	0824	0795	0766	0738	0709	0681	0653	0625	53
54	0942	0912	0883	0853	0824	0795	0766	0737	0709	0680	0652	0624	54
55	0942	0912	0882	0853	0823	0794	0765	0737	0708	0680	0652	0624	55
56	0941	0911	0882	0852	0823	0794	0765	0736	0708	0679	0651	0623	56
57	0941	0911	0881	0852	0822	0793	0764	0736	0707	0679	0651	0623	57
58	0940	0910	0881	0851	0822	0793	0764	0735	0707	0678	0650	0622	58
59	0940	0910	0880	0851	0821	0792	0763	0735	0706	0678	0650	0622	59
Seconds	24′	25′	26′	27′	28′	29′	30′	31′	32′	33′	34′	35′	Seconds
	2 HOURS, or 2 DEGREES.												

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PROPORTIONAL LOGARITHMS.

2 HOURS, or 2 DEGREES.

Seconds	36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′	47′	Seconds
0	0621	0594	0566	0539	0512	0484	0458	0431	0404	0378	0352	0326	0
1	0621	0593	0566	0538	0511	0484	0457	0430	0404	0377	0351	0325	1
2	0621	0593	0565	0538	0511	0484	0457	0430	0403	0377	0351	0325	2
3	0620	0592	0565	0537	0510	0483	0456	0430	0403	0377	0350	0324	3
4	0620	0592	0564	0537	0510	0483	0456	0429	0403	0376	0350	0324	4
5	0619	0591	0564	0536	0509	0482	0455	0429	0402	0376	0349	0323	5
6	0619	0591	0563	0536	0509	0482	0455	0428	0402	0375	0349	0323	6
7	0618	0591	0563	0536	0508	0481	0454	0428	0401	0375	0349	0323	7
8	0618	0590	0562	0535	0508	0481	0454	0427	0401	0374	0348	0322	8
9	0617	0590	0562	0535	0507	0480	0454	0427	0400	0374	0348	0322	9
10	0617	0589	0562	0534	0507	0480	0453	0426	0400	0374	0347	0321	10
11	0616	0589	0561	0534	0507	0480	0453	0426	0399	0373	0347	0321	11
12	0616	0588	0561	0533	0506	0479	0452	0426	0399	0373	0346	0320	12
13	0615	0588	0560	0533	0506	0479	0452	0425	0399	0372	0346	0320	13
14	0615	0587	0560	0532	0505	0478	0451	0425	0398	0372	0346	0319	14
15	0615	0587	0559	0532	0505	0478	0451	0424	0398	0371	0345	0319	15
16	0614	0586	0559	0531	0504	0477	0450	0424	0397	0371	0345	0319	16
17	0614	0586	0558	0531	0504	0477	0450	0423	0397	0370	0344	0318	17
18	0613	0585	0558	0531	0503	0476	0450	0423	0396	0370	0344	0318	18
19	0613	0585	0557	0530	0503	0476	0449	0422	0396	0370	0343	0317	19
20	0612	0585	0557	0530	0502	0475	0449	0422	0395	0369	0343	0317	20
21	0612	0584	0557	0529	0502	0475	0448	0422	0395	0369	0342	0316	21
22	0611	0584	0556	0529	0502	0475	0448	0421	0395	0368	0342	0316	22
23	0611	0583	0556	0528	0501	0474	0447	0421	0394	0368	0342	0316	23
24	0610	0583	0555	0528	0501	0474	0447	0420	0394	0367	0341	0315	24
25	0610	0582	0555	0527	0500	0473	0446	0420	0393	0367	0341	0315	25
26	0609	0582	0554	0527	0500	0473	0446	0419	0393	0366	0340	0314	26
27	0609	0581	0554	0526	0499	0472	0446	0419	0392	0366	0340	0314	27
28	0609	0581	0553	0526	0499	0472	0445	0418	0392	0366	0339	0313	28
29	0608	0580	0553	0526	0498	0471	0445	0418	0392	0365	0339	0313	29
30	0608	0580	0552	0525	0498	0471	0444	0418	0391	0365	0339	0313	30
31	0607	0579	0552	0525	0498	0471	0444	0417	0391	0364	0338	0312	31
32	0607	0579	0552	0524	0497	0470	0443	0417	0390	0364	0338	0312	32
33	0606	0579	0551	0524	0497	0470	0443	0416	0390	0363	0337	0311	33
34	0606	0578	0551	0523	0496	0469	0442	0416	0389	0363	0337	0311	34
35	0605	0578	0550	0523	0496	0469	0442	0415	0389	0363	0336	0310	35
36	0605	0577	0550	0522	0495	0468	0442	0415	0388	0362	0336	0310	36
37	0604	0577	0549	0522	0495	0468	0441	0414	0388	0362	0336	0310	37
38	0604	0576	0549	0521	0494	0467	0441	0414	0388	0361	0335	0309	38
39	0603	0576	0548	0521	0494	0467	0440	0414	0387	0361	0335	0309	39
40	0603	0575	0548	0521	0493	0466	0440	0413	0387	0360	0334	0308	40
41	0602	0575	0547	0520	0493	0466	0439	0413	0386	0360	0334	0308	41
42	0602	0574	0547	0520	0493	0466	0439	0412	0386	0359	0333	0307	42
43	0602	0574	0546	0519	0492	0465	0438	0412	0385	0359	0333	0307	43
44	0601	0573	0546	0519	0492	0465	0438	0411	0385	0359	0333	0307	44
45	0601	0573	0546	0518	0491	0464	0438	0411	0384	0358	0332	0306	45
46	0600	0573	0545	0518	0491	0464	0437	0410	0384	0358	0332	0306	46
47	0600	0572	0545	0517	0490	0463	0437	0410	0384	0357	0331	0305	47
48	0599	0572	0544	0517	0490	0463	0436	0410	0383	0357	0331	0305	48
49	0599	0571	0544	0517	0489	0462	0436	0409	0383	0356	0330	0304	49
50	0598	0571	0543	0516	0489	0462	0435	0409	0382	0356	0330	0304	50
51	0598	0570	0543	0516	0489	0462	0435	0408	0382	0356	0329	0304	51
52	0597	0570	0542	0515	0488	0461	0434	0408	0381	0355	0329	0303	52
53	0597	0569	0542	0515	0488	0461	0434	0407	0381	0355	0329	0303	53
54	0596	0569	0541	0514	0487	0460	0434	0407	0381	0354	0328	0302	54
55	0596	0568	0541	0514	0487	0460	0433	0406	0380	0354	0328	0302	55
56	0596	0568	0541	0513	0486	0459	0433	0406	0380	0353	0327	0301	56
57	0595	0568	0540	0513	0486	0459	0432	0406	0379	0353	0327	0301	57
58	0595	0567	0540	0512	0485	0458	0432	0405	0379	0353	0326	0300	58
59	0594	0567	0539	0512	0485	0458	0431	0405	0378	0352	0326	0300	59
Seconds	36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′	47′	Seconds

2 HOURS, or 2 DEGREES.

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PROPORTIONAL LOGARITHMS.

Seconds	2 HOURS, or 2 DEGREES.												Seconds
	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	
0	0300	0274	0248	0223	0197	0172	0147	0122	0098	0073	0049	0024	0
1	0299	0273	0248	0222	0197	0172	0147	0122	0097	0073	0048	0024	1
2	0299	0273	0247	0222	0197	0171	0146	0122	0097	0072	0048	0023	2
3	0298	0273	0247	0221	0196	0171	0146	0121	0096	0072	0047	0023	3
4	0298	0272	0247	0221	0196	0171	0146	0121	0096	0071	0047	0023	4
5	0297	0272	0246	0221	0195	0170	0145	0120	0096	0071	0046	0022	5
6	0297	0271	0246	0220	0195	0170	0145	0120	0095	0071	0046	0022	6
7	0297	0271	0245	0220	0194	0169	0144	0119	0095	0070	0046	0021	7
8	0296	0270	0245	0219	0194	0169	0144	0119	0094	0070	0045	0021	8
9	0296	0270	0244	0219	0194	0169	0143	0119	0094	0069	0045	0021	9
10	0295	0270	0244	0219	0193	0168	0143	0118	0093	0069	0044	0020	10
11	0295	0269	0244	0218	0193	0168	0143	0118	0093	0068	0044	0020	11
12	0294	0269	0243	0218	0192	0167	0142	0117	0093	0068	0044	0019	12
13	0294	0268	0243	0217	0192	0167	0142	0117	0092	0068	0043	0019	13
14	0294	0268	0242	0217	0192	0166	0141	0117	0092	0067	0043	0019	14
15	0293	0267	0242	0216	0191	0166	0141	0116	0091	0067	0042	0018	15
16	0293	0267	0241	0216	0191	0166	0141	0116	0091	0066	0042	0018	16
17	0292	0267	0241	0216	0190	0165	0140	0115	0091	0066	0042	0017	17
18	0292	0266	0241	0215	0190	0165	0140	0115	0090	0066	0041	0017	18
19	0291	0266	0240	0215	0189	0164	0139	0114	0090	0065	0041	0017	19
20	0291	0265	0240	0214	0189	0164	0139	0114	0089	0065	0040	0016	20
21	0291	0265	0239	0214	0189	0163	0139	0114	0089	0064	0040	0016	21
22	0290	0264	0239	0213	0188	0163	0138	0113	0089	0064	0040	0015	22
23	0290	0264	0238	0213	0188	0163	0138	0113	0088	0064	0039	0015	23
24	0289	0264	0238	0213	0187	0162	0137	0112	0088	0063	0039	0015	24
25	0289	0263	0238	0212	0187	0162	0137	0112	0087	0063	0038	0014	25
26	0288	0263	0237	0212	0187	0161	0136	0112	0087	0062	0038	0014	26
27	0288	0262	0237	0211	0186	0161	0136	0111	0087	0062	0038	0013	27
28	0288	0262	0236	0211	0186	0161	0136	0111	0086	0062	0037	0013	28
29	0287	0261	0236	0211	0185	0160	0135	0110	0086	0061	0037	0012	29
30	0287	0261	0235	0210	0185	0160	0135	0110	0085	0061	0036	0012	30
31	0286	0261	0235	0210	0184	0159	0134	0110	0085	0060	0036	0012	31
32	0286	0260	0235	0209	0184	0159	0134	0109	0084	0060	0036	0011	32
33	0285	0260	0234	0209	0184	0158	0134	0109	0084	0060	0035	0011	33
34	0285	0259	0234	0208	0183	0158	0133	0108	0084	0059	0035	0010	34
35	0285	0259	0233	0208	0183	0158	0133	0108	0083	0059	0034	0010	35
36	0284	0258	0233	0208	0182	0157	0132	0107	0083	0058	0034	0010	36
37	0284	0258	0233	0207	0182	0157	0132	0107	0082	0058	0034	0009	37
38	0283	0258	0232	0207	0181	0156	0131	0107	0082	0057	0033	0009	38
39	0283	0257	0232	0206	0181	0156	0131	0106	0082	0057	0033	0008	39
40	0282	0257	0231	0206	0181	0156	0131	0106	0081	0057	0032	0008	40
41	0282	0256	0231	0205	0180	0155	0130	0105	0081	0056	0032	0008	41
42	0282	0256	0230	0205	0180	0155	0130	0105	0080	0056	0031	0007	42
43	0281	0255	0230	0205	0179	0154	0129	0105	0080	0055	0031	0007	43
44	0281	0255	0230	0204	0179	0154	0129	0104	0080	0055	0031	0006	44
45	0280	0255	0229	0204	0179	0153	0129	0104	0079	0055	0030	0006	45
46	0280	0254	0229	0203	0178	0153	0128	0103	0079	0054	0030	0006	46
47	0279	0254	0228	0203	0178	0153	0128	0103	0078	0054	0029	0005	47
48	0279	0253	0228	0202	0177	0152	0127	0103	0078	0053	0029	0005	48
49	0279	0253	0227	0202	0177	0152	0127	0102	0077	0053	0029	0004	49
50	0278	0252	0227	0202	0176	0151	0126	0102	0077	0053	0028	0004	50
51	0278	0252	0227	0201	0176	0151	0126	0101	0077	0052	0028	0004	51
52	0277	0252	0226	0201	0176	0151	0126	0101	0076	0052	0027	0003	52
53	0277	0251	0226	0200	0175	0150	0125	0100	0076	0051	0027	0003	53
54	0276	0251	0225	0200	0175	0150	0125	0100	0075	0051	0027	0002	54
55	0276	0250	0225	0200	0174	0149	0124	0100	0075	0051	0026	0002	55
56	0276	0250	0224	0199	0174	0149	0124	0099	0075	0050	0026	0002	56
57	0275	0250	0224	0199	0174	0148	0124	0099	0074	0050	0025	0001	57
58	0275	0249	0224	0198	0173	0148	0123	0098	0074	0049	0025	0001	58
59	0274	0249	0223	0198	0173	0148	0123	0098	0073	0049	0025	0000	59
Seconds	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	Seconds
	2 HOURS, or 2 DEGREES.												

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LOGARITHMIC HALF ELAPSED TIME.

Minutes	0 HOUR. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper parts.
0		43936	13833	96224	83730	74039	66121	59427	53628	48512	43937	39797	
1	2.36018	32542	29324	26328	23525	20892	18410	16061	13834	11715	09695	07764	
2	05916	04143	02440	00801	99221	97697	96225	94801	93422	92086	90790	89531	
3	1.88307	87118	85959	84831	83732	82660	81613	80591	79593	78617	77663	76729	
4	1.75815	74919	74042	73182	72339	71512	70700	69903	69121	68352	67597	66855	
5	66125	65407	64701	64006	63322	62649	61986	61333	60690	60056	59431	58815	
6	58208	57609	57019	56436	55861	55293	54733	54180	53634	53094	52561	52035	
7	51515	51001	50494	49992	49496	49005	48520	48040	47566	47096	46632	46173	
8	1.45718	45268	44823	44382	43946	43514	43086	42663	42243	41828	41417	41009	1 = 76
9	40605	40205	39809	39416	39027	38641	38258	37879	37504	37131	36762	36395	2. 152
10	36032	35672	35315	34960	34609	34260	33915	33572	33231	32893	32558	32226	3. 229
11	31896	31568	31243	30921	30600	30282	29967	29653	29342	29034	28727	28422	4. 305
12	1.28120	27820	27522	27225	26931	26639	26349	26061	25774	25490	25207	24926	1 = 54
13	24647	24370	24095	23821	23549	23279	23010	22743	22478	22214	21952	21691	2. 107
14	21433	21175	20919	20665	20412	20160	19910	19662	19415	19169	18925	18682	3. 161
15	18440	18200	17961	17723	17487	17252	17018	16786	16554	16324	16096	15868	4. 214
16	1.15642	15416	15192	14969	14748	14527	14307	14089	13872	13656	13440	13226	1 = 41
17	13013	12801	12590	12380	12172	11964	11757	11551	11346	11142	10939	10737	2. 83
18	10536	10236	10136	09938	09741	09544	09348	09154	08960	08767	08574	08383	3. 124
19	08193	08003	07814	07626	07439	07253	07067	06883	06699	06515	06333	06151	4. 165
20	1.05970	05790	05611	05432	05254	05077	04901	04725	04550	04376	04202	04029	1 = 34
21	03857	03686	03515	03345	03175	03006	02838	02671	02504	02338	02172	02007	2. 67
22	01843	01679	01516	01354	01192	01030	00870	00710	00550	00392	00233	00076	3. 100
23	0.99918	99762	99606	99451	99296	99141	98988	98834	98682	98530	98378	98227	4. 134
24	0.98077	97927	97777	97628	97480	97332	97184	97038	96891	96745	96600	96455	1 = 28
25	96310	96167	96023	95880	95738	95596	95454	95313	95172	95032	94892	94753	2. 57
26	94614	94476	94338	94200	94063	93927	93791	93655	93519	93385	93250	93116	3. 85
27	92982	92849	92716	92584	92452	92320	92189	92059	91928	91798	91669	91539	4. 113
28	0.91411	91282	91154	91027	90899	90772	90646	90520	90394	90268	90143	90019	1 = 24
29	89894	89771	89647	89524	89401	89278	89156	89034	88913	88792	88671	88550	2. 49
30	88430	88311	88191	88072	87953	87835	87717	87599	87481	87364	87247	87131	3. 73
31	87015	86899	86783	86668	86553	86438	86324	86210	86096	85983	85870	85757	4. 98
32	0.85645	85532	85420	85309	85197	85086	84976	84865	84755	84645	84535	84426	1 = 22
33	84317	84208	84100	83992	83884	83776	83669	83561	83455	83348	83242	83136	2. 43
34	83030	82924	82819	82714	82609	82505	82401	82297	82193	82089	81986	81883	3. 65
35	81780	81678	81576	81474	81372	81271	81169	81068	80968	80867	80767	80667	4. 86
36	0.80567	80467	80368	80269	80170	80071	79973	79875	79777	79679	79581	79484	1 = 19
37	79387	79290	79193	79097	79001	78905	78809	78714	78618	78523	78428	78334	2. 38
38	78239	78145	78051	77957	77863	77770	77677	77584	77491	77398	77306	77214	3. 57
39	77122	77030	76938	76847	76756	76665	76574	76483	76393	76303	76213	76123	4. 76
40	0.76033	75944	75854	75765	75676	75588	75499	75411	75323	75235	75147	75059	1 = 17
41	74972	74885	74798	74711	74624	74537	74451	74365	74279	74193	74108	74022	2. 34
42	73937	73852	73767	73682	73597	73513	73429	73345	73261	73177	73093	73010	3. 52
43	72927	72843	72761	72678	72595	72513	72430	72348	72266	72185	72103	72021	4. 69
44	0.71940	71859	71778	71697	71616	71536	71456	71375	71295	71215	71136	71056	1 = 16
45	70976	70897	70818	70739	70660	70581	70503	70424	70346	70268	70190	70112	2. 31
46	70035	69957	69880	69802	69725	69648	69571	69495	69418	69342	69265	69189	3. 47
47	69113	69038	68962	68886	68811	68735	68660	68585	68510	68436	68361	68287	4. 63
48	0.68212	68138	68064	67990	67916	67842	67769	67695	67622	67549	67476	67403	1 = 14
49	67330	67257	67185	67112	67040	66968	66896	66824	66752	66681	66609	66538	2. 29
50	66466	66395	66324	66253	66182	66112	66041	65971	65900	65830	65760	65690	3. 43
51	65620	65551	65481	65411	65342	65273	65204	65135	65066	64997	64928	64860	4. 58
52	0.64791	64723	64655	64587	64519	64451	64383	64315	64248	64180	64113	64046	1 = 13
53	63979	63912	63845	63778	63711	63645	63578	63512	63445	63379	63313	63247	2. 27
54	63182	63116	63050	62985	62919	62854	62789	62724	62659	62594	62529	62464	3. 40
55	62400	62335	62271	62207	62142	62078	62014	61950	61887	61823	61759	61696	4. 53
56	0.61633	61569	61506	61443	61380	61317	61254	61192	61129	61066	61004	60942	1 = 11
57	60879	60817	60755	60693	60632	60570	60508	60447	60385	60324	60262	60201	2. 25
58	60140	60079	60018	59957	59897	59836	59775	59715	59655	59594	59534	59474	3. 37
59	59414	59354	59294	59234	59175	59115	59056	58996	58937	58878	58818	58759	4. 49
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper parts.
	0 HOUR.												

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LOGARITHMIC HALF ELAPSED TIME.

Minutes	1 HOUR.												Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	
0	0.58700	58642	58583	58524	58465	58407	58348	58290	58232	58173	58115	58057	1″ = 11
1	57999	57941	57884	57826	57768	57711	57653	57596	57539	57481	57424	57367	2. 22
2	57310	57253	57196	57140	57083	57026	56970	56914	56857	56801	56745	56689	3. 34
3	56633	56577	56521	56465	56409	56354	56298	56243	56187	56132	56077	56021	4. 45
4	0.55966	55911	55856	55801	55747	55692	55637	55583	55528	55474	55419	55365	1 = 11
5	55311	55257	55203	55149	55095	55041	54987	54933	54880	54826	54773	54719	2. 22
6	54666	54613	54559	54506	54453	54400	54347	54294	54242	54189	54136	54084	3. 32
7	54031	53979	53926	53874	53822	53770	53718	53666	53614	53562	53510	53458	4. 43
8	0.53407	53355	53303	53252	53200	53149	53098	53047	52995	52944	52893	52842	1. = 10
9	52791	52741	52690	52639	52589	52538	52488	52437	52387	52336	52286	52236	2. 20
10	52186	52136	52086	52036	51986	51936	51887	51837	51787	51738	51688	51639	3. 30
11	51589	51540	51491	51442	51393	51344	51295	51246	51197	51148	51099	51050	4. 40
12	0.51002	50953	50905	50856	50808	50760	50711	50663	50615	50567	50519	50471	1 = 10
13	50423	50375	50327	50279	50232	50184	50137	50089	50042	49994	49947	49900	2. 19
14	49852	49805	49758	49711	49664	49617	49570	49523	49477	49430	49383	49337	3. 29
15	49290	49244	49197	49151	49104	49058	49012	48966	48920	48874	48828	48782	4. 38
16	0.48736	48690	48644	48599	48553	48507	48462	48416	48371	48325	48280	48235	1 = 9
17	48189	48144	48099	48054	48009	47964	47919	47874	47829	47785	47740	47695	2. 18
18	47651	47606	47561	47517	47473	47428	47384	47340	47295	47251	47207	47163	3. 27
19	47119	47075	47031	46987	46944	46900	46856	46812	46769	46725	46682	46638	4. 36
20	0.46595	46552	46508	46465	46422	46379	46335	46292	46249	46206	46163	46121	1 = 9
21	46078	46035	45992	45950	45907	45864	45822	45779	45737	45694	45652	45610	2. 17
22	45568	45525	45483	45441	45399	45357	45315	45273	45231	45189	45147	45106	3. 26
23	45064	45022	44981	44939	44898	44856	44815	44773	44732	44691	44650	44608	4. 34
24	0.44567	44526	44485	44444	44403	44362	44321	44280	44239	44199	44158	44117	1 = 8
25	44077	44036	43996	43955	43915	43874	43834	43793	43753	43713	43673	43633	2. 16
26	43593	43552	43512	43472	43432	43393	43353	43313	43273	43233	43194	43154	3. 24
27	43115	43075	43035	42996	42957	42917	42878	42838	42799	42760	42721	42682	4. 32
28	0.42643	42603	42564	42525	42486	42448	42409	42370	42331	42292	42254	42215	1 = 8
29	42176	42138	42099	42061	42022	41984	41946	41907	41869	41831	41792	41754	2. 15
30	41716	41678	41640	41602	41564	41526	41488	41450	41412	41375	41337	41299	3. 23
31	41261	41224	41186	41149	41111	41074	41036	40999	40961	40924	40887	40849	4. 31
32	0.40812	40775	40738	40701	40664	40627	40590	40553	40516	40479	40442	40405	1 = 7
33	40369	40332	40295	40258	40222	40185	40149	40112	40076	40039	40003	39966	2. 15
34	39930	39894	39858	39821	39785	39749	39713	39677	39641	39605	39569	39533	3. 22
35	39497	39461	39425	39389	39354	39318	39282	39247	39211	39175	39140	39104	4. 29
36	0.39069	39033	38998	38962	38927	38892	38857	38821	38786	38751	38716	38681	1 = 7
37	38646	38611	38576	38541	38506	38471	38436	38401	38366	38331	38297	38262	2. 14
38	38227	38193	38158	38124	38089	38055	38020	37986	37951	37917	37883	37848	3. 21
39	37814	37780	37745	37711	37677	37643	37609	37575	37541	37507	37473	37439	4. 28
40	0.37405	37371	37338	37304	37270	37236	37203	37169	37135	37102	37068	37035	1 = 7
41	37001	36968	36934	36901	36867	36834	36801	36768	36734	36701	36668	36635	2. 13
42	36602	36569	36535	36502	36469	36436	36404	36371	36338	36305	36272	36239	3. 20
43	36207	36174	36141	36108	36076	36043	36011	35978	35946	35913	35881	35848	4. 26
44	0.35816	35783	35751	35719	35687	35654	35622	35590	35558	35526	35494	35462	1 = 6
45	35429	35397	35365	35334	35302	35270	35238	35206	35174	35142	35111	35079	2. 13
46	35047	35016	34984	34952	34921	34889	34858	34826	34795	34763	34732	34701	3. 19
47	34669	34638	34607	34575	34544	34513	34482	34451	34420	34388	34357	34326	4. 25
48	0.34295	34264	34233	34203	34172	34141	34110	34079	34048	34018	33987	33956	1 = 6
49	33925	33895	33864	33834	33803	33773	33742	33712	33681	33651	33620	33590	2. 12
50	33559	33529	33499	33469	33438	33408	33378	33348	33318	33288	33257	33227	3. 18
51	33197	33167	33137	33107	33078	33048	33018	32988	32958	32928	32899	32869	4. 24
52	0.32839	32809	32780	32750	32721	32691	32661	32632	32602	32573	32543	32514	1 = 6
53	32485	32455	32426	32397	32367	32338	32309	32280	32250	32221	32192	32163	2. 12
54	32134	32105	32076	32047	32018	31989	31960	31931	31902	31873	31844	31815	3. 17
55	31787	31758	31729	31700	31672	31643	31614	31586	31557	31529	31500	31471	4. 23
56	0.31443	31414	31386	31358	31329	31301	31272	31244	31216	31188	31159	31131	1 = 6
57	31103	31075	31046	31018	30990	30962	30934	30906	30878	30850	30822	30794	2. 11
58	30766	30738	30710	30683	30655	30627	30599	30571	30544	30516	30488	30461	3. 17
59	30433	30405	30378	30350	30323	30295	30268	30240	30213	30185	30158	30130	4. 22
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts
	1 HOUR.												

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LOGARITHMIC HALF ELAPSED TIME.

Minutes	2 HOURS.												Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	
0	0. 30103	30076	30048	30021	29994	29967	29939	29912	29885	29858	29831	29804	1″ = 5
1	29776	29749	29722	29695	29668	29641	29614	29587	29561	29534	29507	29480	2. 11
2	29453	29426	29400	29373	29346	29319	29293	29266	29239	29213	29186	29160	3. 16
3	29133	29107	29080	29054	29027	29001	28974	28948	28921	28895	28869	28842	4. 21
4	0. 28816	28790	28764	28737	28711	28685	28659	28633	28607	28580	28554	28528	1 = 5
5	28502	28476	28450	28424	28398	28372	28347	28321	28295	28269	28243	28217	2. 10
6	28192	28166	28140	28114	28089	28063	28037	28012	27986	27960	27935	27909	3. 16
7	27884	27858	27833	27807	27782	27756	27731	27706	27680	27655	27630	27604	4. 21
8	0. 27579	27554	27529	27503	27478	27453	27428	27403	27378	27352	27327	27302	1. = 5
9	27277	27252	27227	27202	27177	27152	27127	27103	27078	27053	27028	27003	2. 10
10	26978	26954	26929	26904	26879	26855	26830	26805	26781	26756	26732	26707	3. 15
11	26682	26658	26633	26609	26584	26560	26535	26511	26487	26462	26438	26414	4. 20
12	0. 26389	26365	26341	26316	26292	26268	26244	26219	26195	26171	26147	26123	1 = 5
13	26099	26075	26051	26027	26003	25979	25955	25931	25907	25883	25859	25835	2. 10
14	25811	25787	25763	25740	25716	25692	25668	25645	25621	25597	25573	25550	3. 14
15	25526	25503	25479	25455	25432	25408	25385	25361	25338	25314	25291	25267	4. 19
16	0. 25244	25220	25197	25174	25150	25127	25104	25080	25057	25034	25011	24987	1 = 5
17	24964	24941	24918	24895	24872	24849	24825	24802	24779	24756	24733	24710	2. 9
18	24687	24664	24641	24618	24595	24573	24550	24527	24504	24481	24458	24436	3. 14
19	24413	24390	24367	24345	24322	24299	24277	24254	24231	24209	24186	24163	4. 19
20	0. 24141	24118	24096	24073	24051	24028	24006	23983	23961	23939	23916	23894	1 = 4
21	23872	23849	23827	23805	23782	23760	23738	23716	23693	23671	23649	23627	2. 9
22	23605	23583	23560	23538	23516	23494	23472	23450	23428	23406	23384	23362	3. 13
23	23340	23318	23296	23274	23253	23231	23209	23187	23165	23143	23122	23100	4. 18
24	0. 23078	23056	23035	23013	22991	22970	22948	22926	22905	22883	22862	22840	1 = 4
25	22819	22797	22776	22754	22733	22711	22690	22668	22647	22625	22604	22583	2. 9
26	22561	22540	22519	22497	22476	22455	22434	22412	22391	22370	22349	22328	3. 13
27	22306	22285	22264	22243	22222	22201	22180	22159	22138	22117	22096	22075	4. 17
28	0. 22054	22033	22012	21991	21970	21949	21928	21907	21887	21866	21845	21824	1 = 4
29	21803	21783	21762	21741	21720	21700	21679	21658	21638	21617	21597	21576	2. 8
30	21555	21535	21514	21494	21473	21453	21432	21412	21391	21371	21350	21330	3. 13
31	21309	21289	21269	21248	21228	21208	21187	21167	21147	21127	21106	21086	4. 17
32	0. 21066	21046	21025	21005	20985	20965	20945	20925	20905	20885	20864	20844	1 = 4
33	20824	20804	20784	20764	20744	20724	20704	20685	20665	20645	20625	20605	2. 8
34	20585	20565	20545	20526	20506	20486	20466	20446	20427	20407	20387	20368	3. 12
35	20348	20328	20309	20289	20269	20250	20230	20211	20191	20171	20152	20132	4. 16
36	0. 20113	20093	20074	20054	20035	20016	19996	19977	19957	19938	19919	19899	1 = 4
37	19880	19861	19841	19822	19803	19783	19764	19745	19726	19707	19687	19668	2. 8
38	19649	19630	19611	19592	19572	19553	19534	19515	19496	19477	19458	19439	3. 11
39	19420	19401	19382	19363	19344	19325	19306	19288	19269	19250	19231	19212	4. 15
40	0. 19193	19174	19156	19137	19118	19099	19081	19062	19043	19024	19006	18987	1 = 4
41	18968	18950	18931	18913	18894	18875	18857	18838	18820	18801	18783	18764	2. 7
42	18746	18727	18709	18690	18672	18653	18635	18617	18598	18580	18561	18543	3. 11
43	18525	18506	18488	18470	18452	18433	18415	18397	18379	18360	18342	18324	4. 15
44	0. 18306	18288	18269	18251	18233	18215	18197	18179	18161	18143	18125	18107	1 = 4
45	18089	18071	18053	18036	18017	17999	17981	17963	17945	17927	17909	17891	2. 7
46	17874	17856	17838	17820	17802	17785	17767	17749	17731	17713	17696	17678	3. 11
47	17660	17643	17625	17607	17590	17572	17554	17537	17519	17502	17484	17467	4. 14
48	0. 17449	17431	17414	17396	17379	17361	17344	17327	17309	17292	17274	17257	1 = 4
49	17239	17222	17205	17187	17170	17153	17135	17118	17101	17083	17066	17049	2. 7
50	17032	17014	16997	16980	16963	16946	16929	16911	16894	16877	16860	16843	3. 11
51	16826	16809	16792	16775	16758	16741	16724	16707	16690	16673	16656	16639	4. 14
52	0. 16622	16605	16588	16571	16554	16537	16520	16503	16487	16470	16453	16436	1 = 3
53	16419	16403	16386	16369	16352	16336	16319	16302	16285	16269	16252	16235	2. 7
54	16219	16202	16186	16169	16152	16136	16119	16103	16086	16070	16053	16037	3. 10
55	16020	16004	15987	15971	15954	15938	15921	15905	15888	15872	15856	15839	4. 14
56	0. 15823	15807	15790	15774	15758	15741	15725	15709	15692	15676	15660	15644	1 = 3
57	15628	15611	15595	15579	15563	15547	15531	15514	15498	15482	15466	15450	2. 7
58	15434	15418	15402	15386	15370	15354	15338	15322	15306	15290	15274	15258	3. 10
59	15242	15226	15210	15194	15178	15162	15147	15131	15115	15099	15083	15067	4. 13
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	2 HOURS.												

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LOGARITHMIC HALF ELAPSED TIME.

Number	3 HOURS.												Proper. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	
0	0.15052	15036	15020	15004	14988	14973	14957	14941	14926	14910	14894	14879	1″ =
1	14863	14847	14832	14816	14800	14785	14769	14754	14738	14722	14707	14691	2.
2	14676	14660	14645	14629	14614	14598	14583	14567	14552	14537	14521	14506	3.
3	14499	14475	14460	14444	14429	14414	14398	14383	14368	14352	14337	14322	4. 1
4	0.14307	14291	14276	14261	14246	14231	14215	14200	14185	14170	14155	14140	1 =
5	14124	14109	14094	14079	14064	14049	14034	14019	14004	13989	13974	13959	2.
6	13944	13929	13914	13899	13884	13869	13854	13839	13824	13809	13795	13780	3.
7	13765	13750	13735	13720	13705	13691	13676	13661	13646	13632	13617	13602	4. 1
8	0.13587	13573	13558	13543	13528	13514	13499	13484	13470	13455	13441	13426	1. =
9	13411	13397	13382	13368	13353	13339	13324	13309	13295	13280	13266	13251	2.
10	13237	13223	13208	13194	13179	13165	13150	13136	13122	13107	13093	13078	3.
11	13064	13050	13035	13021	13007	12992	12978	12964	12950	12935	12921	12907	4. 1
12	0.12893	12878	12864	12850	12836	12822	12808	12793	12779	12765	12751	12737	1 =
13	12723	12709	12695	12681	12667	12652	12638	12624	12610	12596	12582	12568	2.
14	12554	12540	12527	12513	12499	12485	12471	12457	12443	12429	12415	12401	3.
15	12388	12374	12360	12346	12332	12318	12305	12291	12277	12263	12250	12236	4. 1
16	0.12222	12208	12195	12181	12167	12154	12140	12126	12113	12099	12085	12072	1 =
17	12058	12044	12031	12017	12004	11990	11977	11963	11950	11936	11922	11909	2.
18	11896	11882	11869	11855	11842	11828	11815	11801	11788	11775	11761	11748	3.
19	11734	11721	11708	11694	11681	11668	11654	11641	11628	11614	11601	11588	4. 1
20	0.11575	11561	11548	11535	11522	11509	11495	11482	11469	11456	11443	11429	1 =
21	11416	11403	11390	11377	11364	11351	11338	11325	11312	11299	11286	11272	2.
22	11259	11246	11233	11220	11207	11194	11182	11169	11156	11143	11130	11117	3.
23	11104	11091	11078	11065	11052	11040	11027	11014	11001	10988	10975	10963	4. 1
24	0.10950	10937	10924	10911	10899	10886	10873	10861	10848	10835	10822	10810	1 =
25	10797	10784	10772	10759	10746	10734	10721	10709	10696	10683	10671	10658	2.
26	10646	10633	10621	10608	10595	10583	10570	10558	10545	10533	10520	10508	3.
27	10496	10483	10471	10458	10446	10433	10421	10409	10396	10384	10372	10359	4. 1
28	0.10347	10335	10322	10310	10298	10285	10273	10261	10248	10236	10224	10212	1 =
29	10199	10187	10175	10163	10151	10138	10126	10114	10102	10090	10078	10066	2.
30	10053	10041	10029	10017	10005	09993	09981	09969	09957	09945	09933	09921	3.
31	09909	09897	09885	09873	09861	09849	09837	09825	09813	09801	09789	09777	4. 1
32	0.09765	09753	09741	09730	09718	09706	09694	09682	09670	09658	09647	09635	1 =
33	09623	09611	09599	09588	09576	09564	09552	09541	09529	09517	09506	09494	2.
34	09482	09471	09459	09447	09436	09424	09412	09401	09389	09377	09366	09354	3.
35	09343	09331	09319	09308	09296	09285	09273	09262	09250	09239	09227	09216	4.
36	0.09204	09193	09181	09170	09158	09147	09136	09124	09113	09101	09090	09079	1 =
37	09067	09056	09045	09033	09022	09011	08999	08988	08977	08965	08954	08943	2.
38	08931	08920	08909	08898	08886	08875	08864	08853	08842	08830	08819	08808	3.
39	08797	08786	08775	08763	08752	08741	08730	08719	08708	08697	08686	08675	4.
40	0.08664	08653	08642	08630	08619	08608	08597	08586	08575	08564	08553	08542	1 =
41	08532	08521	08510	08499	08488	08477	08466	08455	08444	08433	08422	08412	2.
42	08401	08390	08379	08368	08357	08347	08336	08325	08314	08303	08293	08282	3.
43	08271	08260	08250	08239	08228	08217	08207	08196	08185	08175	08164	08153	4.
44	0.08143	08132	08121	08111	08100	08089	08079	08068	08058	08047	08037	08026	1 =
45	08015	08005	07994	07984	07973	07963	07952	07942	07931	07921	07910	07900	2.
46	07889	07879	07869	07858	07848	07837	07827	07816	07806	07796	07785	07775	3.
47	07765	07754	07744	07734	07723	07713	07703	07692	07682	07672	07661	07651	4.
48	0.07641	07631	07620	07610	07600	07590	07580	07569	07559	07549	07539	07529	1 =
49	07518	07508	07498	07488	07478	07468	07458	07448	07437	07427	07417	07407	2.
50	07397	07387	07377	07367	07357	07347	07337	07327	07317	07307	07297	07287	3.
51	07277	07267	07257	07247	07237	07227	07217	07207	07198	07188	07178	07168	4.
52	0.07158	07148	07138	07128	07119	07109	07099	07089	07079	07070	07060	07050	1 =
53	07040	07030	07021	07011	07001	06991	06982	06972	06962	06953	06943	06933	2.
54	06923	06914	06904	06894	06885	06875	06866	06856	06846	06837	06827	06818	3.
55	06808	06798	06789	06779	06770	06760	06751	06741	06732	06722	06712	06703	4.
56	0.06693	06684	06675	06665	06656	06646	06637	06627	06618	06608	06599	06590	1 =
57	06580	06571	06561	06552	06543	06533	06524	06515	06505	06496	06487	06477	2.
58	06468	06459	06449	06440	06431	06422	06412	06403	06394	06385	06375	06366	3.
59	06357	06348	06339	06329	06320	06311	06302	06293	06284	06274	06265	06256	4.
Number	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper. parts.
	3 HOURS.												

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LOGARITHMIC HALF ELAPSED TIME.

Minutes	4 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	0.06247	06238	06229	06220	06211	06202	06192	06183	06174	06165	06156	06147	1″ =
1	06138	06129	06120	06111	06102	06093	06084	06075	06066	06057	06048	06039	2.
2	06030	06021	06013	06004	05995	05986	05977	05968	05959	05950	05941	05933	3.
3	05924	05915	05906	05897	05888	05880	05871	05862	05853	05844	05836	05827	4.
4	0.05818	05809	05801	05792	05783	05774	05766	05757	05748	05740	05731	05722	1 =
5	05714	05705	05696	05688	05679	05670	05662	05653	05645	05636	05627	05619	2.
6	05610	05602	05593	05585	05576	05567	05559	05550	05542	05533	05525	05516	3.
7	05508	05499	05491	05482	05474	05466	05457	05449	05440	05432	05423	05415	4.
8	0.05407	05398	05390	05381	05373	05365	05356	05348	05340	05331	05323	05315	1. =
9	05306	05298	05290	05281	05273	05265	05257	05248	05240	05232	05224	05215	2.
10	05207	05199	05191	05183	05174	05166	05158	05150	05142	05133	05125	05117	3.
11	05109	05101	05093	05085	05077	05068	05060	05052	05044	05036	05028	05020	4.
12	0.05012	05004	04996	04988	04980	04972	04964	04956	04948	04940	04932	04924	1 =
13	04916	04908	04900	04892	04884	04876	04868	04860	04852	04845	04837	04829	2.
14	04821	04813	04805	04797	04790	04782	04774	04766	04758	04750	04743	04735	3.
15	04727	04719	04711	04704	04696	04688	04680	04673	04665	04657	04649	04642	4.
16	0.04634	04626	04619	04611	04603	04596	04588	04580	04573	04565	04557	04550	1 =
17	04542	04535	04527	04519	04512	04504	04497	04489	04481	04474	04466	04459	2.
18	04451	04444	04436	04429	04421	04414	04406	04399	04391	04384	04376	04369	3.
19	04361	04354	04346	04339	04332	04324	04317	04309	04302	04295	04287	04280	4.
20	0.04272	04265	04258	04250	04243	04236	04228	04221	04214	04206	04199	04192	1 =
21	04185	04177	04170	04163	04156	04148	04141	04134	04127	04119	04112	04105	2.
22	04098	04091	04083	04076	04069	04062	04055	04048	04040	04033	04026	04019	3.
23	04012	04005	03998	03991	03984	03976	03969	03962	03955	03948	03941	03934	4.
24	0.03927	03920	03913	03906	03899	03892	03885	03878	03871	03864	03857	03850	1 =
25	03843	03836	03829	03822	03815	03809	03802	03795	03788	03781	03774	03767	2.
26	03760	03753	03747	03740	03733	03726	03719	03712	03706	03699	03692	03685	3.
27	03678	03672	03665	03658	03651	03645	03638	03631	03624	03618	03611	03604	4.
28	0.03597	03591	03584	03577	03571	03564	03557	03551	03544	03537	03531	03524	1 =
29	03517	03511	03504	03498	03491	03484	03478	03471	03465	03458	03452	03445	2.
30	03439	03432	03425	03419	03412	03406	03399	03393	03386	03380	03373	03367	3.
31	03361	03354	03348	03341	03335	03328	03322	03315	03309	03303	03296	03290	4.
32	0.03283	03277	03271	03264	03258	03252	03245	03239	03233	03226	03220	03214	1 =
33	03207	03201	03195	03189	03182	03176	03170	03163	03157	03151	03145	03138	2.
34	03132	03126	03120	03114	03107	03101	03095	03089	03083	03077	03070	03064	3.
35	03058	03052	03046	03040	03034	03027	03021	03015	03009	03003	02997	02991	4.
36	0.02985	02979	02973	02967	02961	02955	02949	02943	02937	02931	02925	02919	1 =
37	02913	02907	02901	02895	02889	02883	02877	02871	02865	02859	02853	02847	2.
38	02841	02835	02829	02824	02818	02812	02806	02800	02794	02788	02783	02777	3.
39	02771	02765	02759	02753	02748	02742	02736	02730	02725	02719	02713	02707	4.
40	0.02701	02696	02690	02684	02679	02673	02667	02661	02656	02650	02644	02639	1 =
41	02633	02627	02622	02616	02610	02605	02599	02593	02588	02582	02577	02571	2.
42	02565	02560	02554	02549	02543	02538	02532	02526	02521	02515	02510	02504	3.
43	02499	02493	02488	02482	02477	02471	02466	02460	02455	02449	02444	02438	4.
44	0.02433	02428	02422	02417	02411	02406	02401	02395	02390	02384	02379	02374	1 =
45	02368	02363	02358	02352	02347	02342	02336	02331	02326	02320	02315	02310	2.
46	02304	02299	02294	02289	02283	02278	02273	02268	02262	02257	02252	02247	3.
47	02241	02236	02231	02226	02221	02215	02210	02205	02200	02195	02190	02185	4.
48	0.02179	02174	02169	02164	02159	02154	02149	02144	02139	02134	02128	02123	1 =
49	02118	02113	02108	02103	02098	02093	02088	02083	02078	02073	02068	02063	2.
50	02058	02053	02048	02043	02038	02033	02028	02023	02018	02014	02009	02004	3.
51	01999	01994	01989	01984	01979	01974	01970	01965	01960	01955	01950	01945	4.
52	0.01940	01936	01931	01926	01921	01916	01912	01907	01902	01897	01892	01888	1 =
53	01883	01878	01873	01869	01864	01859	01855	01850	01845	01840	01836	01831	2.
54	01826	01822	01817	01812	01808	01803	01798	01794	01789	01785	01780	01775	3.
55	01771	01766	01761	01757	01752	01748	01743	01739	01734	01730	01725	01720	4.
56	0.01716	01711	01707	01702	01698	01693	01689	01684	01680	01675	01671	01666	1 =
57	01662	01658	01653	01649	01644	01640	01635	01631	01627	01622	01618	01613	2.
58	01609	01605	01600	01596	01592	01587	01583	01578	01574	01570	01566	01561	3.
59	01557	01553	01548	01544	01540	01535	01531	01527	01523	01518	01514	01510	4.
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	4 HOURS.												

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LOGARITHMIC HALF ELAPSED TIME.

Minutes	5 HOURS. 0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Propor. parts.
0	0.01506	01501	01497	01493	01489	01485	01480	01476	01472	01468	01464	01460	1" = 1
1	01455	01451	01447	01443	01439	01435	01431	01426	01422	01418	01414	01410	2. 2
2	01406	01402	01398	01394	01390	01386	01382	01377	01373	01369	01365	01361	3. 2
3	01357	01353	01349	01345	01341	01337	01333	01329	01325	01321	01318	01314	4. 4
4	0.01310	01306	01302	01298	01294	01290	01286	01282	01278	01274	01271	01267	1 = 1
5	01263	01259	01255	01251	01247	01244	01240	01236	01232	01228	01224	01221	2. 2
6	01217	01213	01209	01206	01202	01198	01194	01191	01187	01183	01179	01176	3. 2
7	01172	01168	01164	01161	01157	01153	01150	01146	01142	01139	01135	01131	4. 4
8	0.01128	01124	01120	01117	01113	01110	01106	01102	01099	01095	01092	01088	1. = 1
9	01084	01081	01077	01074	01070	01067	01063	01059	01056	01052	01049	01045	2. 1
10	01042	01038	01035	01031	01028	01024	01021	01018	01014	01011	01007	01004	3. 2
11	01000	00997	00993	00990	00987	00983	00980	00976	00973	00970	00966	00963	4. 3
12	0.00960	00956	00953	00950	00946	00943	00940	00936	00933	00930	00926	00923	1 = 1
13	00920	00916	00913	00910	00907	00903	00900	00897	00894	00890	00887	00884	2. 1
14	00881	00878	00874	00871	00868	00865	00862	00858	00855	00852	00849	00846	3. 2
15	00843	00840	00836	00833	00830	00827	00824	00821	00818	00815	00812	00808	4. 3
16	0.00805	00802	00799	00796	00793	00790	00787	00784	00781	00778	00775	00772	1 = 1
17	00769	00766	00763	00760	00757	00754	00751	00748	00745	00742	00739	00736	2. 1
18	00733	00731	00728	00725	00722	00719	00716	00713	00710	00707	00704	00702	3. 2
19	00699	00696	00693	00690	00687	00685	00682	00679	00676	00673	00670	00668	4. 2
20	0.00665	00662	00659	00657	00654	00651	00648	00646	00643	00640	00637	00635	1 = 1
21	00632	00629	00627	00624	00621	00618	00616	00613	00610	00608	00605	00602	2. 1
22	00600	00597	00595	00592	00589	00587	00584	00581	00579	00576	00574	00571	3. 2
23	00568	00566	00563	00561	00558	00556	00553	00551	00548	00546	00543	00541	4. 2
24	0.00538	00536	00533	00531	00528	00526	00523	00521	00518	00516	00513	00511	1 = 0
25	00508	00506	00504	00501	00499	00496	00494	00492	00489	00487	00484	00482	2. 1
26	00480	00477	00475	00473	00470	00468	00466	00463	00461	00459	00456	00454	3. 1
27	00452	00450	00447	00445	00443	00440	00438	00436	00434	00431	00429	00427	4. 2
28	0.00425	00423	00420	00418	00416	00414	00412	00409	00407	00405	00403	00401	1 = 0
29	00399	00396	00394	00392	00390	00388	00386	00384	00382	00379	00377	00375	2. 1
30	00373	00371	00369	00367	00365	00363	00361	00359	00357	00355	00353	00351	3. 1
31	00349	00347	00345	00343	00341	00339	00337	00335	00333	00331	00329	00327	4. 2
32	0.00325	00323	00321	00319	00317	00315	00313	00312	00310	00308	00306	00304	1 = 0
33	00302	00300	00298	00297	00295	00293	00291	00289	00287	00286	00284	00282	2. 1
34	00280	00278	00277	00275	00273	00271	00269	00267	00266	00264	00262	00261	3. 1
35	00259	00257	00256	00254	00252	00250	00249	00247	00245	00244	00242	00240	4. 2
36	0.00239	00237	00235	00234	00232	00230	00229	00227	00226	00224	00222	00221	1 = 0
37	00219	00218	00216	00214	00213	00211	00210	00208	00207	00205	00204	00202	2. 1
38	00200	00199	00197	00196	00194	00193	00191	00190	00188	00187	00186	00184	3. 1
39	00183	00181	00180	00178	00177	00175	00174	00173	00171	00170	00168	00167	4. 1
40	0.00166	00164	00163	00162	00160	00159	00157	00156	00155	00153	00152	00151	1 = 0
41	00149	00148	00147	00146	00144	00143	00142	00140	00139	00138	00137	00135	2. 1
42	00134	00133	00132	00130	00129	00128	00127	00126	00124	00123	00122	00121	3. 1
43	00120	00118	00117	00116	00115	00114	00113	00112	00110	00109	00108	00107	4. 1
44	0.00106	00105	00104	00103	00102	00101	00099	00098	00097	00096	00095	00094	1 = 0
45	00093	00092	00091	00090	00089	00088	00087	00086	00085	00084	00083	00082	2. 0
46	00081	00080	00079	00078	00077	00076	00075	00075	00074	00073	00072	00071	3. 1
47	00070	00069	00068	00067	00066	00066	00065	00064	00063	00062	00061	00060	4. 1
48	0.00060	00059	00058	00057	00056	00056	00055	00054	00053	00052	00052	00051	1 = 0
49	00050	00049	00049	00048	00047	00046	00046	00045	00044	00044	00043	00042	2. 0
50	00041	00041	00040	00039	00039	00038	00037	00037	00036	00035	00035	00034	3. 0
51	00034	00033	00032	00032	00031	00031	00030	00029	00029	00028	00028	00027	4. 1
52	0.00027	00026	00025	00025	00024	00024	00023	00023	00022	00022	00021	00021	1 = 0
53	00020	00020	00019	00019	00018	00018	00017	00017	00016	00016	00016	00015	2. 0
54	00015	00015	00014	00014	00013	00013	00013	00012	00012	00011	00011	00011	3. 0
55	00010	00010	00010	00009	00009	00009	00008	00008	00008	00008	00007	00007	4. 1
56	0.00007	00006	00006	00006	00006	00005	00005	00005	00005	00004	00004	00004	1 = 0
57	00004	00004	00003	00003	00003	00003	00003	00002	00002	00002	00002	00002	2. 0
58	00002	00002	00001	00001	00001	00001	00001	00001	00001	00001	00001	00001	3. 0
59	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	4. 0
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Propor. parts.
	5 HOURS.												

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LOGARITHMIC MIDDLE TIME.

Minutes	0 HOUR.												Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	
0		86167	76270	33879	46373	56064	63982	70676	76476	81591	86167	90306	
1	3.94085	97561	••779	•3776	•6578	•9211	11694	14042	16269	18388	20408	22339	
2	4.24187	25960	27663	29302	30882	32406	33878	35302	36681	38017	39313	40572	
3	41796	42986	44144	45272	46371	47443	48490	49512	50510	51486	52440	53374	
4	4.54289	55184	56061	56921	57764	58592	59403	60200	60982	61751	62506	63249	
5	63978	64696	65402	66097	66781	67454	68117	68770	69413	70047	70672	71288	
6	71895	72494	73085	73667	74242	74810	75370	75923	76469	77009	77542	78068	
7	78588	79102	79609	80111	80607	81098	81583	82063	82537	83007	83471	83930	
8	4.84385	84835	85280	85721	86157	86589	87017	87440	87860	88275	88686	89094	1″ = 76
9	89498	89898	90294	90687	91076	91462	91845	92224	92600	92972	93341	93708	2. 152
10	94071	94431	94788	95143	95494	95843	96188	96532	96872	97210	97545	97877	3. 229
11	98207	98535	98860	99183	99503	99821	••136	••450	••761	•1070	•1376	•1681	4. 305
12	5.01983	02283	02581	02878	03172	03464	03754	04043	04329	04613	04896	05177	1 = 54
13	05456	05733	06008	06282	06554	06824	07093	07360	07625	07889	08151	08412	2. 107
14	08671	08928	09184	09438	09691	09943	10193	10441	10688	10934	11178	11421	3. 161
15	11663	11903	12142	12380	12616	12851	13085	13317	13549	13779	14007	14235	4. 214
16	5.14461	14687	14911	15134	15355	15576	15796	16014	16231	16448	16663	16877	1 = 41
17	17090	17302	17513	17723	17932	18139	18346	18552	18757	18962	19164	19366	2. 82
18	19567	19768	19967	20165	20363	20559	20755	20950	21143	21336	21529	21720	3. 124
19	21910	22100	22289	22477	22664	22850	23036	23221	23404	23588	23770	23952	4. 165
20	5.24133	24313	24492	24671	24849	25026	25202	25378	25553	25727	25901	26074	1 = 34
21	26246	26417	26588	26758	26928	27097	27265	27432	27599	27765	27931	28096	2. 68
22	28260	28424	28587	28750	28911	29073	29233	29393	29553	29712	29870	30028	3. 100
23	30185	30341	30497	30653	30807	30962	31115	31269	31421	31573	31725	31876	4. 134
24	5.32026	32176	32326	32475	32623	32771	32919	33066	33212	33358	33503	33648	1 = 28
25	33793	33937	34080	34223	34365	34508	34649	34790	34931	35071	35211	35350	2. 57
26	35489	35627	35765	35903	36040	36176	36313	36448	36584	36719	36853	36987	3. 85
27	37121	37254	37387	37519	37651	37783	37914	38045	38175	38305	38434	38564	4. 113
28	5.38692	38821	38949	39077	39204	39331	39457	39583	39709	39835	39960	40084	1 = 24
29	40209	40333	40456	40579	40702	40825	40947	41069	41190	41311	41432	41553	2. 49
30	41673	41793	41912	42031	42150	42268	42386	42504	42622	42739	42856	42972	3. 73
31	43088	43204	43320	43435	43550	43665	43779	43893	44007	44120	44233	44346	4. 98
32	5.44459	44571	44683	44794	44906	45017	45127	45238	45348	45458	45568	45677	1 = 22
33	45786	45895	46003	46111	46219	46327	46434	46542	46648	46755	46861	46967	2. 43
34	47073	47179	47284	47389	47494	47598	47702	47807	47910	48014	48117	48220	3. 65
35	48323	48425	48527	48629	48731	48833	48934	49035	49136	49236	49336	49436	4. 86
36	5.49536	49636	49735	49834	49933	50032	50130	50229	50326	50424	50522	50619	1 = 19
37	50716	50813	50910	51006	51102	51198	51294	51389	51485	51580	51675	51769	2. 38
38	51864	51958	52052	52146	52240	52333	52426	52519	52612	52705	52797	52889	3. 57
39	52981	53073	53165	53256	53347	53438	53529	53620	53710	53801	53891	53980	4. 76
40	5.54070	54160	54249	54338	54427	54515	54604	54692	54780	54868	54956	55044	1 = 17
41	55131	55219	55306	55392	55479	55566	55652	55738	55824	55910	55996	56081	2. 34
42	56166	56251	56336	56421	56506	56590	56674	56759	56842	56926	57010	57093	3. 51
43	57176	57260	57343	57425	57508	57590	57673	57755	57837	57918	58000	58082	4. 69
44	5.58163	58244	58325	58406	58487	58567	58648	58728	58808	58888	58967	59047	1 = 16
45	59127	59206	59285	59364	59443	59522	59600	59679	59757	59835	59913	59991	2. 31
46	60069	60146	60223	60301	60378	60455	60532	60608	60685	60761	60838	60914	3. 47
47	60990	61066	61141	61217	61292	61368	61443	61518	61593	61667	61742	61817	4. 63
48	5.61891	61965	62039	62113	62187	62261	62334	62408	62481	62554	62627	62700	1 = 14
49	62773	62846	62918	62991	63063	63135	63207	63279	63351	63422	63494	63565	2. 28
50	63637	63708	63779	63850	63921	63991	64062	64132	64203	64273	64343	64413	3. 43
51	64483	64553	64622	64692	64761	64830	64899	64968	65037	65106	65175	65243	4. 57
52	5.65312	65380	65448	65517	65584	65652	65720	65788	65855	65923	65990	66057	1 = 13
53	66125	66192	66258	66325	66392	66458	66525	66591	66658	66724	66790	66856	2. 27
54	66922	66987	67053	67118	67184	67249	67314	67379	67444	67509	67574	67639	3. 40
55	67703	67768	67832	67897	67961	68025	68089	68153	68216	68280	68344	68407	4. 53
56	5.68471	68534	68597	68660	68723	68786	68849	68912	68974	69037	69099	69161	1 = 11
57	69224	69286	69348	69410	69472	69533	69595	69657	69718	69779	69841	69902	2. 23
58	69963	70024	70085	70146	70206	70267	70328	70388	70449	70509	70569	70629	3. 35
59	70689	70749	70809	70869	70928	70988	71047	71107	71166	71225	71285	71344	4. 46
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	0 HOUR.												

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LOGARITHMIC MIDDLE TIME.

Minutes	1 HOUR. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.71403	71462	71520	71579	71638	71696	71755	71813	71871	71930	71988	72046	1″ = 11
1	72104	72162	72219	72277	72335	72392	72450	72507	72564	72622	72679	72736	2. 22
2	72793	72850	72907	72963	73020	73077	73133	73190	73246	73302	73358	73414	3. 34
3	73470	73526	73582	73638	73694	73749	73805	73861	73916	73971	74027	74082	4. 45
4	5.74137	74192	74247	74302	74356	74411	74466	74521	74575	74629	74684	74738	1 = 11
5	74792	74846	74900	74955	75008	75062	75116	75170	75223	75277	75330	75384	2. 22
6	75437	75491	75544	75597	75650	75703	75756	75809	75861	75914	75967	76019	3. 32
7	76072	76124	76177	76229	76281	76333	76385	76437	76489	76541	76593	76645	4. 43
8	5.76697	76748	76800	76851	76903	76954	77005	77057	77108	77159	77210	77261	1 = 10
9	77312	77362	77413	77464	77514	77565	77616	77666	77716	77767	77817	77867	2. 20
10	77917	77967	78017	78067	78117	78167	78217	78266	78316	78365	78415	78464	3. 30
11	78514	78563	78612	78661	78710	78760	78809	78858	78906	78955	79004	79053	4. 40
12	5.79101	79150	79198	79247	79295	79344	79392	79440	79488	79536	79584	79632	1 = 10
13	79680	79728	79776	79824	79871	79919	79966	80014	80061	80109	80156	80203	2. 19
14	80251	80298	80345	80392	80439	80486	80533	80580	80626	80673	80720	80766	3. 29
15	80813	80859	80906	80952	80999	81045	81091	81137	81183	81229	81275	81321	4. 38
16	5.81367	81413	81459	81505	81550	81596	81641	81687	81732	81778	81823	81868	1 = 9
17	81914	81959	82004	82049	82094	82139	82184	82229	82274	82319	82363	82408	2. 18
18	82453	82497	82542	82586	82630	82675	82719	82763	82808	82852	82896	82940	3. 27
19	82984	83028	83072	83116	83159	83203	83247	83291	83334	83378	83421	83465	4. 36
20	5.83508	83552	83595	83638	83681	83725	83768	83811	83854	83897	83940	83983	1 = 9
21	84025	84068	84111	84154	84196	84239	84281	84324	84366	84409	84451	84493	2. 17
22	84536	84578	84620	84662	84704	84746	84788	84830	84872	84914	84956	84997	3. 26
23	85039	85081	85122	85164	85205	85247	85288	85330	85371	85412	85454	85495	4. 34
24	5.85536	85577	85618	85659	85700	85741	85782	85823	85864	85904	85945	85986	1 = 8
25	86026	86067	86108	86148	86188	86229	86269	86310	86350	86390	86430	86470	2. 16
26	86511	86551	86591	86631	86671	86710	86750	86790	86830	86870	86909	86949	3. 24
27	86989	87028	87068	87107	87147	87186	87225	87265	87304	87343	87382	87421	4. 32
28	5.87461	87500	87539	87578	87617	87656	87694	87733	87772	87811	87849	87888	1 = 8
29	87927	87965	88004	88042	88081	88119	88158	88196	88234	88272	88311	88349	2. 15
30	88387	88425	88463	88501	88539	88577	88615	88653	88691	88729	88766	88804	3. 23
31	88842	88879	88917	88954	88992	89030	89067	89104	89142	89179	89216	89254	4. 31
32	5.89291	89328	89365	89402	89439	89476	89513	89550	89587	89624	89661	89698	1 = 7
33	89735	89771	89808	89845	89881	89918	89954	89991	90027	90064	90100	90137	2. 15
34	90173	90209	90246	90282	90318	90354	90390	90426	90462	90498	90534	90570	3. 22
35	90606	90642	90678	90714	90749	90785	90821	90857	90892	90928	90963	90999	4. 29
36	5.91034	91070	91105	91141	91176	91211	91247	91282	91317	91352	91387	91422	1 = 7
37	91457	91493	91527	91563	91597	91632	91667	91702	91737	91772	91806	91841	2. 14
38	91876	91910	91945	91980	92014	92049	92083	92117	92152	92186	92221	92255	3. 21
39	92289	92323	92358	92392	92426	92460	92494	92528	92562	92596	92630	92664	4. 28
40	5.92698	92732	92765	92799	92833	92867	92900	92934	92968	93001	93035	93068	1 = 7
41	93102	93135	93169	93202	93236	93269	93302	93336	93369	93402	93435	93468	2. 13
42	93501	93535	93568	93601	93634	93667	93700	93732	93765	93798	93831	93864	3. 20
43	93897	93929	93962	93995	94027	94060	94092	94125	94157	94190	94222	94255	4. 26
44	5.94287	94320	94352	94384	94416	94449	94481	94513	94545	94577	94609	94642	1 = 6
45	94674	94706	94738	94770	94801	94833	94865	94897	94929	94961	94992	95024	2. 13
46	95056	95087	95119	95151	95182	95214	95245	95277	95308	95340	95371	95402	3. 19
47	95434	95465	95496	95528	95559	95590	95621	95652	95683	95715	95746	95777	4. 25
48	5.95808	95839	95870	95901	95931	95962	95993	96024	96055	96086	96116	96147	1 = 6
49	96178	96208	96239	96269	96300	96331	96361	96392	96422	96452	96483	96513	2. 12
50	96544	96574	96604	96634	96665	96695	96725	96755	96785	96816	96846	96876	3. 18
51	96906	96936	96966	96996	97025	97055	97085	97115	97145	97175	97204	97234	4. 24
52	5.97264	97294	97323	97353	97383	97412	97442	97471	97501	97530	97560	97589	1 = 6
53	97618	97648	97677	97707	97736	97765	97794	97824	97853	97882	97911	97940	2. 12
54	97969	97998	98027	98056	98085	98114	98143	98172	98201	98230	98259	98288	3. 17
55	98316	98345	98374	98403	98431	98460	98489	98517	98546	98575	98603	98632	4. 23
56	5.98660	98689	98717	98746	98774	98802	98831	98859	98887	98916	98944	98972	1 = 6
57	99000	99028	99057	99085	99113	99141	99169	99197	99225	99253	99281	99309	2. 11
58	99337	99365	99393	99421	99448	99476	99504	99532	99559	99587	99615	99643	3. 17
59	99670	99698	99725	99753	99780	99808	99835	99863	99890	99918	99945	99973	4. 22
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	1 HOUR.												

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LOGARITHMIC MIDDLE TIME.

Minutes	2 HOURS. 0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proportional parts
0	6.00000	00027	00055	00082	00109	00137	00164	00191	00218	00245	00272	00300	1" = 5
1	00327	00354	00381	00408	00435	00462	00489	00516	00542	00569	00596	00623	2. 11
2	00650	00677	00703	00730	00757	00784	00810	00837	00864	00890	00917	00943	3. 16
3	00970	00997	01023	01050	01076	01103	01129	01155	01182	01208	01234	01261	4. 22
4	6.01287	01313	01339	01366	01392	01418	01444	01470	01496	01523	01549	01575	1 = 5
5	01601	01627	01653	01679	01705	01731	01757	01782	01808	01834	01860	01886	2. 10
6	01912	01937	01963	01989	02014	02040	02066	02091	02117	02143	02168	02194	3. 15
7	02219	02245	02270	02296	02321	02347	02372	02397	02423	02448	02473	02499	4. 21
8	6.02524	02549	02574	02600	02625	02650	02675	02700	02725	02751	02776	02801	1 = 5
9	02826	02851	02876	02901	02926	02951	02976	03001	03025	03050	03075	03100	2. 10
10	03125	03149	03174	03199	03224	03248	03273	03298	03322	03347	03372	03396	3. 15
11	03421	03445	03470	03494	03519	03543	03568	03592	03616	03641	03665	03690	4. 20
12	6.03714	03738	03762	03787	03811	03835	03859	03884	03908	03932	03956	03980	1 = 5
13	04004	04028	04052	04077	04100	04125	04148	04172	04196	04220	04244	04268	2. 10
14	04292	04316	04340	04363	04387	04411	04435	04459	04482	04506	04530	04553	3. 14
15	04577	04601	04624	04648	04671	04695	04718	04742	04765	04789	04812	04836	4. 19
16	6.04859	04883	04906	04929	04953	04976	04999	05023	05046	05069	05092	05116	1 = 5
17	05139	05162	05185	05208	05231	05255	05278	05301	05324	05347	05370	05393	2. 9
18	05416	05439	05462	05485	05508	05531	05553	05576	05599	05622	05645	05668	3. 14
19	05690	05713	05736	05758	05781	05804	05827	05849	05872	05894	05917	05940	4. 19
20	6.05962	05985	06007	06030	06052	06075	06097	06120	06142	06164	06187	06209	1 = 4
21	06232	06254	06276	06299	06321	06343	06365	06388	06410	06432	06454	06476	2. 9
22	06498	06521	06543	06565	06587	06609	06631	06653	06675	06697	06719	06741	3. 13
23	06763	06785	06807	06829	06850	06872	06894	06916	06938	06960	06981	07003	4. 18
24	6.07025	07047	07068	07090	07112	07133	07155	07176	07198	07220	07241	07263	1 = 4
25	07284	07306	07328	07349	07371	07392	07413	07435	07456	07478	07499	07520	2. 9
26	07542	07563	07584	07606	07627	07648	07670	07691	07712	07733	07754	07776	3. 13
27	07797	07818	07839	07860	07881	07902	07923	07944	07965	07986	08007	08028	4. 17
28	6.08049	08070	08091	08112	08133	08154	08175	08196	08216	08237	08258	08279	1 = 4
29	08300	08320	08341	08362	08383	08403	08424	08445	08465	08486	08507	08527	2. 8
30	08548	08568	08589	08609	08630	08650	08671	08691	08712	08732	08753	08773	3. 13
31	08794	08814	08834	08855	08875	08895	08916	08936	08956	08977	08997	09017	4. 17
32	6.09037	09057	09078	09098	09118	09138	09158	09178	09198	09219	09239	09259	1 = 4
33	09279	09299	09319	09339	09359	09379	09399	09419	09438	09458	09478	09498	2. 8
34	09518	09538	09558	09577	09597	09617	09637	09657	09676	09696	09716	09735	3. 12
35	09755	09775	09794	09814	09834	09853	09873	09893	09912	09932	09951	09971	4. 16
36	6.09990	10010	10029	10049	10068	10088	10107	10126	10146	10165	10184	10204	1 = 4
37	10223	10243	10262	10281	10300	10320	10339	10358	10377	10397	10416	10435	2. 8
38	10454	10473	10492	10512	10531	10550	10569	10588	10607	10626	10645	10664	3. 11
39	10683	10702	10721	10740	10759	10778	10797	10816	10834	10853	10872	10891	4. 15
40	6.10910	10929	10947	10966	10985	11004	11022	11041	11060	11079	11097	11116	1 = 4
41	11135	11153	11172	11190	11209	11228	11246	11265	11283	11302	11320	11339	2. 7
42	11357	11376	11394	11413	11431	11450	11468	11487	11505	11523	11542	11560	3. 11
43	11578	11597	11615	11633	11652	11670	11688	11706	11725	11743	11761	11779	4. 15
44	6.11797	11815	11834	11852	11870	11888	11906	11924	11942	11960	11978	11996	1 = 4
45	12014	12032	12050	12068	12086	12104	12122	12140	12158	12176	12194	12212	2. 7
46	12229	12247	12265	12283	12301	12319	12336	12354	12372	12390	12407	12425	3. 11
47	12443	12460	12478	12496	12513	12531	12549	12566	12584	12601	12619	12637	4. 14
48	6.12654	12672	12689	12707	12724	12742	12759	12777	12794	12811	12829	12846	1 = 4
49	12864	12881	12898	12916	12933	12950	12968	12985	13002	13020	13037	13054	2. 7
50	13071	13089	13106	13123	13140	13157	13175	13192	13209	13226	13243	13260	3. 11
51	13277	13294	13311	13328	13345	13363	13380	13397	13413	13431	13447	13464	4. 14
52	6.13481	13498	13515	13532	13549	13566	13583	13600	13616	13633	13650	13667	1 = 3
53	13684	13700	13717	13734	13751	13767	13784	13801	13818	13834	13851	13868	2. 7
54	13884	13901	13917	13934	13951	13967	13984	14000	14017	14034	14050	14067	3. 10
55	14083	14100	14116	14133	14149	14165	14182	14198	14215	14231	14247	14264	4. 14
56	6.14280	14297	14313	14329	14345	14362	14378	14394	14411	14427	14443	14459	1 = 3
57	14476	14492	14508	14524	14540	14556	14573	14589	14605	14621	14637	14653	2. 7
58	14669	14685	14701	14717	14733	14749	14765	14781	14797	14813	14829	14845	3. 10
59	14861	14877	14893	14909	14925	14941	14957	14972	14988	15004	15020	15036	4. 14
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proportional parts
	2 HOURS.												

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LOGARITHMIC MIDDLE TIME.

Minutes	3 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proportional parts.
0	6.15051	15067	15083	15099	15115	15130	15146	15162	15177	15193	15209	15225	1″ = 3
1	15240	15256	15271	15287	15303	15318	15334	15350	15365	15381	15396	15412	2. 6
2	15427	15443	15458	15474	15489	15505	15520	15536	15551	15566	15582	15597	3. 9
3	15613	15628	15643	15659	15674	15689	15705	15720	15735	15751	15766	15781	4. 12
4	6.15796	15812	15827	15842	15857	15873	15888	15903	15918	15933	15948	15964	1 = 3
5	15979	15994	16009	16024	16039	16054	16069	16084	16099	16114	16129	16144	2. 6
6	16159	16174	16189	16204	16219	16234	16249	16264	16279	16294	16309	16323	3. 9
7	16338	16353	16368	16383	16398	16412	16427	16442	16457	16472	16486	16501	4. 12
8	6.16516	16531	16545	16560	16575	16589	16604	16619	16633	16648	16662	16677	1 = 3
9	16692	16706	16721	16735	16750	16765	16779	16794	16808	16823	16837	16852	2. 6
10	16866	16881	16895	16909	16924	16938	16953	16967	16982	16996	17010	17025	3. 9
11	17039	17053	17068	17082	17096	17111	17125	17139	17153	17168	17182	17196	4. 12
12	6.17210	17225	17239	17253	17267	17281	17295	17310	17324	17338	17352	17366	1 = 3
13	17380	17394	17408	17423	17437	17451	17465	17479	17493	17507	17521	17535	2. 6
14	17549	17563	17577	17591	17604	17618	17632	17646	17660	17674	17688	17702	3. 8
15	17716	17729	17743	17757	17771	17785	17798	17812	17826	17840	17854	17867	4. 11
16	6.17881	17895	17908	17922	17936	17950	17963	17977	17990	18004	18018	18031	1 = 3
17	18045	18059	18072	18086	18099	18113	18126	18140	18154	18167	18181	18194	2. 5
18	18208	18221	18235	18248	18261	18275	18288	18302	18315	18329	18342	18355	3. 8
19	18369	18382	18395	18409	18422	18435	18449	18462	18475	18489	18502	18515	4. 11
20	6.18528	18542	18555	18568	18581	18595	18608	18621	18634	18647	18660	18674	1 = 3
21	18687	18700	18713	18726	18739	18752	18765	18778	18791	18805	18818	18831	2. 5
22	18844	18857	18870	18883	18896	18909	18922	18935	18947	18960	18973	18986	3. 8
23	18999	19012	19025	19038	19051	19064	19076	19089	19102	19115	19128	19141	4. 10
24	6.19153	19166	19179	19192	19204	19217	19230	19243	19255	19268	19281	19293	1 = 3
25	19306	19319	19331	19344	19357	19369	19382	19395	19407	19420	19432	19445	2. 5
26	19457	19470	19483	19495	19508	19520	19533	19545	19558	19570	19583	19595	3. 8
27	19607	19620	19632	19645	19657	19670	19682	19694	19707	19719	19732	19744	4. 10
28	6.19756	19769	19781	19793	19805	19818	19830	19842	19855	19867	19879	19891	1 = 2
29	19904	19916	19928	19940	19952	19965	19977	19989	20001	20013	20025	20038	2. 5
30	20050	20062	20074	20086	20098	20110	20122	20134	20146	20158	20170	20182	3. 7
31	20194	20206	20218	20230	20242	20254	20266	20278	20290	20302	20314	20326	4. 10
32	6.20338	20350	20362	20374	20385	20397	20409	20421	20433	20445	20456	20468	1 = 2
33	20480	20492	20504	20515	20527	20539	20551	20562	20574	20586	20597	20609	2. 5
34	20621	20633	20644	20656	20668	20679	20691	20702	20714	20726	20737	20749	3. 7
35	20760	20772	20784	20795	20807	20818	20830	20841	20853	20864	20876	20887	4. 9
36	6.20899	20910	20922	20933	20945	20956	20967	20979	20990	21002	21013	21024	1 = 2
37	21036	21047	21059	21070	21081	21093	21104	21115	21126	21138	21149	21160	2. 5
38	21172	21183	21194	21205	21217	21228	21239	21250	21261	21273	21284	21295	3. 7
39	21306	21317	21328	21340	21351	21362	21373	21384	21395	21406	21417	21428	4. 9
40	6.21439	21451	21462	21473	21484	21495	21506	21517	21528	21539	21550	21561	1 = 2
41	21572	21583	21593	21604	21615	21626	21637	21648	21659	21670	21681	21692	2. 4
42	21702	21713	21724	21735	21746	21757	21767	21778	21789	21800	21810	21821	3. 7
43	21832	21843	21853	21864	21875	21886	21896	21907	21918	21928	21939	21950	4. 9
44	6.21960	21971	21982	21992	22003	22014	22024	22034	22045	22056	22067	22077	1 = 2
45	22088	22098	22109	22119	22130	22140	22151	22161	22172	22182	22193	22203	2. 4
46	22214	22224	22235	22245	22255	22266	22276	22287	22297	22307	22318	22328	3. 6
47	22338	22349	22359	22370	22380	22390	22400	22411	22421	22431	22442	22452	4. 8
48	6.22462	22472	22483	22493	22503	22513	22524	22534	22544	22554	22564	22574	1 = 2
49	22585	22595	22605	22615	22625	22635	22645	22656	22666	22676	22686	22696	2. 4
50	22706	22716	22726	22736	22746	22756	22766	22776	22786	22796	22806	22816	3. 6
51	22826	22836	22846	22856	22866	22876	22886	22896	22906	22915	22925	22935	4. 8
52	6.22945	22955	22965	22975	22984	22994	23004	23014	23024	23034	23043	23053	1 = 2
53	23063	23073	23082	23092	23102	23112	23121	23131	23141	23151	23160	23170	2. 4
54	23180	23189	23199	23209	23218	23228	23237	23247	23257	23266	23276	23286	3. 6
55	23295	23305	23314	23324	23333	23343	23352	23362	23372	23381	23391	23400	4. 8
56	6.23410	23419	23429	23438	23447	23457	23466	23476	23485	23495	23504	23514	1 = 2
57	23523	23532	23542	23551	23560	23570	23579	23588	23598	23607	23616	23626	2. 4
58	23635	23644	23654	23663	23672	23681	23691	23700	23709	23718	23728	23737	3. 5
59	23746	23755	23765	23774	23783	23792	23801	23810	23820	23829	23838	23847	4. 7
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proportional parts.
	3 HOURS.												

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LOGARITHMIC MIDDLE TIME.

Minutes	4 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proportional parts.
0	6. 23856	23865	23874	23883	23892	23902	23911	23920	23929	23938	23947	23956	1″ = 2
1	23965	23974	23983	23992	24001	24010	24019	24028	24037	24046	24055	24064	2. 4
2	24073	24082	24091	24099	24108	24117	24126	24135	24144	24153	24162	24171	3. 5
3	24179	24188	24197	24206	24215	24224	24232	24241	24250	24259	24267	24276	4. 7
4	6. 24285	24294	24302	24311	24320	24329	24337	24346	24355	24363	24372	24381	1 = 2
5	24389	24398	24407	24415	24424	24433	24441	24450	24458	24467	24476	24484	2. 3
6	24493	24501	24510	24519	24527	24536	24544	24553	24561	24570	24578	24587	3. 5
7	24595	24604	24612	24621	24629	24638	24646	24654	24663	24671	24680	24688	4. 7
8	6. 24696	24705	24713	24722	24730	24738	24747	24755	24763	24772	24780	24788	1 = 2
9	24797	24805	24813	24822	24830	24838	24846	24855	24863	24871	24879	24888	2. 3
10	24896	24904	24912	24921	24929	24937	24945	24953	24961	24970	24978	24986	3. 5
11	24994	25002	25010	25018	25026	25035	25043	25051	25059	25067	25075	25083	4. 7
12	6. 25091	25099	25107	25115	25123	25131	25139	25147	25155	25163	25171	25179	1 = 2
13	25187	25195	25203	25211	25219	25227	25235	25243	25251	25259	25266	25274	2. 3
14	25282	25290	25298	25306	25314	25321	25329	25337	25345	25353	25360	25368	3. 5
15	25376	25384	25392	25399	25407	25415	25423	25430	25438	25446	25454	25461	4. 6
16	6. 25469	25477	25484	25492	25500	25507	25515	25523	25530	25538	25546	25553	1 = 2
17	25561	25569	25576	25584	25591	25599	25607	25614	25622	25629	25637	25644	2. 3
18	25652	25659	25667	25674	25682	25689	25697	25704	25712	25719	25727	25734	3. 5
19	25742	25749	25757	25764	25771	25779	25786	25794	25801	25808	25816	25823	4. 6
20	6. 25831	25838	25845	25853	25860	25867	25875	25882	25889	25897	25904	25911	1 = 1
21	25918	25926	25933	25940	25947	25955	25962	25969	25976	25984	25991	25998	2. 3
22	26005	26013	26020	26027	26034	26041	26048	26056	26063	26070	26077	26084	3. 4
23	26091	26098	26105	26113	26120	26127	26134	26141	26148	26155	26162	26169	4. 6
24	6. 26176	26183	26190	26197	26204	26211	26218	26225	26232	26239	26246	26253	1 = 1
25	26260	26267	26274	26281	26288	26295	26301	26308	26315	26322	26329	26336	2. 3
26	26343	26350	26356	26363	26370	26377	26384	26391	26397	26404	26411	26418	3. 4
27	26425	26432	26438	26445	26452	26459	26465	26472	26479	26486	26492	26499	4. 6
28	6. 26506	26512	26519	26526	26532	26539	26546	26552	26559	26566	26572	26579	1 = 1
29	26586	26592	26599	26605	26612	26619	26625	26632	26638	26645	26651	26658	2. 3
30	26665	26671	26678	26684	26691	26697	26704	26710	26717	26723	26730	26736	3. 4
31	26743	26749	26755	26762	26768	26775	26781	26788	26794	26800	26807	26813	4. 5
32	6. 26820	26826	26832	26839	26845	26851	26858	26864	26870	26877	26883	26889	1 = 1
33	26896	26902	26908	26915	26921	26927	26933	26940	26946	26952	26958	26965	2. 3
34	26971	26977	26983	26989	26996	27002	27008	27014	27020	27027	27033	27039	3. 4
35	27045	27051	27057	27063	27069	27076	27082	27088	27094	27100	27106	27112	4. 5
36	6. 27118	27124	27130	27136	27142	27148	27154	27160	27166	27172	27178	27184	1 = 1
37	27190	27196	27202	27208	27214	27220	27226	27232	27238	27244	27250	27256	2. 2
38	27262	27268	27274	27279	27285	27291	27297	27303	27309	27315	27320	27326	3. 4
39	27332	27338	27344	27350	27355	27361	27367	27373	27379	27384	27390	27396	4. 5
40	6. 27402	27407	27413	27419	27425	27430	27436	27442	27447	27453	27459	27464	1 = 1
41	27470	27476	27481	27487	27493	27498	27504	27510	27515	27521	27526	27532	2. 2
42	27538	27543	27549	27554	27560	27566	27571	27577	27582	27588	27593	27599	3. 4
43	27604	27610	27615	27621	27626	27632	27637	27643	27648	27654	27659	27665	4. 5
44	6. 27670	27675	27681	27686	27692	27697	27703	27708	27713	27719	27724	27729	1 = 1
45	27735	27740	27746	27751	27756	27762	27767	27772	27777	27783	27788	27793	2. 2
46	27799	27804	27809	27815	27820	27825	27830	27836	27841	27846	27851	27856	3. 3
47	27862	27867	27872	27877	27882	27888	27893	27898	27903	27908	27913	27919	4. 4
48	6. 27924	27929	27934	27939	27944	27949	27954	27959	27964	27970	27975	27980	1 = 1
49	27985	27990	27995	28000	28005	28010	28015	28020	28025	28030	28035	28040	2. 2
50	28045	28050	28055	28060	28065	28070	28075	28080	28085	28090	28094	28099	3. 3
51	28104	28109	28114	28119	28124	28129	28134	28138	28143	28148	28153	28158	4. 4
52	6. 28163	28168	28172	28177	28182	28187	28191	28196	28201	28206	28211	28215	1 = 1
53	28220	28225	28230	28234	28239	28244	28249	28253	28258	28263	28267	28272	2. 2
54	28277	28281	28286	28291	28295	28300	28305	28309	28314	28319	28323	28328	3. 3
55	28332	28337	28342	28346	28351	28355	28360	28364	28369	28374	28378	28383	4. 4
56	6. 28387	28392	28396	28401	28405	28410	28414	28419	28423	28428	28432	28437	1 = 1
57	28441	28446	28450	28454	28459	28463	28468	28472	28476	28481	28485	28490	2. 2
58	28494	28498	28503	28507	28512	28516	28520	28525	28529	28533	28538	28542	3. 3
59	28546	28551	28555	28559	28563	28568	28572	28576	28580	28585	28589	28593	4. 4
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proportional parts.
	4 HOURS.												

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LOGARITHMIC MIDDLE TIME.

Minutes	5 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	6.28597	28602	28606	28610	28614	28619	28623	28627	28631	28635	28639	28644	1″ = 1
1	28648	28652	28656	28660	28664	28668	28673	28677	28681	28685	28689	28693	2. 2
2	28697	28701	28705	28709	28713	28718	28722	28726	28730	28734	28738	28742	3. 2
3	28746	28750	28754	28758	28762	28766	28770	28774	28778	28782	28786	28790	4. 4
4	6.28793	28797	28801	28805	28809	28813	28817	28821	28825	28829	28832	28836	1 = 1
5	28840	28844	28848	28852	28856	28860	28863	28867	28871	28875	28879	28882	2. 2
6	28886	28890	28894	28898	28901	28905	28909	28913	28916	28920	28924	28928	3. 2
7	28931	28935	28939	28942	28946	28950	28953	28957	28961	28964	28968	28972	4. 4
8	6.28975	28979	28983	28986	28990	28994	28997	29001	29004	29008	29012	29015	1 = 1
9	29019	29022	29026	29029	29033	29037	29040	29044	29047	29051	29054	29058	2. 1
10	29061	29065	29068	29072	29075	29079	29082	29086	29089	29092	29096	29099	3. 2
11	29103	29106	29110	29113	29116	29120	29123	29127	29130	29133	29137	29140	4. 3
12	6.29143	29147	29150	29154	29157	29160	29163	29167	29170	29173	29177	29180	1 = 1
13	29183	29187	29190	29193	29196	29200	29203	29206	29209	29213	29216	29219	2. 1
14	29222	29226	29229	29232	29235	29238	29241	29245	29248	29251	29254	29257	3. 2
15	29260	29264	29267	29270	29273	29276	29279	29282	29285	29288	29292	29295	4. 3
16	6.29298	29301	29304	29307	29310	29313	29316	29319	29322	29325	29328	29331	1 = 1
17	29334	29337	29340	29343	29346	29349	29352	29355	29358	29361	29364	29367	2. 1
18	29370	29373	29375	29378	29381	29384	29387	29390	29393	29396	29399	29401	3. 2
19	29404	29407	29410	29413	29416	29419	29421	29424	29427	29430	29433	29435	4. 2
20	6.29438	29441	29444	29447	29449	29452	29455	29458	29460	29463	29466	29468	1 = 1
21	29471	29474	29477	29479	29482	29485	29487	29490	29493	29495	29498	29501	2. 1
22	29503	29506	29509	29511	29514	29516	29519	29522	29524	29527	29529	29532	3. 2
23	29535	29537	29540	29542	29545	29547	29550	29552	29555	29558	29560	29563	4. 2
24	6.29565	29568	29570	29573	29575	29577	29580	29582	29585	29587	29590	29592	1 = 0
25	29595	29597	29599	29602	29604	29607	29609	29611	29614	29616	29619	29621	2. 1
26	29623	29626	29628	29630	29633	29635	29637	29640	29642	29644	29647	29649	3. 1
27	29651	29654	29656	29658	29660	29663	29665	29667	29669	29672	29674	29676	4. 2
28	6.29678	29681	29683	29685	29687	29689	29691	29694	29696	29698	29700	29702	1 = 0
29	29704	29707	29709	29711	29713	29715	29717	29719	29721	29724	29726	29728	2. 1
30	29730	29732	29734	29736	29738	29740	29742	29744	29746	29748	29750	29752	3. 1
31	29754	29756	29758	29760	29762	29764	29766	29768	29770	29772	29774	29776	4. 2
32	6.29778	29780	29782	29784	29786	29788	29790	29791	29793	29795	29797	29799	1 = 0
33	29801	29803	29805	29807	29808	29810	29812	29814	29816	29818	29819	29821	2. 1
34	29823	29825	29827	29828	29830	29832	29834	29835	29837	29839	29841	29842	3. 1
35	29844	29846	29848	29849	29851	29853	29854	29856	29858	29859	29861	29863	4. 2
36	6.29864	29866	29868	29869	29871	29873	29874	29876	29878	29879	29881	29882	1 = 0
37	29884	29886	29887	29889	29890	29892	29893	29895	29896	29898	29900	29901	2. 1
38	29903	29904	29906	29907	29909	29910	29912	29913	29915	29916	29918	29919	3. 1
39	29920	29922	29923	29925	29926	29928	29929	29930	29932	29933	29935	29936	4. 1
40	6.29937	29939	29940	29942	29943	29944	29946	29947	29948	29950	29951	29952	1 = 0
41	29954	29955	29956	29958	29959	29960	29961	29963	29964	29965	29966	29968	2. 1
42	29969	29970	29971	29973	29974	29975	29976	29978	29979	29980	29981	29982	3. 1
43	29983	29985	29986	29987	29988	29989	29990	29992	29993	29994	29995	29996	4. 1
44	6.29997	29998	29999	30000	30001	30003	30004	30005	30006	30007	30008	30009	1 = 0
45	30010	30011	30012	30013	30014	30015	30016	30017	30018	30019	30020	30021	2. 0
46	30022	30023	30024	30025	30026	30027	30028	30029	30029	30030	30031	30032	3. 1
47	30033	30034	30035	30036	30037	30038	30038	30039	30040	30041	30042	30043	4. 1
48	6.30043	30044	30045	30046	30047	30048	30048	30049	30050	30051	30051	30052	1 = 0
49	30053	30054	30054	30055	30056	30057	30057	30058	30059	30060	30060	30061	2. 0
50	30062	30062	30063	30064	30064	30065	30066	30066	30067	30068	30068	30069	3. 0
51	30070	30070	30071	30071	30072	30073	30073	30074	30074	30075	30075	30076	4. 1
52	6.30077	30077	30078	30078	30079	30079	30080	30080	30081	30081	30082	30082	1 = 0
53	30083	30083	30084	30084	30085	30085	30086	30086	30086	30087	30087	30088	2. 0
54	30088	30089	30089	30089	30090	30090	30090	30091	30091	30091	30092	30092	3. 0
55	30093	30093	30093	30094	30094	30094	30095	30095	30095	30096	30096	30096	4. 1
56	6.30096	30097	30097	30097	30097	30098	30098	30098	30098	30099	30099	30099	1 = 0
57	30099	30100	30100	30100	30100	30100	30100	30101	30101	30101	30101	30101	2. 0
58	30101	30102	30102	30102	30102	30102	30102	30102	30102	30102	30102	30102	3. 0
59	30103	30103	30103	30103	30103	30103	30103	30103	30103	30103	30103	30103	4. 0
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	5 HOURS.												

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LOGARITHMIC RISING.

Minutes	0 HOUR. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper parts.
0		82017	$\bar{4}$2230	77448	$\bar{6}$2436	21818	37654	51044	62642	72873	82024	90303	
1	0.97860	$\bar{6}$4813	11250	17242	22848	28114	33079	37775	42230	46468	50509	54370	
2	1.58066	61612	65019	68297	71455	74503	77448	80296	83054	85726	88319	90837	
3	93284	95664	97980	$\bar{6}\bar{6}$236	0.2435	0.4580	0.6673	0.8717	10714	12666	14575	16443	
4	2.18271	20062	21817	23537	25224	26878	28502	30095	31660	33198	34708	36193	
5	37653	39088	40501	41890	43258	44605	45931	47237	48524	49792	51041	52273	
6	53488	54686	55868	57034	58184	59320	60440	61547	62639	63718	64784	65837	
7	66877	67905	68920	69924	70917	71898	72869	73829	74778	75717	76646	77565	
8	2.78474	79374	80265	81147	82019	82884	83739	84587	85426	86257	87080	87896	1st = 152
9	88703	89504	90297	91083	91862	92634	93399	94157	94909	95655	96394	97127	2. 305
10	97854	98574	99289	99998	$\bar{6}\bar{6}$701	0.1399	0.2091	0.2777	0.3458	0.4134	0.4805	0.5470	3. 457
11	3.06131	06786	07437	08082	08723	09359	09991	10618	11240	11859	12472	13082	4. 609
12	3.13687	14288	14885	15477	16066	16651	17232	17809	18382	18951	19517	20079	1 = 107
13	20638	21192	21744	22292	22836	23377	23915	24449	24980	25508	26033	26554	2. 214
14	27073	27588	28100	28609	29116	29619	30120	30617	31112	31604	32093	32579	3. 322
15	33063	33544	34023	34498	34972	35442	35910	36376	36839	37299	37758	38213	4. 429
16	3.38667	39118	39567	40013	40457	40899	41339	41776	42211	42644	43075	43504	1 = 83
17	43930	44355	44777	45198	45616	46033	46447	46859	47270	47678	48085	48490	2. 166
18	48893	49294	49693	50090	50486	50879	51271	51661	52050	52436	52821	53205	3. 248
19	53586	53966	54344	54721	55096	55469	55841	56211	56580	56947	57313	57676	4. 330
20	3.58039	58400	58759	59117	59474	59829	60182	60534	60885	61234	61582	61929	1 = 67
21	62274	62618	62960	63302	63641	63979	64316	64652	64987	65320	65652	65982	2. 135
22	66312	66640	66967	67292	67617	67940	68262	68583	68903	69221	69538	69855	3. 202
23	70170	70483	70796	71108	71418	71728	72036	72343	72649	72954	73258	73561	4. 269
24	3.73863	74164	74464	74762	75060	75357	75652	75947	76241	76533	76825	77116	1 = 57
25	77405	77694	77982	78269	78555	78840	79124	79407	79689	79970	80251	80530	2. 113
26	80809	81086	81363	81639	81914	82188	82461	82734	83005	83276	83546	83815	3. 170
27	84083	84350	84617	84883	85148	85412	85675	85937	86199	86460	86720	86979	4. 227
28	3.87238	87496	87753	88009	88265	88519	88773	89027	89279	89531	89782	90032	1 = 49
29	90282	90531	90779	91027	91273	91520	91765	92010	92254	92497	92739	92981	2. 98
30	93223	93463	93703	93942	94181	94419	94656	94893	95129	95364	95599	95833	3. 147
31	96067	96299	96532	96763	96994	97224	97454	97683	97912	98140	98367	98594	4. 196
32	3.98820	99045	99270	99495	99719	99942	$\bar{6}\bar{6}$164	$\bar{6}\bar{6}$386	$\bar{6}\bar{6}$608	$\bar{6}\bar{6}$829	0.1049	0.1269	1 = 43
33	4.01488	01707	01925	02143	02360	02576	02792	03008	03222	03437	03651	03864	2. 86
34	04077	04289	04501	04712	04922	05133	05342	05551	05760	05968	06176	06383	3. 130
35	06590	06796	07001	07207	07411	07616	07819	08023	08225	08428	08629	08831	4. 173
36	4.09032	09232	09432	09632	09831	10029	10227	10425	10622	10819	11015	11211	1 = 38
37	11406	11601	11796	11990	12184	12377	12570	12762	12954	13146	13337	13527	2. 77
38	13718	13908	14097	14286	14475	14663	14850	15038	15225	15411	15597	15783	3. 115
39	15969	16154	16338	16522	16706	16889	17072	17255	17437	17619	17800	17982	4. 154
40	4.18162	18343	18522	18702	18881	19060	19238	19417	19594	19771	19949	20125	1 = 35
41	20301	20477	20653	20828	21003	21177	21351	21525	21699	21872	22044	22217	2. 70
42	22389	22560	22732	22903	23073	23244	23414	23583	23753	23922	24090	24259	3. 104
43	24427	24594	24762	24929	25095	25262	25428	25594	25759	25924	26089	26253	4. 139
44	4.26418	26581	26745	26908	27071	27234	27396	27558	27720	27881	28042	28203	1 = 32
45	28363	28524	28683	28843	29002	29161	29320	29478	29637	29794	29952	30109	2. 63
46	30266	30423	30579	30735	30891	31047	31202	31357	31512	31666	31820	31974	3. 95
47	32128	32281	32434	32587	32739	32892	33044	33195	33347	33498	33649	33800	4. 127
48	4.33950	34100	34250	34400	34549	34698	34847	34995	35144	35292	35439	35587	1 = 29
49	35734	35881	36028	36175	36321	36467	36613	36758	36903	37048	37193	37338	2. 58
50	37482	37626	37770	37914	38057	38200	38343	38486	38628	38770	38912	39054	3. 87
51	39195	39336	39477	39618	39759	39899	40039	40179	40319	40458	40597	40736	4. 116
52	4.40875	41013	41152	41290	41427	41565	41702	41839	41976	42113	42250	42386	1 = 27
53	42522	42658	42794	42929	43064	43199	43334	43469	43603	43737	43871	44005	2. 54
54	44138	44272	44405	44537	44670	44803	44935	45067	45199	45331	45462	45593	3. 81
55	45724	45855	45986	46116	46247	46377	46507	46636	46766	46895	47024	47153	4. 108
56	4.47282	47410	47539	47667	47795	47923	48050	48177	48305	48432	48558	48685	1 = 25
57	48811	48938	49064	49190	49315	49441	49566	49691	49816	49941	50066	50190	2. 50
58	50314	50438	50562	50686	50809	50933	51056	51179	51301	51424	51547	51669	3. 75
59	51791	51913	52035	52156	52278	52399	52520	52641	52761	52882	53002	53122	4. 100
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper parts.
	0 HOUR.												

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LOGARITHMIC RISING.

Minutes	1 HOUR. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	4.53243	53362	53482	53602	53721	53840	53959	54078	54197	54315	54434	54552	1″ = 23
1	54670	54788	54905	55023	55140	55258	55375	55492	55608	55725	55841	55958	2. 47
2	56074	56190	56306	56421	56537	56652	56767	56882	56997	57112	57226	57341	3. 70
3	57455	57569	57683	57797	57910	58024	58137	58250	58363	58476	58589	58702	4. 94
4	4.58814	58926	59038	59150	59262	59374	59486	59597	59708	59819	59930	60041	1 = 22
5	60152	60262	60373	60483	60593	60703	60813	60923	61608	61143	61251	61360	2. 44
6	61469	61578	61686	61795	61903	62012	62120	62228	62336	62443	62551	62659	3. 66
7	62766	62873	62980	63087	63194	63301	63407	63513	63620	63726	63832	63938	4. 88
8	4.64043	64149	64254	64360	64465	64570	64675	64780	64885	64989	65094	65198	1 = 21
9	65302	65406	65510	65614	65717	65821	65924	66028	66131	66234	66337	66440	2. 42
10	66542	66645	66747	66849	66952	67054	67156	67257	67359	67461	67562	67663	3. 62
11	67765	67866	67967	68067	68168	68269	68369	68469	68570	68670	68770	68870	4. 83
12	4.68969	69069	69169	69268	69367	69467	69566	69665	69763	69862	69961	70059	1 = 20
13	70158	70256	70354	70452	70550	70648	70745	70843	70940	71038	71135	71232	2. 39
14	71329	71426	71523	71620	71716	71813	71909	72005	72101	72197	72294	72389	3. 59
15	72485	72580	72676	72771	72867	72962	73057	73152	73247	73341	73436	73530	4. 78
16	4.73625	73719	73813	73907	74001	74095	74189	74283	74376	74470	74563	74657	1 = 19
17	74750	74843	74936	75029	75121	75214	75307	75399	75491	75584	75676	75768	2. 37
18	75860	75952	76043	76135	76227	76318	76409	76501	76592	76683	76774	76865	3. 56
19	76955	77046	77137	77227	77318	77408	77498	77588	77678	77768	77858	77947	4. 74
20	4.78037	78127	78216	78305	78395	78484	78573	78662	78750	78839	78928	79016	1 = 18
21	79105	79193	79282	79370	79458	79546	79634	79722	79809	79897	79985	80072	2. 35
22	80159	80247	80334	80421	80508	80595	80682	80768	80855	80942	81028	81115	3. 53
23	81201	81287	81373	81459	81545	81631	81717	81802	81888	81974	82059	82144	4. 70
24	4.82230	82315	82400	82485	82570	82655	82739	82824	82908	82993	83077	83162	1 17
25	83246	83330	83414	83498	83582	83666	83749	83833	83917	84000	84083	84167	2. 34
26	84250	84333	84416	84499	84582	84665	84748	84830	84913	84995	85078	85160	3. 50
27	85242	85324	85406	85488	85570	85652	85734	85816	85897	85979	86060	86141	4. 67
28	4.86223	86304	86385	86466	86547	86628	86709	86790	86870	86951	87031	87112	1 = 16
29	87192	87272	87352	87433	87513	87593	87672	87752	87832	87912	87991	88071	2. 32
30	88150	88229	88309	88388	88467	88546	88625	88704	88783	88862	88940	89019	3. 48
31	89097	89176	89254	89333	89411	89489	89567	89645	89723	89801	89879	89956	4. 64
32	4.90034	90112	90189	90267	90344	90421	90498	90576	90653	90730	90807	90884	1 = 15
33	90960	91037	91114	91190	91267	91343	91420	91496	91572	91648	91724	91800	2. 30
34	91876	91952	92028	92104	92179	92255	92331	92406	92482	92557	92632	92707	3. 46
35	92782	92858	92933	93007	93082	93157	93232	93306	93381	93456	93530	93605	4. 61
36	4.93679	93753	93827	93901	93975	94049	94123	94197	94271	94345	94418	94492	1 = 15
37	94566	94639	94712	94786	94859	94932	95005	95078	95152	95224	95297	95370	2. 29
38	95443	95515	95588	95661	95733	95806	95878	95950	96023	96095	96167	96239	3. 44
39	96311	96383	96455	96527	96599	96670	96742	96813	96885	96956	97028	97099	4. 58
40	4.97170	97242	97313	97384	97455	97526	97597	97667	97738	97809	97880	97950	1 = 14
41	98021	98091	98162	98232	98302	98372	98443	98513	98583	98653	98723	98793	2. 28
42	98862	98932	99002	99072	99141	99211	99280	99350	99419	99488	99557	99627	3. 42
43	99696	99765	99834	99903	99972	00040	00109	00178	00247	00315	00384	00452	4. 56
44	5.00521	00589	00657	00726	00794	00862	00930	00998	01066	01134	01202	01270	1 = 13
45	01337	01405	01473	01540	01608	01675	01743	01810	01877	01945	02012	02079	2. 27
46	02146	02213	02280	02347	02414	02481	02547	02614	02681	02747	02814	02880	3. 40
47	02947	03013	03080	03146	03212	03278	03344	03411	03477	03542	03608	03674	4. 54
48	5.03740	03806	03871	03937	04003	04068	04134	04199	04265	04330	04395	04460	1 = 13
49	04526	04591	04656	04721	04786	04851	04916	04980	05045	05110	05175	05239	2. 26
50	05304	05368	05433	05497	05561	05626	05690	05754	05818	05882	05946	06010	3. 39
51	06074	06138	06202	06266	06330	06393	06457	06521	06584	06648	06711	06775	4. 52
52	5.06838	06901	06965	07028	07091	07154	07217	07280	07343	07406	07469	07532	1 = 13
53	07595	07657	07720	07783	07845	07908	07970	08033	08095	08157	08220	08282	2. 25
54	08344	08406	08468	08530	08592	08654	08716	08778	08840	08902	08964	09025	3. 38
55	09087	09148	09210	09272	09333	09394	09456	09517	09578	09640	09701	09762	4. 50
56	5.09823	09884	09945	10006	10067	10128	10188	10249	10310	10371	10431	10492	1 = 12
57	10552	10613	10673	10734	10794	10854	10915	10975	11035	11095	11155	11215	2. 24
58	11275	11335	11395	11455	11515	11575	11634	11694	11754	11813	11873	11932	3. 36
59	11992	12051	12111	12170	12229	12289	12348	12407	12466	12525	12584	12643	4. 48
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	1 HOUR.												

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LOGARITHMIC RISING.

Minutes	2 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.12702	12761	12820	12879	12938	12996	13055	13114	13172	13231	13289	13348	1″=12
1	13406	13465	13523	13581	13640	13698	13756	13814	13872	13931	13989	14047	2. 23
2	14104	14162	14220	14278	14336	14394	14451	14508	14567	14625	14682	14739	3. 35
3	14797	14854	14911	14969	15026	15083	15140	15198	15255	15312	15369	15426	4. 46
4	5.15483	15540	15597	15653	15710	15767	15824	15880	15937	15994	16050	16107	1 =11
5	16163	16220	16276	16332	16389	16445	16501	16557	16614	16670	16726	16782	2. 22
6	16838	16894	16950	17006	17062	17117	17173	17229	17285	17340	17396	17451	3. 34
7	17507	17563	17618	17673	17729	17784	17840	17895	17950	18005	18060	18116	4. 45
8	5.18171	18226	18281	18336	18391	18445	18500	18555	18610	18665	18719	18774	1 =11
9	18829	18883	18938	18992	19047	19101	19156	19210	19265	19319	19373	19427	2. 22
10	19482	19536	19590	19644	19698	19752	19806	19860	19914	19968	20022	20075	3. 32
11	20129	20183	20236	20290	20344	20397	20451	20505	20558	20611	20665	20718	4. 43
12	5.20771	20825	20878	20931	20984	21037	21091	21144	21197	21250	21303	21356	1 =11
13	21409	21461	21514	21567	21620	21673	21725	21778	21831	21883	21936	21988	2. 21
14	22041	22093	22146	22198	22250	22303	22355	22407	22459	22511	22564	22616	3. 32
15	22668	22720	22772	22824	22876	22928	22980	23031	23083	23135	23187	23238	4. 42
16	5.23290	23342	23393	23445	23496	23548	23599	23651	23702	23754	23805	23856	1 =10
17	23907	23959	24010	24061	24112	24163	24214	24265	24316	24367	24418	24469	2. 20
18	24520	24571	24622	24673	24723	24774	24825	24875	24926	24977	25027	25078	3. 31
19	25128	25178	25229	25279	25330	25380	25430	25481	25531	25581	25631	25681	4. 41
20	5.25731	25781	25831	25881	25931	25981	26031	26081	26131	26181	26231	26281	1 =10
21	26330	26380	26429	26479	26529	26578	26628	26677	26727	26776	26826	26875	2. 20
22	26924	26974	27023	27072	27121	27171	27220	27269	27318	27367	27416	27465	3. 30
23	27514	27563	27612	27661	27710	27759	27807	27856	27905	27954	28002	28051	4. 40
24	5.28099	28148	28197	28245	28294	28342	28391	28439	28487	28536	28584	28632	1 10
25	28681	28729	28777	28825	28873	28921	28969	29017	29066	29114	29161	29209	2. 19
26	29257	29305	29353	29401	29449	29496	29544	29592	29639	29687	29735	29782	3. 29
27	29830	29877	29925	29973	30020	30067	30115	30162	30209	30257	30304	30351	4. 39
28	5.30398	30445	30493	30540	30587	30634	30681	30728	30775	30822	30869	30916	1 = 9
29	30963	31009	31056	31103	31150	31197	31243	31290	31337	31383	31430	31476	2. 19
30	31523	31569	31616	31662	31709	31755	31801	31848	31894	31940	31987	32033	3. 28
31	32079	32125	32171	32217	32264	32310	32356	32402	32448	32494	32540	32586	4. 38
32	5.32631	32677	32723	32769	32815	32860	32906	32952	32997	33043	33089	33134	1 = 9
33	33180	33225	33271	33316	33362	33407	33453	33498	33543	33589	33634	33679	2. 18
34	33724	33770	33815	33860	33905	33950	33995	34040	34085	34130	34175	34220	3. 27
35	34265	34310	34355	34400	34444	34489	34534	34579	34623	34668	34713	34757	4. 36
36	5.34802	34847	34891	34936	34980	35025	35069	35114	35158	35202	35247	35291	1 = 9
37	35335	35380	35424	35468	35512	35556	35601	35645	35689	35733	35777	35821	2. 18
38	35865	35909	35953	35997	36041	36085	36128	36172	36216	36260	36303	36347	3. 26
39	36391	36435	36478	36522	36565	36609	36653	36696	36740	36783	36827	36870	4. 35
40	5.36913	36957	37000	37043	37087	37130	37173	37216	37260	37303	37346	37389	1 = 9
41	37432	37475	37518	37561	37604	37647	37690	37733	37776	37819	37862	37905	2. 17
42	37948	37990	38033	38076	38119	38161	38204	38247	38289	38332	38374	38417	3. 26
43	38460	38502	38545	38587	38629	38672	38714	38757	38799	38841	38884	38926	4. 34
44	5.38968	39010	39052	39095	39137	39179	39221	39263	39305	39347	39389	39431	1 = 8
45	39473	39515	39557	39599	39641	39683	39725	39766	39808	39850	39892	39933	2. 17
46	39975	40017	40058	40100	40142	40183	40225	40266	40308	40349	40391	40432	3. 25
47	40474	40515	40556	40598	40639	40680	40722	40763	40804	40845	40887	40928	4. 34
48	5.40969	41010	41051	41092	41133	41174	41215	41256	41297	41338	41379	41420	1 = 8
49	41461	41502	41543	41583	41624	41665	41706	41746	41787	41828	41868	41909	2. 16
50	41950	41990	42031	42071	42112	42153	42193	42233	42274	42314	42355	42395	3. 25
51	42435	42476	42516	42556	42597	42637	42677	42717	42758	42798	42838	42878	4. 33
52	5.42918	42958	42998	43038	43078	43118	43158	43198	43238	43278	43318	43358	1 = 8
53	43398	43437	43477	43517	43557	43597	43636	43676	43716	43755	43795	43835	2. 16
54	43874	43914	43953	43993	44032	44072	44111	44151	44190	44229	44269	44308	3. 24
55	44348	44387	44426	44465	44505	44544	44583	44622	44662	44701	44740	44779	4. 32
56	5.44818	44857	44896	44935	44974	45013	45052	45091	45130	45169	45208	45247	1 = 8
57	45286	45325	45363	45402	45441	45480	45518	45557	45596	45634	45673	45712	2. 16
58	45750	45789	45827	45866	45905	45943	45982	46020	46058	46097	46135	46174	3. 23
59	46212	46250	46289	46327	46365	46404	46442	46480	46518	46556	46595	46633	4. 31
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	2 HOURS.												

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Minutes	3 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.46671	46709	46747	46785	46823	46861	46899	46937	46975	47013	47051	47089	1″ = 8
1	47127	47165	47203	47241	47278	47316	47354	47392	47430	47467	47505	47543	2. 15
2	47580	47618	47656	47693	47731	47768	47806	47843	47881	47918	47956	47993	3. 23
3	48031	48068	48106	48143	48180	48218	48255	48292	48330	48367	48404	48441	4. 30
4	5.48479	48516	48553	48590	48627	48664	48701	48739	48776	48813	48850	48887	1 = 7
5	48924	48961	48998	49035	49071	49108	49145	49182	49219	49256	49293	49329	2. 15
6	49366	49403	49440	49476	49513	49550	49586	49623	49660	49696	49733	49769	3. 22
7	49806	49842	49879	49915	49952	49988	50025	50061	50098	50134	50170	50207	4. 30
8	5.50243	50279	50316	50352	50388	50424	50461	50497	50533	50569	50605	50641	1 = 7
9	50677	50714	50750	50786	50822	50858	50894	50930	50966	51002	51038	51073	2. 14
10	51109	51145	51181	51217	51253	51289	51324	51360	51396	51432	51467	51503	3. 22
11	51539	51574	51610	51646	51681	51717	51753	51788	51824	51859	51895	51930	4. 29
12	5.51966	52001	52037	52072	52107	52143	52178	52213	52249	52284	52319	52355	1 = 7
13	52390	52425	52461	52496	52531	52566	52601	52636	52672	52707	52742	52777	2. 14
14	52812	52847	52882	52917	52952	52987	53022	53057	53092	53127	53162	53197	3. 21
15	53231	53266	53301	53336	53371	53405	53440	53475	53510	53544	53579	53614	4. 28
16	5.53648	53683	53718	53752	53787	53821	53856	53891	53925	53960	53994	54029	1 = 7
17	54063	54097	54132	54166	54201	54235	54269	54304	54338	54372	54407	54441	2. 14
18	54475	54509	54544	54578	54612	54646	54680	54715	54749	54783	54817	54851	3. 20
19	54885	54919	54953	54987	55021	55055	55089	55123	55157	55191	55225	55259	4. 27
20	5.55293	55327	55360	55394	55428	55462	55496	55529	55563	55597	55630	55664	1 = 7
21	55698	55732	55765	55799	55832	55866	55900	55933	55967	56000	56034	56067	2. 13
22	56101	56134	56168	56201	56235	56268	56301	56335	56368	56401	56435	56468	3. 20
23	56501	56534	56568	56601	56635	56668	56701	56734	56767	56800	56834	56867	4. 26
24	5.56900	56933	56966	56999	57032	57065	57098	57131	57164	57197	57230	57263	1 = 7
25	57296	57329	57362	57395	57428	57460	57493	57526	57559	57592	57625	57657	2. 13
26	57690	57723	57755	57788	57821	57854	57886	57919	57951	57984	58017	58049	3. 20
27	58082	58114	58147	58179	58212	58244	58277	58309	58342	58374	58407	58439	4. 26
28	5.58471	58504	58536	58568	58601	58633	58665	58698	58730	58762	58794	58827	1 = 6
29	58859	58891	58923	58955	58988	59020	59052	59084	59116	59148	59180	59212	2. 13
30	59244	59276	59308	59340	59372	59404	59436	59468	59500	59532	59564	59596	3. 19
31	59627	59659	59691	59723	59755	59786	59818	59850	59882	59913	59945	59977	4. 26
32	5.60008	60040	60072	60103	60135	60167	60198	60230	60261	60293	60324	60356	1 = 6
33	60388	60419	60450	60482	60513	60545	60576	60608	60639	60670	60701	60733	2. 13
34	60764	60796	60827	60858	60890	60921	60952	60983	61015	61046	61077	61108	3. 19
35	61139	61171	61202	61233	61264	61295	61326	61357	61388	61419	61450	61481	4. 26
36	5.61512	61543	61574	61605	61636	61667	61698	61729	61760	61791	61822	61852	1 = 6
37	61883	61914	61945	61976	62006	62037	62068	62099	62129	62160	62191	62222	2. 12
38	62252	62283	62313	62344	62375	62405	62436	62466	62497	62528	62558	62589	3. 19
39	62619	62650	62680	62711	62741	62771	62802	62832	62863	62893	62923	62954	4. 25
40	5.62984	63014	63045	63075	63105	63136	63166	63196	63226	63257	63287	63317	1 = 6
41	63347	63377	63407	63438	63468	63498	63528	63558	63588	63618	63648	63678	2. 12
42	63708	63738	63768	63798	63828	63858	63888	63918	63948	63978	64008	64038	3. 18
43	64068	64097	64127	64157	64187	64217	64246	64276	64306	64336	64365	64395	4. 24
44	5.64425	64455	64484	64514	64544	64573	64603	64632	64662	64692	64721	64751	1 = 6
45	64780	64810	64839	64869	64898	64928	64957	64987	65016	65045	65075	65105	2. 12
46	65134	65163	65193	65222	65251	65281	65310	65339	65369	65398	65427	65456	3. 18
47	65486	65515	65544	65573	65603	65632	65661	65690	65719	65748	65777	65806	4. 24
48	5.65836	65865	65894	65923	65952	65981	66010	66039	66068	66097	66126	66155	1 = 6
49	66184	66213	66242	66270	66299	66328	66357	66386	66415	66444	66472	66501	2. 12
50	66530	66559	66588	66616	66645	66674	66702	66731	66760	66789	66817	66846	3. 17
51	66875	66903	66932	66960	66989	67018	67046	67075	67103	67132	67160	67189	4. 23
52	5.67217	67246	67274	67303	67331	67360	67388	67416	67445	67473	67502	67530	1 = 6
53	67558	67587	67615	67643	67672	67700	67728	67756	67785	67813	67841	67869	2. 11
54	67897	67925	67954	67982	68010	68038	68066	68094	68123	68151	68179	68207	3. 17
55	68235	68263	68291	68319	68347	68375	68403	68431	68459	68487	68515	68543	4. 22
56	5.68571	68599	68627	68654	68682	68710	68738	68766	68794	68821	68849	68877	1 = 6
57	68905	68933	68960	68988	69016	69043	69071	69099	69127	69154	69182	69210	2. 11
58	69237	69265	69292	69320	69348	69375	69403	69430	69458	69486	69513	69540	3. 17
59	69568	69595	69623	69650	69678	69705	69733	69760	69788	69815	69842	69870	4. 22
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	3 HOURS.												

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LOGARITHMIC RISING.

Minutes	4 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.69897	69924	69952	69979	70006	70034	70061	70088	70115	70143	70170	70197	1″ =
1	70224	70252	70279	70306	70333	70360	70387	70415	70442	70469	70496	70523	2.
2	70550	70577	70604	70631	70658	70685	70712	70739	70766	70793	70820	70847	3.
3	70874	70901	70928	70955	70982	71009	71036	71063	71089	71116	71143	71170	4.
4	5.71197	71224	71250	71277	71304	71331	71357	71384	71411	71438	71464	71491	1 =
5	71518	71544	71571	71598	71624	71651	71678	71704	71731	71757	71784	71810	2.
6	71837	71864	71890	71917	71943	71970	71996	72023	72049	72075	72102	72128	3.
7	72155	72181	72208	72234	72260	72287	72313	72339	72366	72392	72418	72445	4.
8	5.72471	72497	72523	72550	72576	72602	72628	72655	72681	72707	72733	72759	1 =
9	72785	72812	72838	72864	72890	72916	72942	72968	72994	73020	73046	73072	2.
10	73099	73125	73151	73177	73203	73228	73254	73280	73306	73332	73358	73384	3.
11	73410	73436	73462	73488	73514	73539	73565	73591	73617	73643	73668	73694	4.
12	5.73720	73746	73772	73797	73823	73849	73874	73900	73926	73951	73977	74003	1 =
13	74028	74054	74080	74105	74131	74157	74182	74208	74233	74259	74284	74310	2.
14	74335	74361	74386	74412	74437	74463	74488	74514	74539	74565	74590	74616	3.
15	74641	74666	74692	74717	74742	74768	74793	74818	74844	74869	74894	74920	4.
16	5.74945	74970	74995	75021	75046	75071	75096	75122	75147	75172	75197	75222	1 =
17	75247	75273	75298	75323	75348	75373	75398	75423	75448	75473	75498	75523	2.
18	75549	75574	75599	75624	75649	75674	75699	75723	75748	75773	75798	75823	3.
19	75848	75873	75898	75923	75948	75973	75997	76022	76047	76072	76097	76121	4.
20	5.76146	76171	76196	76221	76245	76270	76295	76320	76344	76369	76394	76418	1 =
21	76443	76468	76492	76517	76542	76566	76591	76615	76640	76665	76689	76714	2.
22	76738	76763	76787	76812	76836	76861	76885	76910	76934	76959	76983	77008	3.
23	77032	77057	77081	77105	77130	77154	77179	77203	77227	77252	77276	77300	4.
24	5.77325	77349	77373	77398	77422	77446	77470	77495	77519	77543	77567	77592	1 =
25	77616	77640	77664	77688	77713	77737	77761	77785	77809	77833	77857	77882	2.
26	77906	77930	77954	77978	78002	78026	78050	78074	78098	78122	78146	78170	3.
27	78194	78218	78242	78266	78290	78314	78338	78361	78385	78409	78433	78457	4.
28	5.78481	78505	78529	78552	78576	78600	78624	78648	78671	78695	78719	78743	1 =
29	78767	78790	78814	78838	78861	78885	78909	78933	78956	78980	79004	79027	2.
30	79051	79074	79098	79122	79145	79169	79192	79216	79240	79263	79287	79310	3.
31	79334	79357	79381	79404	79428	79451	79475	79498	79522	79545	79568	79592	4.
32	5.79615	79639	79662	79686	79709	79732	79756	79779	79802	79826	79849	79872	1 =
33	79896	79919	79942	79965	79989	80012	80035	80059	80082	80105	80128	80151	2.
34	80175	80198	80221	80244	80267	80290	80314	80337	80360	80383	80406	80429	3.
35	80452	80475	80498	80521	80545	80568	80591	80614	80637	80660	80683	80706	4.
36	5.80729	80752	80775	80797	80820	80843	80866	80889	80912	80935	80958	80981	1 =
37	81004	81027	81049	81072	81095	81118	81141	81163	81186	81209	81232	81255	2.
38	81277	81300	81323	81346	81368	81391	81414	81437	81459	81482	81505	81527	3.
39	81550	81573	81595	81618	81641	81663	81686	81708	81731	81754	81776	81799	4.
40	5.81821	81844	81866	81889	81911	81934	81956	81979	82001	82024	82046	82069	1 =
41	82091	82114	82136	82159	82181	82203	82226	82248	82271	82293	82315	82338	2.
42	82360	82382	82405	82427	82449	82472	82494	82516	82538	82561	82583	82605	3.
43	82628	82650	82672	82694	82716	82739	82761	82783	82805	82827	82850	82872	4.
44	5.82894	82916	82938	82960	82982	83004	83026	83049	83071	83093	83115	83137	1 =
45	83159	83181	83203	83225	83247	83269	83291	83313	83335	83357	83379	83401	2.
46	83423	83445	83467	83488	83510	83532	83554	83576	83598	83620	83642	83663	3.
47	83685	83707	83729	83751	83773	83794	83816	83838	83860	83881	83903	83925	4.
48	5.83947	83968	83990	84012	84034	84055	84077	84099	84120	84142	84164	84185	1 =
49	84207	84229	84250	84272	84293	84315	84337	84358	84380	84401	84423	84444	2.
50	84466	84488	84509	84531	84552	84574	84595	84617	84638	84659	84681	84702	3.
51	84724	84745	84767	84788	84810	84831	84852	84874	84895	84916	84938	84959	4.
52	5.84981	85002	85023	85044	85066	85087	85108	85130	85151	85172	85194	85215	1 =
53	85236	85257	85278	85300	85321	85342	85363	85385	85406	85427	85448	85469	2.
54	85490	85512	85533	85554	85575	85596	85617	85638	85659	85680	85701	85722	3.
55	85744	85765	85786	85807	85828	85849	85870	85891	85912	85933	85954	85975	4.
56	5.85996	86017	86038	86058	86079	86100	86121	86142	86163	86184	86205	86226	1 =
57	86247	86267	86288	86309	86330	86351	86372	86392	86413	86434	86455	86475	2.
58	86496	86517	86538	86559	86579	86600	86621	86641	86662	86683	86704	86724	3.
59	86745	86766	86786	86807	86828	86848	86869	86889	86910	86931	86951	86972	4.
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	4 HOURS.												

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LOGARITHMIC RISING.

Minutes	5 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.86992	87013	87034	87054	87075	87095	87116	87136	87157	87177	87198	87218	1″ = 4
1	87239	87259	87280	87300	87321	87341	87362	87382	87402	87423	87443	87464	2. 8
2	87484	87505	87525	87545	87566	87586	87606	87627	87647	87667	87688	87708	3. 12
3	87728	87749	87769	87789	87809	87830	87850	87870	87890	87911	87931	87951	4. 16
4	5.87971	87992	88012	88032	88052	88072	88093	88113	88133	88153	88173	88193	1 = 4
5	88213	88234	88254	88274	88294	88314	88334	88354	88374	88394	88414	88434	2. 8
6	88454	88474	88494	88514	88534	88554	88574	88594	88614	88634	88654	88674	3. 12
7	88694	88714	88734	88754	88774	88794	88814	88834	88853	88873	88893	88913	4. 16
8	5.88933	88953	88973	88992	89012	89032	89052	89072	89091	89111	89131	89151	1 = 4
9	89171	89190	89210	89230	89250	89269	89289	89309	89328	89348	89368	89388	2. 8
10	89407	89427	89447	89466	89486	89506	89525	89545	89564	89584	89604	89623	3. 12
11	89643	89662	89682	89702	89721	89741	89760	89780	89799	89819	89838	89858	4. 16
12	5.89877	89897	89916	89936	89955	89975	89994	90014	90033	90053	90072	90091	1 = 4
13	90111	90130	90150	90169	90188	90208	90227	90247	90266	90285	90305	90324	2. 8
14	90343	90363	90382	90401	90421	90440	90459	90478	90498	90517	90536	90555	3. 11
15	90575	90594	90613	90632	90652	90671	90690	90709	90728	90748	90767	90786	4. 15
16	5.90805	90824	90843	90863	90882	90901	90920	90939	90958	90977	90996	91015	1 = 4
17	91034	91054	91073	91092	91111	91130	91149	91168	91187	91206	91225	91244	2. 8
18	91263	91282	91301	91320	91339	91358	91377	91396	91414	91433	91452	91471	3. 11
19	91490	91509	91528	91547	91566	91585	91603	91622	91641	91660	91679	91698	4. 15
20	5.91716	91735	91754	91773	91792	91811	91829	91848	91867	91886	91904	91923	1 = 4
21	91942	91961	91979	91998	92017	92035	92054	92073	92092	92110	92129	92148	2. 8
22	92166	92185	92203	92222	92241	92259	92278	92297	92315	92334	92352	92371	3. 11
23	92390	92408	92427	92445	92464	92483	92501	92519	92538	92556	92575	92593	4. 15
24	5.92612	92630	92649	92667	92686	92704	92723	92741	92760	92778	92796	92815	1 4
25	92833	92851	92870	92888	92907	92925	92944	92962	92980	92999	93017	93035	2. 7
26	93054	93072	93090	93109	93127	93145	93164	93182	93200	93218	93237	93255	3. 11
27	93273	93291	93310	93328	93346	93364	93382	93401	93419	93437	93455	93473	4. 14
28	5.93492	93510	93528	93546	93564	93582	93600	93619	93637	93655	93673	93691	1 = 4
29	93709	93727	93745	93763	93781	93809	93817	93836	93854	93872	93890	93908	2. 7
30	93926	93944	93962	93980	93998	94016	94034	94052	94069	94088	94105	94123	3. 11
31	94141	94159	94177	94195	94213	94231	94249	94267	94284	94302	94320	94338	4. 14
32	5.94356	94374	94392	94410	94427	94445	94463	94481	94498	94516	94534	94552	1 = 4
33	94570	94587	94605	94623	94641	94658	94676	94694	94711	94729	94747	94765	2. 7
34	94782	94800	94818	94835	94853	94871	94888	94906	94924	94941	94959	94976	3. 11
35	94994	95012	95029	95047	95065	95082	95100	95117	95135	95153	95170	95188	4. 14
36	5.95205	95223	95240	95258	95275	95293	95310	95328	95345	95363	95380	95398	1 = 4
37	95415	95433	95450	95468	95485	95502	95520	95537	95555	95572	95580	95607	2. 7
38	95624	95642	95659	95676	95694	95711	95728	95746	95763	95780	95798	95815	3. 11
39	95832	95850	95867	95884	95902	95919	95936	95953	95971	95988	96005	96022	4. 14
40	5.96040	96057	96074	96091	96109	96126	96143	96160	96177	96195	96212	96229	1 = 3
41	96246	96263	96280	96297	96315	96332	96349	96366	96383	96400	96417	96434	2. 7
42	96451	96469	96486	96503	96520	96537	96554	96571	96588	96605	96622	96639	3. 10
43	96656	96673	96690	96707	96724	96741	96758	96775	96792	96809	96826	96843	4. 14
44	5.96860	96877	96894	96910	96927	96944	96961	96978	96995	97012	97029	97046	1 = 3
45	97062	97079	97096	97113	97130	97147	97163	97180	97197	97214	97231	97247	2. 7
46	97264	97281	97298	97315	97331	97348	97365	97382	97398	97415	97432	97449	3. 10
47	97465	97482	97499	97515	97532	97549	97565	97582	97599	97615	97632	97649	4. 14
48	5.97665	97682	97699	97715	97732	97749	97765	97782	97798	97815	97832	97848	1 = 3
49	97865	97881	97898	97914	97931	97947	97964	97981	97997	98014	98030	98047	2. 7
50	98063	98080	98096	98113	98129	98145	98162	98178	98195	98211	98228	98244	3. 10
51	98261	98277	98293	98310	98326	98343	98359	98375	98392	98408	98425	98441	4. 14
52	5.98457	98474	98490	98506	98523	98539	98555	98572	98588	98604	98620	98637	1 = 3
53	98653	98669	98686	98702	98718	98734	98751	98767	98783	98799	98816	98832	2. 6
54	98848	98864	98880	98897	98913	98929	98945	98961	98977	98994	99010	99026	3. 10
55	99042	99058	99074	99090	99107	99123	99139	99155	99171	99187	99203	99219	4. 13
56	5.99235	99251	99267	99284	99300	99316	99332	99348	99364	99380	99396	99412	1 = [illegible]
57	99428	99444	99460	99476	99492	99508	99524	99540	99556	99572	99587	99603	2. 6
58	99619	99635	99651	99667	99683	99699	99715	99731	99747	99763	99778	99794	3. 10
59	99810	99826	99842	99858	99873	99889	99905	99921	99937	99953	99968	99984	4. 13
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	5 HOURS.												

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TABLE XXXII.

LOGARITHMIC RISING.

4 HOURS.

	5'	10'	15'	20'	25'	30'	35'	40'
	69924	69952	69979	70006	70034	70061	70088	70115
	70252	70279	70306	70333	70360	70387	70415	70442
	70577	70604	70631	70658	70685	70712	70739	70766
	70901	70928	70955	70982	71009	71036	71063	71089
5·	71224	71250	71277	71304	71331	71357	71384	71411
	71544	71571	71598	71624	71651	71678	71704	71731
	71864	71890	71917	71943	71970	71996	72023	72049
	72181	72208	72234	72260	72287	72313	72339	72366
5·	72497	72523	72550	72576	72602	72628	72655	72681
	72812	72838	72864	72890	72916	72942	72968	72995
	73125	73151	73177	73203	73228	73254	73280	73306
	73436	73462	73488	73514	73539	73565	73591	73617
5·	73746	73772	73797	73823	73849	73874	73900	73926
	74054	74080	74105	74131	74157	74182	74208	74234
	74361	74386	74412	74437	74463	74488	74514	74539
	74666	74692	74717	74742	74768	74793	74819	74844
5·	74970	74995	75021	75046	75071	75096	75122	75147
	75273	75298	75323	75348	75373	75398	75424	75449
	75574	75599	75624	75649	75674	75699	75725	75750
	75873	75898	75923	75948	75973	75997	76022	76047
5·	76171	76196	76221	76245	76270	76295	76319	76344
	76468	76492	76517	76542	76566	76591	76615	76640
	76763	76787	76812	76836	76861	76885	76910	76934
	77057	77081	77105	77130	77154	77179	77203	77227
5·	77349	77373	77398	77422	77446	77471	77495	77519
	77640	77664	77688	77713	77737	77761	77786	77810
	77930	77954	77978	78002	78026	78050	78075	78099
	78218	78242	78266	78290	78314	78338	78363	78387
5·	78505	78529	78552	78576	78600	78624	78648	78672
	78790	78814	78838	78861	78885	78909	78933	78957
	79074	79098	79122	79145	79169	79193	79216	79240
	79357	79381	79404	79428	79451	79475	79499	79522
5·	79639	79662	79686	79709	79732	79756	79779	79803
	79919	79942	79965	79989	80012	80035	80059	80082
	80198	80221	80244	80267	80290	80313	80336	80359
	80475	80498	80521	80545	80568	80591	80614	80637
5·	80752	80775	80797	80820	80843	80866	80889	80912
	81027	81049	81072	81095	81118	81141	81163	81186
	81300	81323	81346	81368	81391	81414	81436	81459
	81573	81595	81618	81641	81663	81686	81708	81731
5·	81844	81866	81889	81911	81934	81956	81979	82001
	82114	82136	82159	82181	82204	82226	82248	82271
	82382	82405	82427	82449	82471	82494	82516	82538
	82650	82672	82694	82716	82738	82760	82783	82805
5·	82916	82938	82960	82982	83004	83026	83048	83070
	83181	83203	83225	83247	83269	83291	83313	83335
	83445	83467	83488	83510	83532	83554	83576	83598
	83707	83729	83751	83773	83794	83816	83838	83860
5·	83968	83990	84012	84034	84055	84077	84099	84121
	84229	84250	84272	84293	84315	84337	84358	84380
	84488	84509	84531	84552	84574	84595	84617	84638
	84745	84767	84788	84810	84831	84853	84874	84896
5·	85002	85023	85044	85066	85087	85108	85130	85151
	85257	85278	85300	85321	85342	85363	85385	85406
	85512	85533	85554	85575	85596	85617	85638	85659
	85765	85786	85807	85828	85849	85870	85891	85912
5·	86017	86038	86058	86079	86100	86121	86142	86162
	86267	86288	86309	86330	86350	86371	86392	86412
	86517	86538	86559	86579	86600	86621	86641	86662
	86766	86786	86807	86828	86848	86869	86889	86910
		5'	10'	15'	20'	25'	30'	35'

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[illegible] IC RISING.

Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.86992	87013	[illegible]	[illegible]	[illegible]	[illegible]	10069	10081	10093	10105	10117	10129	1″ = 2
1	87239	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10214	10226	10238	10250	10262	10274	2. 5
2	87484	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10358	10370	10382	10394	10406	10418	3. 7
3	87728	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10501	10513	10525	10537	10549	10561	4. 10
[illegible]	5.87971	87992	[illegible]	[illegible]	[illegible]	[illegible]	10644	10656	10668	10680	10691	10703	1 = 2
[illegible]	88213	88234	[illegible]	[illegible]	[illegible]	[illegible]	10786	10798	10810	10822	10833	10845	2. 5
[illegible]	88454	88474	[illegible]	[illegible]	[illegible]	[illegible]	10928	10940	10951	10963	10975	10986	3. 7
[illegible]	88694	88714	[illegible]	[illegible]	[illegible]	11057	11069	11080	11092	11104	11115	11127	4. 10
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11197	11209	11220	11232	11244	11255	11267	1 = 2
[illegible]	89171	[illegible]	[illegible]	[illegible]	[illegible]	11337	11348	11360	11372	11383	11395	11406	2. 5
[illegible]	89407	[illegible]	[illegible]	[illegible]	[illegible]	11476	11487	11499	11510	11522	11533	11545	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11614	11626	11637	11649	11660	11672	11683	4. 10
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11752	11763	11775	11786	11798	11809	11820	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11889	11900	11912	11923	11934	11946	11957	2. 5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12025	12037	12048	12059	12071	12082	12093	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12161	12173	12184	12195	12206	12218	12229	4. 10
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12296	12308	12319	12330	12341	12353	12364	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12431	12442	12453	12465	12476	12487	12498	2. 4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12554	12565	12576	12587	12598	12610	12621	12632	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12687	12698	12709	12721	12732	12743	12754	12765	4. 9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12820	12831	12842	12853	12864	12875	12886	12897	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12952	12963	12974	12985	12996	13007	13018	13029	2. 4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13084	13095	13106	13117	13128	13139	13149	13160	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13215	13226	13237	13248	13258	13269	13280	13291	4. 9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13345	13356	13367	13378	13388	13399	13410	13421	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13475	13486	13496	13507	13518	13529	13539	13550	2. 4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13604	13615	13625	13636	13647	13658	13668	13679	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13732	13743	13754	13765	13775	13786	13797	13807	4. 9
[illegible]	[illegible]	[illegible]	[illegible]	13850	13860	13871	13882	13892	13903	13914	13924	13935	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	13977	13988	13998	14009	14019	14030	14041	14051	14062	2. 4
[illegible]	[illegible]	[illegible]	[illegible]	14104	14114	14125	14136	14146	14157	14167	14178	14188	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	14230	14241	14251	14262	14272	14282	14293	14303	14314	4. 9
[illegible]	[illegible]	[illegible]	[illegible]	14356	14366	14377	14387	14397	14408	14418	14429	14439	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	14481	14491	14501	14512	14522	14533	14543	14553	14564	2. 4
[illegible]	[illegible]	[illegible]	[illegible]	14605	14615	14626	14636	14646	14657	14667	14677	14688	3. 7
[illegible]	[illegible]	[illegible]	[illegible]	14729	14739	14750	14760	14770	14780	14790	14801	14811	4. 9
[illegible]	[illegible]	[illegible]	[illegible]	14852	14862	14872	14883	14893	14903	14913	14924	14934	1 = 2
[illegible]	[illegible]	[illegible]	[illegible]	14975	14985	14995	15005	15015	15026	15036	15046	15056	2. 4
[illegible]	[illegible]	[illegible]	[illegible]	15097	15107	15117	15127	15137	15147	15157	15168	15178	3. 6
[illegible]	[illegible]	[illegible]	[illegible]	15218	15228	15238	15248	15258	15269	15279	15289	15299	4. 8
[illegible]	[illegible]	[illegible]	15329	15339	15349	15359	15369	15379	15389	15399	15409	15419	1 = 2
[illegible]	[illegible]	[illegible]	15449	15459	15469	15479	15489	15499	15509	15519	15529	15539	2. 4
[illegible]	[illegible]	[illegible]	15569	15579	15589	15599	15609	15619	15629	15639	15649	15659	3. 6
[illegible]	[illegible]	[illegible]	15688	15698	15708	15718	15728	15738	15748	15758	15767	15777	4. 8
[illegible]	[illegible]	[illegible]	15807	15817	15827	15837	15846	15856	15866	15876	15886	15896	1 = 2
[illegible]	[illegible]	[illegible]	15925	15935	15944	15954	15964	15974	15984	15993	16003	16013	2. 4
[illegible]	[illegible]	[illegible]	16042	16052	16062	16072	16081	16091	16101	16111	16120	16130	3. 6
[illegible]	[illegible]	[illegible]	16159	16169	16179	16188	16198	16208	16217	16227	16237	16246	4. 8
[illegible]	[illegible]	[illegible]	16276	16285	16295	16304	16314	16324	16333	16343	16353	16362	1 = 2
[illegible]	[illegible]	[illegible]	16391	16401	16410	16420	16430	16439	16449	16459	16468	16478	2. 4
[illegible]	[illegible]	[illegible]	16506	16516	16526	16535	16545	16554	16564	16573	16583	16592	3. 6
[illegible]	[illegible]	[illegible]	16621	16631	16640	16650	16659	16669	16678	16688	16697	16707	4. 8
[illegible]	[illegible]	16726	16735	16745	16754	16764	16773	16782	16792	16801	16811	16820	1 = 2
[illegible]	[illegible]	16839	16849	16858	16867	16877	16886	16896	16905	16915	16924	16933	2. 4
[illegible]	[illegible]	16952	16961	16971	16980	16990	16999	17008	17018	17027	17036	17046	3. 6
[illegible]	[illegible]	17065	17074	17083	17093	17102	17111	17121	17130	17139	17148	17158	4. 7
[illegible]	[illegible]	17176	17186	17195	17204	17214	17223	17232	17241	17251	17260	17269	1 = 2
[illegible]	[illegible]	17288	17297	17306	17315	17325	17334	17343	17352	17362	17371	17380	2. 4
[illegible]	[illegible]	17398	17408	17417	17426	17435	17444	17454	17463	17472	17481	17490	3. 5
[illegible]	[illegible]	17509	17518	17527	17536	17545	17554	17563	17573	17582	17591	17600	4. 7
		5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.

7 HOURS.

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LOGARITHMIC RISING.

Minutes	6 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper. parts.
0	6.00000	00016	00032	00047	00063	00079	00095	00110	00126	00142	00158	00173	1″ = 3
1	00189	00205	00221	00236	00252	00268	00283	00299	00315	00330	00346	00362	2. 6
2	00377	00393	00409	00424	00440	00456	00471	00487	00502	00518	00534	00549	3. 10
3	00565	00580	00596	00612	00627	00643	00658	00674	00689	00705	00720	00736	4. 13
4	6.00751	00767	00782	00798	00813	00829	00844	00860	00875	00891	00906	00922	1 = 3
5	00937	00953	00968	00984	00999	01014	01030	01045	01061	01076	01091	01107	2. 6
6	01122	01138	01153	01168	01184	01199	01214	01230	01245	01260	01276	01291	3. 10
7	01306	01322	01337	01352	01368	01383	01398	01413	01429	01444	01459	01474	4. 13
8	6.01490	01505	01520	01536	01551	01566	01581	01596	01612	01627	01642	01657	1 = 3
9	01672	01688	01703	01718	01733	01748	01763	01779	01794	01809	01824	01839	2. 6
10	01854	01869	01884	01900	01915	01930	01945	01960	01975	01990	02005	02020	3. 9
11	02035	02050	02065	02080	02095	02110	02125	02140	02155	02170	02185	02200	4. 12
12	6.02215	02230	02245	02260	02275	02290	02305	02320	02335	02350	02365	02380	1 = 3
13	02395	02410	02425	02440	02455	02469	02484	02499	02514	02529	02544	02559	2. 6
14	02574	02588	02603	02618	02633	02648	02663	02677	02692	02707	02722	02737	3. 9
15	02751	02766	02781	02796	02811	02825	02840	02855	02870	02884	02899	02914	4. 12
16	6.02928	02943	02958	02973	02987	03002	03017	03031	03046	03061	03075	03090	1 = 3
17	03105	03119	03134	03149	03163	03178	03193	03207	03222	03237	03251	03266	2. 6
18	03280	03295	03310	03324	03339	03353	03368	03382	03397	03412	03426	03441	3. 9
19	03455	03470	03484	03499	03513	03528	03542	03557	03571	03586	03600	03615	4. 12
20	6.03629	03644	03658	03672	03687	03701	03716	03730	03745	03759	03774	03788	1 = 3
21	03802	03817	03831	03846	03860	03874	03889	03903	03918	03932	03946	03961	2. 6
22	03975	03989	04004	04018	04032	04047	04061	04075	04090	04104	04118	04132	3. 8
23	04147	04161	04175	04190	04204	04218	04232	04247	04261	04275	04289	04303	4. 11
24	6.04318	04332	04346	04360	04375	04389	04403	04417	04431	04445	04460	04474	1
25	04488	04502	04516	04530	04545	04559	04573	04587	04601	04615	04629	04643	2.
26	04657	04672	04686	04700	04714	04728	04742	04756	04770	04784	04798	04812	3.
27	04826	04840	04854	04868	04882	04896	04910	04924	04938	04952	04966	04980	4.
28	6.04994	05008	05022	05036	05050	05064	05078	05092	05106	05120	05134	05148	1 =
29	05162	05175	05189	05203	05217	05231	05245	05259	05273	05286	05300	05314	2.
30	05328	05342	05356	05370	05383	05397	05411	05425	05439	05452	05466	05480	3.
31	05494	05508	05521	05535	05549	05563	05577	05590	05604	05618	05632	05645	4.
32	6.05659	05673	05686	05700	05714	05728	05741	05755	05769	05782	05796	05810	1 =
33	05823	05837	05851	05864	05878	05892	05905	05919	05933	05946	05960	05973	2.
34	05987	06001	06014	06028	06041	06055	06069	06082	06096	06109	06123	06136	3.
35	06150	06163	06177	06191	06204	06218	06231	06245	06258	06272	06285	06299	4.
36	6.06312	06326	06339	06353	06366	06379	06393	06406	06420	06433	06447	06460	1 =
37	06474	06487	06500	06514	06527	06541	06554	06567	06581	06594	06608	06621	2.
38	06634	06648	06661	06674	06688	06701	06714	06728	06741	06754	06768	06781	3.
39	06794	06808	06821	06834	06848	06861	06874	06887	06901	06914	06927	06941	4.
40	6.06954	06967	06980	06994	07007	07020	07033	07046	07060	07073	07086	07099	1 =
41	07112	07126	07139	07152	07165	07178	07192	07205	07218	07231	07244	07257	2.
42	07270	07284	07297	07310	07323	07336	07349	07362	07375	07388	07401	07415	3.
43	07428	07441	07454	07467	07480	07493	07506	07519	07532	07545	07558	07571	4.
44	6.07584	07597	07610	07623	07636	07649	07662	07675	07688	07701	07714	07727	1 =
45	07740	07753	07766	07779	07792	07805	07818	07831	07844	07857	07869	07882	2.
46	07895	07908	07921	07934	07947	07960	07973	07985	07998	08011	08024	08037	3.
47	08050	08063	08075	08088	08101	08114	08127	08140	08152	08165	08178	08191	4.
48	6.08204	08216	08229	08242	08255	08267	08280	08293	08306	08318	08331	08344	1 =
49	08357	08369	08382	08395	08408	08420	08433	08446	08458	08471	08484	08496	2.
50	08509	08522	08534	08547	08560	08572	08585	08598	08610	08623	08636	08648	3.
51	08661	08673	08686	08699	08711	08724	08736	08749	08762	08774	08787	08799	4.
52	6.08812	08824	08837	08850	08862	08875	08887	08900	08912	08925	08937	08950	1 =
53	08962	08975	08987	09000	09012	09025	09037	09050	09062	09075	09087	09100	2.
54	09112	09124	09137	09149	09162	09174	09187	09199	09211	09224	09236	09249	3.
55	09261	09273	09286	09298	09311	09323	09335	09348	09360	09372	09385	09397	4.
56	6.09409	09422	09434	09446	09459	09471	09483	09496	09508	09520	09533	09545	1 =
57	09557	09569	09582	09594	09606	09618	09631	09643	09655	09667	09680	09692	2.
58	09704	09716	09729	09741	09753	09765	09777	09790	09802	09814	09826	09838	3.
59	09851	09863	09875	09887	09899	09911	09924	09936	09948	09960	09972	09984	4.
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proper. parts.
	6 HOURS.												

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LOGARITHMIC RISING.

Minutes	7 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	6. 09996	10008	10021	10033	10045	10057	10069	10081	10093	10105	10117	10129	1″ = 2
1	10141	10153	10166	10178	10190	10202	10214	10226	10238	10250	10262	10274	2. 5
2	10286	10298	10310	10322	10334	10346	10358	10370	10382	10394	10406	10418	3. 7
3	10430	10441	10454	10465	10477	10489	10501	10513	10525	10537	10549	10561	4. 10
4	6. 10573	10585	10597	10608	10620	10632	10644	10656	10668	10680	10691	10703	1 = 2
5	10715	10727	10739	10751	10763	10774	10786	10798	10810	10822	10833	10845	2. 5
6	10857	10869	10881	10893	10904	10916	10928	10940	10951	10963	10975	10986	3. 7
7	10998	11010	11022	11033	11045	11057	11069	11080	11092	11104	11115	11127	4. 10
8	6. 11139	11150	11162	11174	11185	11197	11209	11220	11232	11244	11255	11267	1 = 2
9	11279	11290	11302	11314	11325	11337	11348	11360	11372	11383	11395	11406	2. 5
10	11418	11429	11441	11453	11464	11476	11487	11499	11510	11522	11533	11545	3. 7
11	11557	11568	11580	11591	11603	11614	11626	11637	11649	11660	11672	11683	4. 10
12	6. 11695	11706	11717	11729	11740	11752	11763	11775	11786	11798	11809	11820	1 = 2
13	11832	11843	11855	11866	11878	11889	11900	11912	11923	11934	11946	11957	2. 5
14	11969	11980	11991	12003	12014	12025	12037	12048	12059	12071	12082	12093	3. 7
15	12105	12116	12127	12139	12150	12161	12173	12184	12195	12206	12218	12229	4. 10
16	6. 12240	12251	12263	12274	12285	12296	12308	12319	12330	12341	12353	12364	1 = 2
17	12375	12386	12397	12409	12420	12431	12442	12453	12465	12476	12487	12498	2. 4
18	12509	12520	12532	12543	12554	12565	12576	12587	12598	12610	12621	12632	3. 7
19	12643	12654	12665	12676	12687	12698	12709	12721	12732	12743	12754	12765	4. 9
20	6. 12776	12787	12798	12809	12820	12831	12842	12853	12864	12875	12886	12897	1 = 2
21	12908	12919	12930	12941	12952	12963	12974	12985	12996	13007	13018	13029	2. 4
22	13040	13051	13062	13073	13084	13095	13106	13117	13128	13139	13149	13160	3. 7
23	13171	13182	13193	13204	13215	13226	13237	13248	13258	13269	13280	13291	4. 9
24	6. 13302	13313	13323	13334	13345	13356	13367	13378	13388	13399	13410	13421	1 = 2
25	13432	13442	13453	13464	13475	13486	13496	13507	13518	13529	13539	13550	2. 4
26	13561	13572	13582	13593	13604	13615	13625	13636	13647	13658	13668	13679	3. 7
27	13690	13700	13711	13722	13732	13743	13754	13765	13775	13786	13797	13807	4. 9
28	6. 13818	13828	13839	13850	13860	13871	13882	13892	13903	13914	13924	13935	1 = 2
29	13945	13956	13967	13977	13988	13998	14009	14019	14030	14041	14051	14062	2. 4
30	14072	14083	14093	14104	14114	14125	14136	14146	14157	14167	14178	14188	3. 7
31	14199	14209	14220	14230	14241	14251	14262	14272	14282	14293	14303	14314	4. 9
32	6. 14324	14335	14345	14356	14366	14377	14387	14397	14408	14418	14429	14439	1 = 2
33	14449	14460	14470	14481	14491	14501	14512	14522	14533	14543	14553	14564	2. 4
34	14574	14584	14595	14605	14615	14626	14636	14646	14657	14667	14677	14688	3. 7
35	14698	14708	14719	14729	14739	14750	14760	14770	14780	14790	14801	14811	4. 9
36	6. 14821	14832	14842	14852	14862	14872	14883	14893	14903	14913	14924	14934	1 = 2
37	14944	14954	14964	14975	14985	14995	15005	15015	15026	15036	15046	15056	2. 4
38	15066	15076	15087	15097	15107	15117	15127	15137	15147	15157	15168	15178	3. 6
39	15188	15198	15208	15218	15228	15238	15248	15258	15269	15279	15289	15299	4. 8
40	6. 15309	15319	15329	15339	15349	15359	15369	15379	15389	15399	15409	15419	1 = 2
41	15429	15439	15449	15459	15469	15479	15489	15499	15509	15519	15529	15539	2. 4
42	15549	15559	15569	15579	15589	15599	15609	15619	15629	15639	15649	15659	3. 6
43	15668	15678	15688	15698	15708	15718	15728	15738	15748	15758	15767	15777	4. 8
44	6. 15787	15797	15807	15817	15827	15837	15846	15856	15866	15876	15886	15896	1 = 2
45	15905	15915	15925	15935	15944	15954	15964	15974	15984	15993	16003	16013	2. 4
46	16023	16033	16042	16052	16062	16072	16081	16091	16101	16111	16120	16130	3. 6
47	16140	16149	16159	16169	16179	16188	16198	16208	16217	16227	16237	16246	4. 8
48	6. 16256	16266	16276	16285	16295	16304	16314	16324	16333	16343	16353	16362	1 = 2
49	16372	16382	16391	16401	16410	16420	16430	16439	16449	16459	16468	16478	2. 4
50	16487	16497	16506	16516	16526	16535	16545	16554	16564	16573	16583	16592	3. 6
51	16602	16612	16621	16631	16640	16650	16659	16669	16678	16688	16697	16707	4. 8
52	6. 16716	16726	16735	16745	16754	16764	16773	16782	16792	16801	16811	16820	1 = 2
53	16830	16839	16849	16858	16867	16877	16886	16896	16905	16915	16924	16933	2. 4
54	16943	16952	16961	16971	16980	16990	16999	17008	17018	17027	17036	17046	3. 6
55	17055	17065	17074	17083	17093	17102	17111	17121	17130	17139	17148	17158	4. 7
56	6. 17167	17176	17186	17195	17204	17214	17223	17232	17241	17251	17260	17269	1 = 2
57	17278	17288	17297	17306	17315	17325	17334	17343	17352	17362	17371	17380	2. 4
58	17389	17398	17408	17417	17426	17435	17444	17454	17463	17472	17481	17490	3. 5
59	17499	17509	17518	17527	17536	17545	17554	17563	17573	17582	17591	17600	4. 7
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	7 HOURS.												

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LOGARITHMIC RISING.

Minutes	8 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	6. 17609	17618	17627	17637	17646	17655	17664	17673	17682	17691	17700	17709	1″ = 2
1	17718	17727	17736	17746	17755	17764	17773	17782	17791	17800	17809	17818	2. 4
2	17827	17836	17845	17854	17863	17872	17881	17890	17899	17908	17917	17926	3. 5
3	17935	17944	17953	17962	17971	17980	17989	17998	18007	18016	18024	18033	4. 7
4	6 18042	18051	18060	18069	18078	18087	18096	18105	18114	18123	18132	18141	1 = 2
5	18149	18158	18167	18176	18185	18194	18203	18212	18220	18229	18238	18247	2. 4
6	18256	18265	18273	18282	18291	18300	18309	18318	18326	18335	18344	18353	3. 5
7	18362	18371	18379	18388	18397	18406	18414	18423	18432	18441	18449	18458	4. 7
8	6. 18467	18476	18484	18493	18502	18511	18519	18528	18537	18546	18554	18563	1 = 2
9	18572	18581	18589	18598	18606	18615	18624	18633	18641	18650	18659	18668	2. 4
10	18676	18685	18693	18702	18710	18719	18728	18737	18745	18754	18762	18771	3. 5
11	18780	18789	18797	18806	18814	18823	18831	18840	18848	18857	18866	18875	4. 7
12	6. 18883	18892	18900	18909	18917	18926	18934	18943	18951	18960	18968	18977	1 = 2
13	18985	18994	19002	19011	19019	19028	19036	19045	19053	19062	19070	19079	2. 4
14	19087	19096	19104	19113	19121	19130	19138	19147	19155	19164	19172	19181	3. 5
15	19189	19198	19206	19215	19223	19232	19240	19248	19256	19265	19273	19282	4. 7
16	6. 19290	19299	19307	19316	19324	19332	19340	19349	19357	19366	19374	19382	1 = 2
17	19390	19399	19407	19416	19424	19433	19441	19449	19457	19466	19474	19482	2. 4
18	19490	19499	19507	19516	19524	19532	19540	19549	19557	19565	19573	19582	3. 5
19	19590	19598	19606	19615	19623	19631	19639	19648	19656	19664	19672	19681	4. 7
20	6. 19689	19697	19705	19714	19722	19730	19738	19746	19754	19763	19771	19779	1 = 2
21	19787	19796	19804	19812	19820	19828	19836	19844	19852	19861	19869	19877	2. 3
22	19885	19893	19901	19910	19918	19926	19934	19942	19950	19958	19966	19974	3. 5
23	19982	19991	19999	20007	20015	20023	20031	20039	20047	20055	20063	20071	4. 6
24	6. 20079	20087	20095	20103	20111	20119	20127	20135	20143	20151	20159	20167	1 = 2
25	20175	20183	20191	20199	20207	20215	20223	20231	20239	20247	20255	20263	2. 3
26	20271	20279	20287	20295	20303	20311	20319	20327	20335	20343	20351	20359	3. 5
27	20366	20374	20382	20390	20398	20406	20414	20422	20430	20438	20445	20453	4. 6
28	6. 20461	20469	20477	20485	20493	20501	20508	20516	20524	20532	20540	20548	1 = 2
29	20555	20563	20571	20579	20587	20595	20602	20610	20618	20626	20634	20642	2. 3
30	20649	20657	20665	20673	20680	20688	20696	20704	20711	20719	20727	20735	3. 5
31	20742	20750	20758	20766	20773	20781	20789	20797	20804	20812	20820	20828	4. 6
32	6. 20835	20843	20850	20858	20866	20874	20881	20889	20897	20905	20912	20920	1 = 2
33	20927	20935	20943	20951	20958	20966	20973	20981	20988	20996	21004	21012	2. 3
34	21019	21027	21034	21042	21049	21057	21065	21073	21080	21088	21095	21103	3. 5
35	21110	21118	21125	21133	21140	21148	21155	21163	21170	21178	21186	21194	4. 6
36	6. 21201	21209	21216	21224	21231	21239	21246	21254	21261	21269	21276	21284	1 = 2
37	21291	21299	21306	21314	21321	21329	21336	21344	21351	21358	21365	21373	2. 3
38	21380	21388	21395	21403	21410	21418	21425	21433	21440	21448	21455	21463	3. 5
39	21470	21477	21484	21492	21499	21507	21514	21522	21529	21536	21543	21551	4. 6
40	6. 21558	21566	21573	21581	21588	21595	21602	21610	21617	21625	21632	21639	1 = 2
41	21646	21654	21661	21669	21676	21683	21690	21698	21705	21712	21719	21727	2. 3
42	21734	21741	21748	21756	21763	21770	21777	21785	21792	21799	21806	21814	3. 5
43	21821	21828	21835	21843	21850	21857	21864	21872	21879	21886	21893	21901	4. 6
44	6. 21908	21915	21922	21929	21936	21944	21951	21958	21965	21972	21979	21987	1 = 1
45	21994	22001	22008	22015	22022	22030	22037	22044	22051	22058	22065	22072	2. 3
46	22079	22087	22094	22101	22108	22115	22122	22129	22136	22143	22150	22157	3. 4
47	22164	22172	22179	22186	22193	22200	22207	22214	22221	22228	22235	22242	4. 6
48	6. 22249	22256	22263	22270	22277	22284	22291	22298	22305	22312	22319	22326	1 = 1
49	22333	22340	22347	22354	22361	22368	22375	22382	22389	22396	22403	22410	2. 3
50	22417	22424	22431	22438	22445	22452	22458	22465	22472	22479	22486	22493	3. 4
51	22500	22507	22514	22521	22528	22535	22541	22548	22555	22562	22569	22576	4. 6
52	6. 22583	22590	22596	22603	22610	22617	22624	22631	22637	22644	22651	22658	1 = 1
53	22665	22672	22678	22685	22692	22699	22706	22713	22719	22726	22733	22740	2. 3
54	22746	22753	22760	22767	22773	22780	22787	22794	22801	22808	22814	22821	3. 4
55	22828	22835	22841	22848	22854	22861	22868	22875	22881	22888	22895	22902	4. 6
56	6. 22908	22915	22922	22929	22935	22942	22948	22955	22962	22969	22975	22982	1 = 1
57	22988	22995	23002	23009	23015	23022	23028	23035	23042	23049	23055	23062	2. 3
58	23068	23075	23081	23088	23095	23102	23108	23115	23121	23128	23134	23141	3. 4
59	23147	23154	23160	23167	23174	23181	23187	23194	23200	23207	23213	23220	4. 6
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	8 HOURS.												

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TO REDUCE POINTS OF THE COMPASS TO DEGREES, AND CONVERSELY.

North-East Quadrant.	*South-East Quadrant.*	*Points.*	*Degrees, &c.*	*South-West Quadrant.*	*North-West Quadrant.*
			° ′ ″		
North.	South.	0.0	0. 0. 0	South.	North.
N. ¼ E.	S. ¼ E.	0.¼	2.48.45	S. ¼ W.	N. ¼ W.
N. ½ E.	S. ½ E.	0.½	5.37.30	S. ½ W.	N. ½ W.
N. ¾ E.	S. ¾ E.	0.¾	8.26.15	S. ¾ W.	N. ¾ W.
N. by E.	S. by E.	1.0	11.15. 0	S. by W.	N. by W.
N. by E. ¼ E.	S. by E. ¼ E.	1.¼	14. 3.45	S. by W. ¼ W.	N. by W. ¼ W.
N. by E. ½ E.	S. by E. ½ E.	1.½	16.52.30	S. by W. ½ W.	N. by W. ½ W.
N. by E. ¾ E.	S. by E. ¾ E.	1.¾	19.41.15	S. by W. ¾ W.	N. by W. ¾ W.
N. N. E.	S. S. E.	2.0	22.30. 0	S. S. W.	N. N. W.
N. N. E. ¼ E.	S. S. E. ¼ E.	2.¼	25.18.45	S. S. W. ¼ W.	N. N. W. ¼ W.
N. N. E. ½ E.	S. S. E. ½ E.	2.½	28. 7.30	S. S. W. ½ W.	N. N. W. ½ W.
N. N. E. ¾ E.	S. S. E. ¾ E.	2.¾	30.56.15	S. S. W. ¾ W.	N. N. W. ¾ W
N. E. by N.	S. E. by S.	3.0	33.45. 0	S. W. by S.	N. W. by N.
N. E. ¼ N.	S. E. ¼ S.	3.¼	36.33.45	S. W. ¼ S.	N. W. ¼ N.
N. E. ½ N.	S. E. ½ S.	3.½	39.22.30	S. W. ½ S.	N. W. ½ N.
N. E. ¾ N.	S. E. ¾ S.	3.¾	42.11.15	S. W. ¾ S.	N. W. ¾ N.
N. E.	S. E.	4.0	45. 0. 0	S. W.	N. W.
N. E. ¼ E.	S. E. ¼ E.	4.¼	47.48.45	S. W. ¼ W.	N. W. ¼ W.
N. E. ½ E.	S. E. ½ E.	4.½	50.37.30	S. W. ½ W.	N. W. ½ W.
N. E. ¾ E.	S. E. ¾ E.	4.¾	53.26.15	S. W. ¾ W.	N. W. ¾ W.
N. E. by E.	S. E. by E.	5.0	56.15. 0	S. W. by W.	N. W. by W.
N.E. by E. ¼E.	S.E. by E. ¼ E.	5.¼	59. 3.45	S.W.byW. ¼ W.	N.W.byW ¼W.
N.E. by E. ½E.	S.E. by E. ½ E	5.½	61.52.30	S.W. byW. ½W.	N.W.byW. ½W.
N.E. by E. ¾E.	S. E. by E. ¾ E.	5.¾	64.41.15	S.W.byW. ¾W.	N.W.byW. ¾W.
E. N. E.	E. S. E.	6.0	67.30. 0	W. S. W.	W. N. W.
E. by N. ¾ N.	E. by S. ¾ S.	6.¼	70.18.45	W. by S. ¾ S.	W. by N. ¾ N.
E. by N. ½ N.	E. by S. ½ S.	6.½	73. 7.30	W. by S. ½ S.	W. by N. ½ N.
E. by N. ¼ N.	E. by S. ¼ S.	6.¾	75.56.15	W. by S. ¼ S.	W. by N. ¼ N.
E. by N.	E. by S.	7.0	78.45. 0	W. by S.	W. by N.
E. ¼ N.	E. ¼ S.	7.¼	81.33.45	W. ¼ S.	W. ¼ N.
E. ½ N.	E. ½ S.	7.½	84.22.30	W. ½ S	W. ½ N.
E. ¾ N.	E. ¾ S.	7.¾	87.11.15	W. ¾ S.	W. ¾ N.
East.	East.	8.0	90. 0. 0	West.	West.

TABLE XXXIV.

LOGARITHMIC SINES, TANGENTS, AND SECANTS, TO EVERY POINT AND QUARTER-POINT OF THE COMPASS.

Points	*Sine.*	*Co-sine.*	*Tangent.*	*Co-tangent.*	*Secant.*	*Co-secant.*	*Points*
0.0	0.000000	10.000000	0.000000	*Infinite.*	10.000000	*Infinite.*	8.0
0.¼	8.690796	9.999477	8.691319	11.308681	10.000523	11.309204	7.¾
0.½	8.991302	9.997904	8.993398	11.006602	10.002096	11.008698	7.½
0.¾	9.166520	9.995274	9.171247	10.828753	10.004726	10.833480	7.¼
1.0	9.290236	9.991574	9.298662	10.701338	10.008426	10.709764	7.0
1.¼	9.385571	9.986786	9.398785	10.601215	10.013214	10.614429	6.¾
1.½	9.462824	9.980885	9.481939	10.518061	10.019115	10.537176	6.½
1.¾	9.527488	9.973841	9.553647	10.446353	10.026159	10.472512	6.¼
2.0	9.582840	9.965615	9.617224	10.382776	10.034385	10.417160	6.0
2.¼	9.630992	9.956163	9.674829	10.325171	10.043837	10.369008	5.¾
2.½	9.673387	9.945430	9.727957	10.272043	10.054570	10.326613	5.½
2.¾	9.711050	9.933350	9.777700	10.222300	10.066650	10.288950	5.¼
3.0	9.744739	9.919846	9.824893	10.175107	10.080154	10.255261	5.0
3.¼	9.775027	9.904828	9.870199	10.129801	10.095172	10.224973	4.¾
3.½	9.802359	9.888185	9.914173	10.085827	10.111815	10.197641	4.½
3.¾	9.827084	9.869790	9.957295	10.042705	10.130210	10.172916	4.¼
4.0	9.849485	9.849485	10.000000	10.000000	10.150515	10.150515	4.0
Points	*Co-sine.*	*Sine.*	*Co-tangent.*	*Tangent.*	*Co-secant.*	*Secant.*	*Points*

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LOGARITHMIC SECANTS.

Minutes	Secant of 0 degree, or Co-secant of 90 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	59	
1	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	58	1″ = 0
2	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	57	2. 0
3	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	56	3. 0
4	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	55	4. 0
5	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	54	5. 0
6	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	53	6. 0
7	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	52	7. 0
8	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	51	8. 0
9	10.000001	10.000002	10.000002	10.000002	10.000002	10.000002	50	9. 0
10	10.000002	10.000002	10.000002	10.000002	10.000002	10.000002	49	
11	10.000002	10.000002	10.000002	10.000002	10.000003	10.000003	48	1 = 0
12	10.000003	10.000003	10.000003	10.000003	10.000003	10.000003	47	2. 0
13	10.000003	10.000003	10.000003	10.000003	10.000003	10.000004	46	3. 0
14	10.000004	10.000004	10.000004	10.000004	10.000004	10.000004	45	4. 0
15	10.000004	10.000004	10.000004	10.000004	10.000005	10.000005	44	5. 0
16	10.000005	10.000005	10.000005	10.000005	10.000005	10.000005	43	6. 0
17	10.000005	10.000005	10.000006	10.000006	10.000006	10.000006	42	7. 0
18	10.000006	10.000006	10.000006	10.000006	10.000006	10.000007	41	8. 0
19	10.000007	10.000007	10.000007	10.000007	10.000007	10.000007	40	9. 0
20	10.000007	10.000008	10.000008	10.000008	10.000008	10.000008	39	
21	10.000008	10.000008	10.000008	10.000009	10.000009	10.000009	38	1 = 0
22	10.000009	10.000009	10.000009	10.000009	10.000009	10.000010	37	2. 0
23	10.000010	10.000010	10.000010	10.000010	10.000010	10.000010	36	3. 0
24	10.000011	10.000011	10.000011	10.000011	10.000011	10.000011	35	4. 0
25	10.000012	10.000012	10.000012	10.000012	10.000012	10.000012	34	5. 0
26	10.000012	10.000013	10.000013	10.000013	10.000013	10.000013	33	6. 0
27	10.000013	10.000014	10.000014	10.000014	10.000014	10.000014	32	7. 0
28	10.000014	10.000015	10.000015	10.000015	10.000015	10.000015	31	8. 0
29	10.000015	10.000016	10.000016	10.000016	10.000016	10.000016	30	9. 0
30	10.000017	10.000017	10.000017	10.000017	10.000017	10.000018	29	
31	10.000018	10.000018	10.000018	10.000018	10.000018	10.000019	28	1 = 0
32	10.000019	10.000019	10.000019	10.000019	10.000020	10.000020	27	2. 0
33	10.000020	10.000020	10.000020	10.000021	10.000021	10.000021	26	3. 0
34	10.000021	10.000021	10.000022	10.000022	10.000022	10.000022	25	4. 0
35	10.000023	10.000023	10.000023	10.000023	10.000023	10.000024	24	5. 0
36	10.000024	10.000024	10.000024	10.000024	10.000025	10.000025	23	6. 0
37	10.000025	10.000025	10.000026	10.000026	10.000026	10.000026	22	7. 0
38	10.000027	10.000027	10.000027	10.000027	10.000027	10.000028	21	8. 0
39	10.000028	10.000028	10.000028	10.000029	10.000029	10.000029	20	9. 0
40	10.000029	10.000030	10.000030	10.000030	10.000030	10.000031	19	
41	10.000031	10.000031	10.000031	10.000032	10.000032	10.000032	18	1 = 0
42	10.000032	10.000033	10.000033	10.000033	10.000033	10.000034	17	2. 0
43	10.000034	10.000034	10.000035	10.000035	10.000035	10.000035	16	3. 0
44	10.000036	10.000036	10.000036	10.000036	10.000037	10.000037	15	4. 0
45	10.000037	10.000038	10.000038	10.000038	10.000038	10.000039	14	5. 0
46	10.000039	10.000039	10.000039	10.000040	10.000040	10.000040	13	6. 0
47	10.000041	10.000041	10.000041	10.000041	10.000042	10.000042	12	7. 0
48	10.000042	10.000043	10.000043	10.000043	10.000044	10.000044	11	8. 0
49	10.000044	10.000044	10.000045	10.000045	10.000045	10.000046	10	9. 0
50	10.000046	10.000046	10.000047	10.000047	10.000047	10.000048	9	
51	10.000048	10.000048	10.000048	10.000049	10.000049	10.000049	8	1 = 0
52	10.000050	10.000050	10.000050	10.000051	10.000051	10.000051	7	2. 0
53	10.000052	10.000052	10.000052	10.000053	10.000053	10.000053	6	3. 0
54	10.000054	10.000054	10.000054	10.000055	10.000055	10.000055	5	4. 0
55	10.000056	10.000056	10.000056	10.000057	10.000057	10.000057	4	5. 0
56	10.000058	10.000058	10.000058	10.000059	10.000059	10.000059	3	6. 0
57	10.000060	10.000060	10.000060	10.000061	10.000061	10.000061	2	7. 0
58	10.000062	10.000062	10.000063	10.000063	10.000063	10.000064	1	8. 0
59	10.000064	10.000064	10.000065	10.000065	10.000065	10.000066	0	9. 0
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 89 degrees, or Secant of 179 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 1 degree, or Co-secant of 91 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.000066	10.000067	10.000067	10.000067	10.000068	10.000068	59	
1	10.000068	10.000069	10.000069	10.000070	10.000070	10.000070	58	1″ = 0
2	10.000071	10.000071	10.000071	10.000072	10.000072	10.000073	57	2. 0
3	10.000073	10.000073	10.000074	10.000074	10.000075	10.000075	56	3. 0
4	10.000075	10.000076	10.000076	10.000076	10.000077	10.000077	55	4. 0
5	10.000078	10.000078	10.000078	10.000079	10.000079	10.000080	54	5. 0
6	10.000080	10.000080	10.000081	10.000081	10.000082	10.000082	53	6. 0
7	10.000082	10.000083	10.000083	10.000084	10.000084	10.000085	52	7. 0
8	10.000085	10.000085	10.000086	10.000086	10.000087	10.000087	51	8. 0
9	10.000087	10.000088	10.000088	10.000089	10.000089	10.000090	50	9. 0
10	10.000090	10.000090	10.000091	10.000091	10.000092	10.000092	49	
11	10.000093	10.000093	10.000094	10.000094	10.000094	10.000095	48	1 = 0
12	10.000095	10.000096	10.000096	10.000097	10.000097	10.000097	47	2. 0
13	10.000098	10.000098	10.000099	10.000099	10.000100	10.000100	46	3. 0
14	10.000101	10.000101	10.000102	10.000102	10.000102	10.000103	45	4. 0
15	10.000103	10.000104	10.000104	10.000105	10.000105	10.000106	44	5. 0
16	10.000106	10.000107	10.000107	10.000108	10.000108	10.000108	43	6. 0
17	10.000109	10.000109	10.000110	10.000110	10.000111	10.000111	42	7. 0
18	10.000112	10.000112	10.000113	10.000113	10.000114	10.000114	41	8. 0
19	10.000115	10.000115	10.000116	10.000116	10.000117	10.000117	40	9. 0
20	10.000118	10.000118	10.000119	10.000119	10.000120	10.000120	39	
21	10.000121	10.000121	10.000122	10.000122	10.000123	10.000123	38	1 = 0
22	10.000124	10.000124	10.000125	10.000125	10.000126	10.000126	37	2. 0
23	10.000127	10.000127	10.000128	10.000128	10.000129	10.000129	36	3. 0
24	10.000130	10.000130	10.000131	10.000131	10.000132	10.000132	35	4. 0
25	10.000133	10.000133	10.000134	10.000134	10.000135	10.000135	34	5. 0
26	10.000136	10.000136	10.000137	10.000138	10.000138	10.000139	33	6. 0
27	10.000139	10.000140	10.000140	10.000141	10.000141	10.000142	32	7. 0
28	10.000142	10.000143	10.000143	10.000144	10.000144	10.000145	31	8. 0
29	10.000146	10.000146	10.000147	10.000147	10.000148	10.000148	30	9. 1
30	10.000149	10.000149	10.000150	10.000151	10.000151	10.000152	29	
31	10.000152	10.000153	10.000153	10.000154	10.000154	10.000155	28	1 = 0
32	10.000156	10.000156	10.000157	10.000157	10.000158	10.000158	27	2. 0
33	10.000159	10.000160	10.000160	10.000161	10.000161	10.000162	26	3. 0
34	10.000162	10.000163	10.000164	10.000164	10.000165	10.000165	25	4. 0
35	10.000166	10.000166	10.000167	10.000168	10.000168	10.000169	24	5. 0
36	10.000169	10.000170	10.000171	10.000171	10.000172	10.000172	23	6. 0
37	10.000173	10.000174	10.000174	10.000175	10.000175	10.000176	22	7. 0
38	10.000177	10.000177	10.000178	10.000178	10.000179	10.000180	21	8. 0
39	10.000180	10.000181	10.000181	10.000182	10.000183	10.000183	20	9. 1
40	10.000184	10.000184	10.000185	10.000186	10.000186	10.000187	19	
41	10.000187	10.000188	10.000189	10.000189	10.000190	10.000191	18	1 = 0
42	10.000191	10.000192	10.000192	10.000193	10.000194	10.000194	17	2. 0
43	10.000195	10.000196	10.000196	10.000197	10.000198	10.000198	16	3. 0
44	10.000199	10.000199	10.000200	10.000201	10.000201	10.000202	15	4. 0
45	10.000203	10.000203	10.000204	10.000205	10.000205	10.000206	14	5. 0
46	10.000206	10.000207	10.000208	10.000208	10.000209	10.000210	13	6. 0
47	10.000210	10.000211	10.000212	10.000212	10.000213	10.000214	12	7. 0
48	10.000214	10.000215	10.000216	10.000216	10.000217	10.000218	11	8. 0
49	10.000218	10.000219	10.000220	10.000220	10.000221	10.000222	10	9. 1
50	10.000222	10.000223	10.000224	10.000224	10.000225	10.000226	9	
51	10.000226	10.000227	10.000228	10.000229	10.000229	10.000230	8	1 = 0
52	10.000231	10.000231	10.000232	10.000233	10.000233	10.000234	7	2. 0
53	10.000235	10.000235	10.000236	10.000237	10.000237	10.000238	6	3. 0
54	10.000239	10.000240	10.000240	10.000241	10.000242	10.000242	5	4. 0
55	10.000243	10.000244	10.000244	10.000245	10.000246	10.000247	4	5. 0
56	10.000247	10.000248	10.000249	10.000249	10.000250	10.000251	3	6. 0
57	10.000252	10.000252	10.000253	10.000254	10.000254	10.000255	2	7. 0
58	10.000256	10.000257	10.000258	10.000258	10.000259	10.000260	1	8. 0
59	10.000260	10.000261	10.000262	10.000262	10.000263	10.000264	0	9. 1
	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 88 degrees, or Secant of 178 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 2 degrees, or Co-secant of 92 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.000265	10.000265	10.000266	10.000267	10.000268	10.000268	59	
1	10.000269	10.000270	10.000271	10.000271	10.000272	10.000273	58	1″ = 0
2	10.000274	10.000274	10.000275	10.000276	10.000277	10.000277	57	2. 0
3	10.000278	10.000279	10.000280	10.000280	10.000281	10.000282	56	3. 0
4	10.000283	10.000283	10.000284	10.000285	10.000286	10.000286	55	4. 0
5	10.000287	10.000288	10.000289	10.000289	10.000290	10.000291	54	5. 0
6	10.000292	10.000293	10.000293	10.000294	10.000295	10.000296	53	6. 0
7	10.000296	10.000297	10.000298	10.000299	10.000300	10.000300	52	7. 0
8	10.000301	10.000302	10.000303	10.000304	10.000304	10.000305	51	8. 1
9	10.000306	10.000307	10.000307	10.000308	10.000309	10.000310	50	9. 1
10	10.000311	10.000311	10.000312	10.000313	10.000314	10.000315	49	
11	10.000315	10.000316	10.000317	10.000318	10.000319	10.000319	48	1 = 0
12	10.000320	10.000321	10.000322	10.000323	10.000324	10.000324	47	2. 0
13	10.000325	10.000326	10.000327	10.000328	10.000328	10.000329	46	3. 0
14	10.000330	10.000331	10.000332	10.000333	10.000333	10.000334	45	4. 0
15	10.000335	10.000336	10.000337	10.000337	10.000338	10.000339	44	5. 0
16	10.000340	10.000341	10.000342	10.000342	10.000343	10.000344	43	6. 0
17	10.000345	10.000346	10.000347	10.000347	10.000348	10.000349	42	7. 1
18	10.000350	10.000351	10.000352	10.000353	10.000353	10.000354	41	8. 1
19	10.000355	10.000356	10.000357	10.000358	10.000359	10.000359	40	9. 1
20	10.000360	10.000361	10.000362	10.000363	10.000364	10.000365	39	
21	10.000365	10.000366	10.000367	10.000368	10.000369	10.000370	38	1 = 0
22	10.000371	10.000372	10.000372	10.000373	10.000374	10.000375	37	2. 0
23	10.000376	10.000377	10.000378	10.000379	10.000379	10.000380	36	3. 0
24	10.000381	10.000382	10.000383	10.000384	10.000385	10.000385	35	4. 0
25	10.000386	10.000387	10.000388	10.000389	10.000390	10.000391	34	5. 0
26	10.000392	10.000393	10.000394	10.000394	10.000395	10.000396	33	6. 1
27	10.000397	10.000398	10.000399	10.000400	10.000401	10.000402	32	7. 1
28	10.000403	10.000404	10.000404	10.000405	10.000406	10.000407	31	8. 1
29	10.000408	10.000409	10.000410	10.000411	10.000412	10.000413	30	9. 1
30	10.000414	10.000414	10.000415	10.000416	10.000417	10.000418	29	
31	10.000419	10.000420	10.000421	10.000422	10.000423	10.000424	28	1 = 0
32	10.000425	10.000426	10.000427	10.000427	10.000428	10.000429	27	2. 0
33	10.000430	10.000431	10.000432	10.000433	10.000434	10.000435	26	3. 0
34	10.000436	10.000437	10.000438	10.000439	10.000440	10.000441	25	4. 0
35	10.000442	10.000443	10.000443	10.000444	10.000445	10.000446	24	5. 0
36	10.000447	10.000448	10.000449	10.000450	10.000451	10.000452	23	6. 1
37	10.000453	10.000454	10.000455	10.000456	10.000457	10.000458	22	7. 1
38	10.000459	10.000460	10.000461	10.000462	10.000463	10.000464	21	8. 1
39	10.000465	10.000466	10.000467	10.000468	10.000469	10.000470	20	9. 1
40	10.000471	10.000472	10.000473	10.000474	10.000475	10.000476	19	
41	10.000476	10.000477	10.000478	10.000479	10.000480	10.000481	18	1 = 0
42	10.000482	10.000483	10.000484	10.000485	10.000486	10.000487	17	2. 0
43	10.000488	10.000489	10.000490	10.000491	10.000492	10.000493	16	3. 0
44	10.000494	10.000495	10.000496	10.000497	10.000498	10.000499	15	4. 0
45	10.000500	10.000501	10.000502	10.000503	10.000505	10.000506	14	5. 1
46	10.000507	10.000508	10.000509	10.000510	10.000511	10.000512	13	6. 1
47	10.000513	10.000514	10.000515	10.000516	10.000517	10.000518	12	7. 1
48	10.000519	10.000520	10.000521	10.000522	10.000523	10.000524	11	8. 1
49	10.000525	10.000526	10.000527	10.000528	10.000529	10.000530	10	9. 1
50	10.000531	10.000532	10.000533	10.000534	10.000535	10.000536	9	
51	10.000537	10.000539	10.000540	10.000541	10.000542	10.000543	8	1 = 0
52	10.000544	10.000545	10.000546	10.000547	10.000548	10.000549	7	2. 0
53	10.000550	10.000551	10.000552	10.000553	10.000554	10.000555	6	3. 0
54	10.000557	10.000558	10.000559	10.000560	10.000561	10.000562	5	4. 0
55	10.000563	10.000564	10.000565	10.000566	10.000567	10.000568	4	5. 1
56	10.000569	10.000571	10.000572	10.000573	10.000574	10.000575	3	6. 1
57	10.000576	10.000577	10.000578	10.000579	10.000580	10.000581	2	7. 1
58	10.000582	10.000584	10.000585	10.000586	10.000587	10.000588	1	8. 1
59	10.000589	10.000590	10.000591	10.000592	10.000593	10.000595	0	9. 1
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 87 degrees, or Secant of 177 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 3 degrees, or Co-secant of 93 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Proper. parts.
0	10.000596	10.000597	10.000598	10.000599	10.000600	10.000601	59	
1	10.000602	10.000603	10.000604	10.000606	10.000607	10.000608	58	1″ = 0
2	10.000609	10.000610	10.000611	10.000612	10.000613	10.000615	57	2. 0
3	10.000616	10.000617	10.000618	10.000619	10.000620	10.000621	56	3. 0
4	10.000622	10.000624	10.000625	10.000626	10.000627	10.000628	55	4. 0
5	10.000629	10.000630	10.000631	10.000633	10.000634	10.000635	54	5. 1
6	10.000636	10.000637	10.000638	10.000639	10.000641	10.000642	53	6. 1
7	10.000643	10.000644	10.000645	10.000646	10.000647	10.000649	52	7. 1
8	10.000650	10.000651	10.000652	10.000653	10.000654	10.000656	51	8. 1
9	10.000657	10.000658	10.000659	10.000660	10.000661	10.000662	50	9. 1
10	10.000664	10.000665	10.000666	10.000667	10.000668	10.000670	49	
11	10.000671	10.000672	10.000673	10.000674	10.000675	10.000677	48	1 = 0
12	10.000678	10.000679	10.000680	10.000681	10.000682	10.000684	47	2. 0
13	10.000685	10.000686	10.000687	10.000688	10.000690	10.000691	46	3. 0
14	10.000692	10.000693	10.000694	10.000696	10.000697	10.000698	45	4. 0
15	10.000699	10.000700	10.000701	10.000703	10.000704	10.000705	44	5. 1
16	10.000706	10.000707	10.000709	10.000710	10.000711	10.000712	43	6. 1
17	10.000714	10.000715	10.000716	10.000717	10.000718	10.000720	42	7. 1
18	10.000721	10.000722	10.000723	10.000724	10.000726	10.000727	41	8. 1
19	10.000728	10.000729	10.000731	10.000732	10.000733	10.000734	40	9. 1
20	10.000735	10.000737	10.000738	10.000739	10.000740	10.000742	39	
21	10.000743	10.000744	10.000745	10.000746	10.000748	10.000749	38	1 = 0
22	10.000750	10.000751	10.000753	10.000754	10.000755	10.000756	37	2. 0
23	10.000758	10.000759	10.000760	10.000761	10.000763	10.000764	36	3. 0
24	10.000765	10.000766	10.000768	10.000769	10.000770	10.000771	35	4. 0
25	10.000773	10.000774	10.000775	10.000776	10.000778	10.000779	34	5. 1
26	10.000780	10.000781	10.000783	10.000784	10.000785	10.000787	33	6. 1
27	10.000788	10.000789	10.000790	10.000792	10.000793	10.000794	32	7. 1
28	10.000795	10.000797	10.000798	10.000799	10.000801	10.000802	31	8. 1
29	10.000803	10.000804	10.000806	10.000807	10.000808	10.000810	30	9. 1
30	10.000811	10.000812	10.000813	10.000815	10.000816	10.000817	29	
31	10.000819	10.000820	10.000821	10.000822	10.000824	10.000825	28	1 = 0
32	10.000826	10.000828	10.000829	10.000830	10.000832	10.000833	27	2. 0
33	10.000834	10.000835	10.000837	10.000838	10.000839	10.000841	26	3. 0
34	10.000842	10.000843	10.000845	10.000846	10.000847	10.000849	25	4. 1
35	10.000850	10.000851	10.000853	10.000854	10.000855	10.000857	24	5. 1
36	10.000858	10.000859	10.000861	10.000862	10.000863	10.000864	23	6. 1
37	10.000866	10.000867	10.000868	10.000870	10.000871	10.000872	22	7. 1
38	10.000874	10.000875	10.000876	10.000878	10.000879	10.000881	21	8. 1
39	10.000882	10.000883	10.000885	10.000886	10.000887	10.000889	20	9. 1
40	10.000890	10.000891	10.000893	10.000894	10.000895	10.000897	19	
41	10.000898	10.000899	10.000901	10.000902	10.000904	10.000905	18	1 = 0
42	10.000906	10.000908	10.000909	10.000910	10.000912	10.000913	17	2. 0
43	10.000914	10.000916	10.000917	10.000918	10.000920	10.000921	16	3. 0
44	10.000923	10.000924	10.000925	10.000927	10.000928	10.000930	15	4. 1
45	10.000931	10.000932	10.000934	10.000935	10.000936	10.000938	14	5. 1
46	10.000939	10.000941	10.000942	10.000943	10.000945	10.000946	13	6. 1
47	10.000947	10.000949	10.000950	10.000952	10.000953	10.000955	12	7. 1
48	10.000956	10.000957	10.000959	10.000960	10.000962	10.000963	11	8. 1
49	10.000964	10.000966	10.000967	10.000969	10.000970	10.000971	10	9. 1
50	10.000973	10.000974	10.000976	10.000977	10.000978	10.000980	9	
51	10.000981	10.000983	10.000984	10.000985	10.000987	10.000988	8	1 = 0
52	10.000990	10.000991	10.000993	10.000994	10.000995	10.000997	7	2. 0
53	10.000998	10.001000	10.001001	10.001003	10.001004	10.001005	6	3. 0
54	10.001007	10.001008	10.001010	10.001011	10.001013	10.001014	5	4. 1
55	10.001016	10.001017	10.001018	10.001020	10.001021	10.001023	4	5. 1
56	10.001024	10.001026	10.001027	10.001029	10.001030	10.001031	3	6. 1
57	10.001033	10.001034	10.001036	10.001037	10.001039	10.001040	2	7. 1
58	10.001042	10.001043	10.001045	10.001046	10.001047	10.001049	1	8. 1
59	10.001050	10.001052	10.001053	10.001055	10.001056	10.001058	0	9. 1
	60″	50″	40″	30″	20″	10″	Minutes	Proper. parts.
	Co-secant of 86 degrees, or Secant of 176 degrees.							

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LOGARITHMIC RISING.

Minutes	4 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proportional parts.
0	5.69897	69924	69952	69979	70006	70034	70061	70088	70115	70143	70170	70197	1″ = 5
1	70224	70252	70279	70306	70333	70360	70387	70415	70442	70469	70496	70523	2. 11
2	70550	70577	70604	70631	70658	70685	70712	70739	70766	70793	70820	70847	3. 16
3	70874	70901	70928	70955	70982	71009	71036	71063	71089	71116	71143	71170	4. 22
4	5.71197	71224	71250	71277	71304	71331	71357	71384	71411	71438	71464	71491	1 = 5
5	71518	71544	71571	71598	71624	71651	71678	71704	71731	71757	71784	71810	2. 11
6	71837	71864	71890	71917	71943	71970	71996	72023	72049	72075	72102	72128	3. 16
7	72155	72181	72208	72234	72260	72287	72313	72339	72366	72392	72418	72445	4. 22
8	5.72471	72497	72523	72550	72576	72602	72628	72655	72681	72707	72733	72759	1 = 5
9	72785	72812	72838	72864	72890	72916	72942	72968	72994	73020	73046	73072	2. 10
10	73099	73125	73151	73177	73203	73228	73254	73280	73306	73332	73358	73384	3. 16
11	73410	73436	73462	73488	73514	73539	73565	73591	73617	73643	73668	73694	4. 21
12	5.73720	73746	73772	73797	73823	73849	73874	73900	73926	73951	73977	74003	1 = 5
13	74028	74054	74080	74105	74131	74157	74182	74208	74233	74259	74284	74310	2. 10
14	74335	74361	74386	74412	74437	74463	74488	74514	74539	74565	74590	74616	3. 16
15	74641	74666	74692	74717	74742	74768	74793	74818	74844	74869	74894	74920	4. 21
16	5.74945	74970	74995	75021	75046	75071	75096	75122	75147	75172	75197	75222	1 = 5
17	75247	75273	75298	75323	75348	75373	75398	75423	75448	75473	75498	75523	2. 10
18	75549	75574	75599	75624	75649	75674	75699	75723	75748	75773	75798	75823	3. 15
19	75848	75873	75898	75923	75948	75973	75997	76022	76047	76072	76097	76121	4. 20
20	5.76146	76171	76196	76221	76245	76270	76295	76320	76344	76369	76394	76418	1 = 5
21	76443	76468	76492	76517	76542	76566	76591	76615	76640	76665	76689	76714	2. 10
22	76738	76763	76787	76812	76836	76861	76885	76910	76934	76959	76983	77008	3. 14
23	77032	77057	77081	77105	77130	77154	77179	77203	77227	77252	77276	77300	4. 19
24	5.77325	77349	77373	77398	77422	77446	77470	77495	77519	77543	77567	77592	1 = 5
25	77616	77640	77664	77688	77713	77737	77761	77785	77809	77833	77857	77882	2. 10
26	77906	77930	77954	77978	78002	78026	78050	78074	78098	78122	78146	78170	3. 14
27	78194	78218	78242	78266	78290	78314	78338	78361	78385	78409	78433	78457	4. 19
28	5.78481	78505	78529	78552	78576	78600	78624	78648	78671	78695	78719	78743	1 = 5
29	78767	78790	78814	78838	78861	78885	78909	78933	78956	78980	79004	79027	2. 9
30	79051	79074	79098	79122	79145	79169	79192	79216	79240	79263	79287	79310	3. 14
31	79334	79357	79381	79404	79428	79451	79475	79498	79522	79545	79568	79592	4. 18
32	5.79615	79639	79662	79686	79709	79732	79756	79779	79802	79826	79849	79872	1 = 5
33	79896	79919	79942	79965	79989	80012	80035	80059	80082	80105	80128	80151	2. 9
34	80175	80198	80221	80244	80267	80290	80314	80337	80360	80383	80406	80429	3. 14
35	80452	80475	80498	80521	80545	80568	80591	80614	80637	80660	80683	80706	4. 18
36	5.80729	80752	80775	80797	80820	80843	80866	80889	80912	80935	80958	80981	1 = 4
37	81004	81027	81049	81072	81095	81118	81141	81163	81186	81209	81232	81255	2. 9
38	81277	81300	81323	81346	81368	81391	81414	81437	81459	81482	81505	81527	3. 13
39	81550	81573	81595	81618	81641	81663	81686	81708	81731	81754	81776	81799	4. 18
40	5.81821	81844	81866	81889	81911	81934	81956	81979	82001	82024	82046	82069	1 = 4
41	82091	82114	82136	82159	82181	82203	82226	82248	82271	82293	82315	82338	2. 9
42	82360	82382	82405	82427	82449	82472	82494	82516	82538	82561	82583	82605	3. 13
43	82628	82650	82672	82694	82716	82739	82761	82783	82805	82827	82850	82872	4. 18
44	5.82894	82916	82938	82960	82982	83004	83026	83049	83071	83093	83115	83137	1 = 4
45	83159	83181	83203	83225	83247	83269	83291	83313	83335	83357	83379	83401	2. 9
46	83423	83445	83467	83488	83510	83532	83554	83576	83598	83620	83642	83663	3. 13
47	83685	83707	83729	83751	83773	83794	83816	83838	83860	83881	83903	83925	4. 18
48	5.83947	83968	83990	84012	84034	84055	84077	84099	84120	84142	84164	84185	1 = 4
49	84207	84229	84250	84272	84293	84315	84337	84358	84380	84401	84423	84444	2. 8
50	84466	84488	84509	84531	84552	84574	84595	84617	84638	84659	84681	84702	3. 13
51	84724	84745	84767	84788	84810	84831	84852	84874	84895	84916	84938	84959	4. 17
52	5.84981	85002	85023	85044	85066	85087	85108	85130	85151	85172	85194	85215	1 = 4
53	85236	85257	85278	85300	85321	85342	85363	85385	85406	85427	85448	85469	2. 8
54	85490	85512	85533	85554	85575	85596	85617	85638	85659	85680	85701	85722	3. 13
55	85744	85765	85786	85807	85828	85849	85870	85891	85912	85933	85954	85975	4. 17
56	5.85996	86017	86038	86058	86079	86100	86121	86142	86163	86184	86205	86226	1 = 4
57	86247	86267	86288	86309	86330	86351	86372	86392	86413	86434	86455	86475	2. 8
58	86496	86517	86538	86559	86579	86600	86621	86641	86662	86683	86704	86724	3. 12
59	86745	86766	86786	86807	86828	86848	86869	86889	86910	86931	86951	86972	4. 16
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Proportional parts.
	4 HOURS.												

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LOGARITHMIC RISING.

Minutes	5 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	5.86992	87013	87034	87054	87075	87095	87116	87136	87157	87177	87198	87218	1″ = 4
1	87239	87259	87280	87300	87321	87341	87362	87382	87402	87423	87443	87464	2. 8
2	87484	87505	87525	87545	87566	87586	87606	87627	87647	87667	87688	87708	3. 12
3	87728	87749	87769	87789	87809	87830	87850	87870	87890	87911	87931	87951	4. 16
4	5.87971	87992	88012	88032	88052	88072	88093	88113	88133	88153	88173	88193	1 = 4
5	88213	88234	88254	88274	88294	88314	88334	88354	88374	88394	88414	88434	2. 8
6	88454	88474	88494	88514	88534	88554	88574	88594	88614	88634	88654	88674	3. 12
7	88694	88714	88734	88754	88774	88794	88814	88834	88853	88873	88893	88913	4. 16
8	5.88933	88953	88973	88992	89012	89032	89052	89072	89091	89111	89131	89151	1 = 4
9	89171	89190	89210	89230	89250	89269	89289	89309	89328	89348	89368	89388	2. 8
10	89407	89427	89447	89466	89486	89506	89525	89545	89564	89584	89604	89623	3. 12
11	89643	89662	89682	89702	89721	89741	89760	89780	89799	89819	89838	89858	4. 16
12	5.89877	89897	89916	89936	89955	89975	89994	90014	90033	90053	90072	90091	1 = 4
13	90111	90130	90150	90169	90188	90208	90227	90247	90266	90285	90305	90324	2. 8
14	90343	90363	90382	90401	90421	90440	90459	90478	90498	90517	90536	90555	3. 11
15	90575	90594	90613	90632	90652	90671	90690	90709	90728	90748	90767	90786	4. 15
16	5.90805	90824	90843	90863	90882	90901	90920	90939	90958	90977	90996	91015	1 = 4
17	91034	91054	91073	91092	91111	91130	91149	91168	91187	91206	91225	91244	2. 8
18	91263	91282	91301	91320	91339	91358	91377	91396	91414	91433	91452	91471	3. 11
19	91490	91509	91528	91547	91566	91585	91603	91622	91641	91660	91679	91698	4. 15
20	5.91716	91735	91754	91773	91792	91811	91829	91848	91867	91886	91904	91923	1 = 4
21	91942	91961	91979	91998	92017	92035	92054	92073	92092	92110	92129	92148	2. 8
22	92166	92185	92203	92222	92241	92259	92278	92297	92315	92334	92352	92371	3. 11
23	92390	92408	92427	92445	92464	92483	92501	92519	92538	92556	92575	92593	4. 15
24	5.92612	92630	92649	92667	92686	92704	92723	92741	92760	92778	92796	92815	1 4
25	92833	92851	92870	92888	92907	92925	92944	92962	92980	92999	93017	93035	2. 7
26	93054	93072	93090	93109	93127	93145	93164	93182	93200	93218	93237	93255	3. 11
27	93273	93291	93310	93328	93346	93364	93382	93401	93419	93437	93455	93473	4. 14
28	5.93492	93510	93528	93546	93564	93582	93600	93619	93637	93655	93673	93691	1 = 4
29	93709	93727	93745	93763	93781	93809	93817	93836	93854	93872	93890	93908	2. 7
30	93926	93944	93962	93980	93998	94016	94034	94052	94069	94088	94105	94123	3. 11
31	94141	94159	94177	94195	94213	94231	94249	94267	94284	94302	94320	94338	4. 14
32	5.94356	94374	94392	94410	94427	94445	94463	94481	94498	94516	94534	94552	1 = 4
33	94570	94587	94605	94623	94641	94658	94676	94694	94711	94729	94747	94765	2. 7
34	94782	94800	94818	94835	94853	94871	94888	94906	94924	94941	94959	94976	3. 11
35	94994	95012	95029	95047	95065	95082	95100	95117	95135	95153	95170	95188	4. 14
36	5.95205	95223	95240	95258	95275	95293	95310	95328	95345	95363	95380	95398	1 = 4
37	95415	95433	95450	95468	95485	95502	95520	95537	95555	95572	95580	95607	2. 7
38	95624	95642	95659	95676	95694	95711	95728	95746	95763	95780	95798	95815	3. 11
39	95832	95850	95867	95884	95902	95919	95936	95953	95971	95988	96005	96022	4. 14
40	5.96040	96057	96074	96091	96109	96126	96143	96160	96177	96195	96212	96229	1 = 3
41	96246	96263	96280	96297	96315	96332	96349	96366	96383	96400	96417	96434	2. 7
42	96451	96469	96486	96503	96520	96537	96554	96571	96588	96605	96622	96639	3. 10
43	96656	96673	96690	96707	96724	96741	96758	96775	96792	96809	96826	96843	4. 14
44	5.96860	96877	96894	96910	96927	96944	96961	96978	96995	97012	97029	97046	1 = 3
45	97062	97079	97096	97113	97130	97147	97163	97180	97197	97214	97231	97247	2. 7
46	97264	97281	97298	97315	97331	97348	97365	97382	97398	97415	97432	97449	3. 10
47	97465	97482	97499	97515	97532	97549	97565	97582	97599	97615	97632	97649	4. 14
48	5.97665	97682	97699	97715	97732	97749	97765	97782	97798	97815	97832	97848	1 = 3
49	97865	97881	97898	97914	97931	97947	97964	97981	97997	98014	98030	98047	2. 7
50	98063	98080	98096	98113	98129	98145	98162	98178	98195	98211	98228	98244	3. 10
51	98261	98277	98293	98310	98326	98343	98359	98375	98392	98408	98425	98441	4. 14
52	5.98457	98474	98490	98506	98523	98539	98555	98572	98588	98604	98620	98637	1 = 3
53	98653	98669	98686	98702	98718	98734	98751	98767	98783	98799	98816	98832	2. 6
54	98848	98864	98880	98897	98913	98929	98945	98961	98977	98994	99010	99026	3. 10
55	99042	99058	99074	99090	99107	99123	99139	99155	99171	99187	99203	99219	4. 13
56	5.99235	99251	99267	99284	99300	99316	99332	99348	99364	99380	99396	99412	1 = [illegible]
57	99428	99444	99460	99476	99492	99508	99524	99540	99556	99572	99587	99603	2. 6
58	99619	99635	99651	99667	99683	99699	99715	99731	99747	99763	99778	99794	3. 10
59	99810	99826	99842	99858	99873	99889	99905	99921	99937	99953	99968	99984	4. 13
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	5 HOURS.												

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LOGARITHMIC RISING.

Minutes	6 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	6.00000	00016	00032	00047	00063	00079	00095	00110	00126	00142	00158	00173	1″ = 3
1	00189	00205	00221	00236	00252	00268	00283	00299	00315	00330	00346	00362	2. 6
2	00377	00393	00409	00424	00440	00456	00471	00487	00502	00518	00534	00549	3. 10
3	00565	00580	00596	00612	00627	00643	00658	00674	00689	00705	00720	00736	4. 13
4	6.00751	00767	00782	00798	00813	00829	00844	00860	00875	00891	00906	00922	1 = 3
5	00937	00953	00968	00984	00999	01014	01030	01045	01061	01076	01091	01107	2. 6
6	01122	01138	01153	01168	01184	01199	01214	01230	01245	01260	01276	01291	3. 10
7	01306	01322	01337	01352	01368	01383	01398	01413	01429	01444	01459	01474	4. 13
8	6.01490	01505	01520	01536	01551	01566	01581	01596	01612	01627	01642	01657	1 = 3
9	01672	01688	01703	01718	01733	01748	01763	01779	01794	01809	01824	01839	2. 6
10	01854	01869	01884	01900	01915	01930	01945	01960	01975	01990	02005	02020	3. 9
11	02035	02050	02065	02080	02095	02110	02125	02140	02155	02170	02185	02200	4. 12
12	6.02215	02230	02245	02260	02275	02290	02305	02320	02335	02350	02365	02380	1 = 3
13	02395	02410	02425	02440	02455	02469	02484	02499	02514	02529	02544	02559	2. 6
14	02574	02588	02603	02618	02633	02648	02663	02677	02692	02707	02722	02737	3. 9
15	02751	02766	02781	02796	02811	02825	02840	02855	02870	02884	02899	02914	4. 12
16	6.02928	02943	02958	02973	02987	03002	03017	03031	03046	03061	03075	03090	1 = 3
17	03105	03119	03134	03149	03163	03178	03193	03207	03222	03237	03251	03266	2. 6
18	03280	03295	03310	03324	03339	03353	03368	03382	03397	03412	03426	03441	3. 9
19	03455	03470	03484	03499	03513	03528	03542	03557	03571	03586	03600	03615	4. 12
20	6.03629	03644	03658	03672	03687	03701	03716	03730	03745	03759	03774	03788	1 = 3
21	03802	03817	03831	03846	03860	03874	03889	03903	03918	03932	03946	03961	2. 6
22	03975	03989	04004	04018	04032	04047	04061	04075	04090	04104	04118	04132	3. 8
23	04147	04161	04175	04190	04204	04218	04232	04247	04261	04275	04289	04303	4. 11
24	6.04318	04332	04346	04360	04375	04389	04403	04417	04431	04445	04460	04474	1 3
25	04488	04502	04516	04530	04545	04559	04573	04587	04601	04615	04629	04643	2. 6
26	04657	04672	04686	04700	04714	04728	04742	04756	04770	04784	04798	04812	3. 8
27	04826	04840	04854	04868	04882	04896	04910	04924	04938	04952	04966	04980	4. 11
28	6.04994	05008	05022	05036	05050	05064	05078	05092	05106	05120	05134	05148	1 = 3
29	05162	05175	05189	05203	05217	05231	05245	05259	05273	05286	05300	05314	2. 6
30	05328	05342	05356	05370	05383	05397	05411	05425	05439	05452	05466	05480	3. 8
31	05494	05508	05521	05535	05549	05563	05577	05590	05604	05618	05632	05645	4. 11
32	6.05659	05673	05686	05700	05714	05728	05741	05755	05769	05782	05796	05810	1 = 3
33	05823	05837	05851	05864	05878	05892	05905	05919	05933	05946	05960	05973	2. 6
34	05987	06001	06014	06028	06041	06055	06069	06082	06096	06109	06123	06136	3. 8
35	06150	06163	06177	06191	06204	06218	06231	06245	06258	06272	06285	06299	4. 11
36	6.06312	06326	06339	06353	06366	06379	06393	06406	06420	06433	06447	06460	1 = 3
37	06474	06487	06500	06514	06527	06541	06554	06567	06581	06594	06608	06621	2. 5
38	06634	06648	06661	06674	06688	06701	06714	06728	06741	06754	06768	06781	3. 8
39	06794	06808	06821	06834	06848	06861	06874	06887	06901	06914	06927	06941	4. 10
40	6.06954	06967	06980	06994	07007	07020	07033	07046	07060	07073	07086	07099	1 = 3
41	07112	07126	07139	07152	07165	07178	07192	07205	07218	07231	07244	07257	2. 5
42	07270	07284	07297	07310	07323	07336	07349	07362	07375	07388	07401	07415	3. 8
43	07428	07441	07454	07467	07480	07493	07506	07519	07532	07545	07558	07571	4. 10
44	6.07584	07597	07610	07623	07636	07649	07662	07675	07688	07701	07714	07727	1 = 3
45	07740	07753	07766	07779	07792	07805	07818	07831	07844	07857	07869	07882	2. 5
46	07895	07908	07921	07934	07947	07960	07973	07985	07998	08011	08024	08037	3. 8
47	08050	08063	08075	08088	08101	08114	08127	08140	08152	08165	08178	08191	4. 10
48	6.08204	08216	08229	08242	08255	08267	08280	08293	08306	08318	08331	08344	1 = 3
49	08357	08369	08382	08395	08408	08420	08433	08446	08458	08471	08484	08496	2. 5
50	08509	08522	08534	08547	08560	08572	08585	08598	08610	08623	08636	08648	3. 8
51	08661	08673	08686	08699	08711	08724	08736	08749	08762	08774	08787	08799	4. 10
52	6.08812	08824	08837	08850	08862	08875	08887	08900	08912	08925	08937	08950	1 = 3
53	08962	08975	08987	09000	09012	09025	09037	09050	09062	09075	09087	09100	2. 4
54	09112	09124	09137	09149	09162	09174	09187	09199	09211	09224	09236	09249	3. 7
55	09261	09273	09286	09298	09311	09323	09335	09348	09360	09372	09385	09397	4. 10
56	6.09409	09422	09434	09446	09459	09471	09483	09496	09508	09520	09533	09545	1 = 3
57	09557	09569	09582	09594	09606	09618	09631	09643	09655	09667	09680	09692	2. 4
58	09704	09716	09729	09741	09753	09765	09777	09790	09802	09814	09826	09838	3. 7
59	09851	09863	09875	09887	09899	09911	09924	09936	09948	09960	09972	09984	4. 10
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	6 HOURS.												

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LOGARITHMIC RISING.

Minutes	7 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	6.09996	10008	10021	10033	10045	10057	10069	10081	10093	10105	10117	10129	1″ = 2
1	10141	10153	10166	10178	10190	10202	10214	10226	10238	10250	10262	10274	2. 5
2	10286	10298	10310	10322	10334	10346	10358	10370	10382	10394	10406	10418	3. 7
3	10430	10441	10454	10465	10477	10489	10501	10513	10525	10537	10549	10561	4. 10
4	6.10573	10585	10597	10608	10620	10632	10644	10656	10668	10680	10691	10703	1 = 2
5	10715	10727	10739	10751	10763	10774	10786	10798	10810	10822	10833	10845	2. 5
6	10857	10869	10881	10893	10904	10916	10928	10940	10951	10963	10975	10986	3. 7
7	10998	11010	11022	11033	11045	11057	11069	11080	11092	11104	11115	11127	4. 10
8	6.11139	11150	11162	11174	11185	11197	11209	11220	11232	11244	11255	11267	1 = 2
9	11279	11290	11302	11314	11325	11337	11348	11360	11372	11383	11395	11406	2. 5
10	11418	11429	11441	11453	11464	11476	11487	11499	11510	11522	11533	11545	3. 7
11	11557	11568	11580	11591	11603	11614	11626	11637	11649	11660	11672	11683	4. 10
12	6.11695	11706	11717	11729	11740	11752	11763	11775	11786	11798	11809	11820	1 = 2
13	11832	11843	11855	11866	11878	11889	11900	11912	11923	11934	11946	11957	2. 5
14	11969	11980	11991	12003	12014	12025	12037	12048	12059	12071	12082	12093	3. 7
15	12105	12116	12127	12139	12150	12161	12173	12184	12195	12206	12218	12229	4. 10
16	6.12240	12251	12263	12274	12285	12296	12308	12319	12330	12341	12353	12364	1 = 2
17	12375	12386	12397	12409	12420	12431	12442	12453	12465	12476	12487	12498	2. 4
18	12509	12520	12532	12543	12554	12565	12576	12587	12598	12610	12621	12632	3. 7
19	12643	12654	12665	12676	12687	12698	12709	12721	12732	12743	12754	12765	4. 9
20	6.12776	12787	12798	12809	12820	12831	12842	12853	12864	12875	12886	12897	1 = 2
21	12908	12919	12930	12941	12952	12963	12974	12985	12996	13007	13018	13029	2. 4
22	13040	13051	13062	13073	13084	13095	13106	13117	13128	13139	13149	13160	3. 7
23	13171	13182	13193	13204	13215	13226	13237	13248	13258	13269	13280	13291	4. 9
24	6.13302	13313	13323	13334	13345	13356	13367	13378	13388	13399	13410	13421	1 = 2
25	13432	13442	13453	13464	13475	13486	13496	13507	13518	13529	13539	13550	2. 4
26	13561	13572	13582	13593	13604	13615	13625	13636	13647	13658	13668	13679	3. 7
27	13690	13700	13711	13722	13732	13743	13754	13765	13775	13786	13797	13807	4. 9
28	6.13818	13828	13839	13850	13860	13871	13882	13892	13903	13914	13924	13935	1 = 2
29	13945	13956	13967	13977	13988	13998	14009	14019	14030	14041	14051	14062	2. 4
30	14072	14083	14093	14104	14114	14125	14136	14146	14157	14167	14178	14188	3. 7
31	14199	14209	14220	14230	14241	14251	14262	14272	14282	14293	14303	14314	4. 9
32	6.14324	14335	14345	14356	14366	14377	14387	14397	14408	14418	14429	14439	1 = 2
33	14449	14460	14470	14481	14491	14501	14512	14522	14533	14543	14553	14564	2. 4
34	14574	14584	14595	14605	14615	14626	14636	14646	14657	14667	14677	14688	3. 7
35	14698	14708	14719	14729	14739	14750	14760	14770	14780	14790	14801	14811	4. 9
36	6.14821	14832	14842	14852	14862	14872	14883	14893	14903	14913	14924	14934	1 = 2
37	14944	14954	14964	14975	14985	14995	15005	15015	15026	15036	15046	15056	2. 4
38	15066	15076	15087	15097	15107	15117	15127	15137	15147	15157	15168	15178	3. 6
39	15188	15198	15208	15218	15228	15238	15248	15258	15269	15279	15289	15299	4. 8
40	6.15309	15319	15329	15339	15349	15359	15369	15379	15389	15399	15409	15419	1 = 2
41	15429	15439	15449	15459	15469	15479	15489	15499	15509	15519	15529	15539	2. 4
42	15549	15559	15569	15579	15589	15599	15609	15619	15629	15639	15649	15659	3. 6
43	15668	15678	15688	15698	15708	15718	15728	15738	15748	15758	15767	15777	4. 8
44	6.15787	15797	15807	15817	15827	15837	15846	15856	15866	15876	15886	15896	1 = 2
45	15905	15915	15925	15935	15944	15954	15964	15974	15984	15993	16003	16013	2. 4
46	16023	16033	16042	16052	16062	16072	16081	16091	16101	16111	16120	16130	3. 6
47	16140	16149	16159	16169	16179	16188	16198	16208	16217	16227	16237	16246	4. 8
48	6.16256	16266	16276	16285	16295	16304	16314	16324	16333	16343	16353	16362	1 = 2
49	16372	16382	16391	16401	16410	16420	16430	16439	16449	16459	16468	16478	2. 4
50	16487	16497	16506	16516	16526	16535	16545	16554	16564	16573	16583	16592	3. 6
51	16602	16612	16621	16631	16640	16650	16659	16669	16678	16688	16697	16707	4. 8
52	6.16716	16726	16735	16745	16754	16764	16773	16782	16792	16801	16811	16820	1 = 2
53	16830	16839	16849	16858	16867	16877	16886	16896	16905	16915	16924	16933	2. 4
54	16943	16952	16961	16971	16980	16990	16999	17008	17018	17027	17036	17046	3. 6
55	17055	17065	17074	17083	17093	17102	17111	17121	17130	17139	17148	17158	4. 7
56	6.17167	17176	17186	17195	17204	17214	17223	17232	17241	17251	17260	17269	1 = 2
57	17278	17288	17297	17306	17315	17325	17334	17343	17352	17362	17371	17380	2. 4
58	17389	17398	17408	17417	17426	17435	17444	17454	17463	17472	17481	17490	3. 5
59	17499	17509	17518	17527	17536	17545	17554	17563	17573	17582	17591	17600	4. 7
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	7 HOURS.												

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LOGARITHMIC RISING.

Minutes	8 HOURS. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
0	6. 17609	17618	17627	17637	17646	17655	17664	17673	17682	17691	17700	17709	1″ = 2
1	17718	17727	17736	17746	17755	17764	17773	17782	17791	17800	17809	17818	2. 4
2	17827	17836	17845	17854	17863	17872	17881	17890	17899	17908	17917	17926	3. 5
3	17935	17944	17953	17962	17971	17980	17989	17998	18007	18016	18024	18033	4. 7
4	6 18042	18051	18060	18069	18078	18087	18096	18105	18114	18123	18132	18141	1 = 2
5	18149	18158	18167	18176	18185	18194	18203	18212	18220	18229	18238	18247	2. 4
6	18256	18265	18273	18282	18291	18300	18309	18318	18326	18335	18344	18353	3. 5
7	18362	18371	18379	18388	18397	18406	18414	18423	18432	18441	18449	18458	4. 7
8	6. 18467	18476	18484	18493	18502	18511	18519	18528	18537	18546	18554	18563	1 = 2
9	18572	18581	18589	18598	18606	18615	18624	18633	18641	18650	18659	18668	2. 4
10	18676	18685	18693	18702	18710	18719	18728	18737	18745	18754	18762	18771	3. 5
11	18780	18789	18797	18806	18814	18823	18831	18840	18848	18857	18866	18875	4. 7
12	6. 18883	18892	18900	18909	18917	18926	18934	18943	18951	18960	18968	18977	1 = 2
13	18985	18994	19002	19011	19019	19028	19036	19045	19053	19062	19070	19079	2. 4
14	19087	19096	19104	19113	19121	19130	19138	19147	19155	19164	19172	19181	3. 5
15	19189	19198	19206	19215	19223	19232	19240	19248	19256	19265	19273	19282	4. 7
16	6. 19290	19299	19307	19316	19324	19332	19340	19349	19357	19366	19374	19382	1 = 2
17	19390	19399	19407	19416	19424	19433	19441	19449	19457	19466	19474	19482	2. 4
18	19490	19499	19507	19516	19524	19532	19540	19549	19557	19565	19573	19582	3. 5
19	19590	19598	19606	19615	19623	19631	19639	19648	19656	19664	19672	19681	4. 7
20	6. 19689	19697	19705	19714	19722	19730	19738	19746	19754	19763	19771	19779	1 = 2
21	19787	19796	19804	19812	19820	19828	19836	19844	19852	19861	19869	19877	2. 3
22	19885	19893	19901	19910	19918	19926	19934	19942	19950	19958	19966	19974	3. 5
23	19982	19991	19999	20007	20015	20023	20031	20039	20047	20055	20063	20071	4. 6
24	6. 20079	20087	20095	20103	20111	20119	20127	20135	20143	20151	20159	20167	1 = 2
25	20175	20183	20191	20199	20207	20215	20223	20231	20239	20247	20255	20263	2. 3
26	20271	20279	20287	20295	20303	20311	20319	20327	20335	20343	20351	20359	3. 5
27	20366	20374	20382	20390	20398	20406	20414	20422	20430	20438	20445	20453	4. 6
28	6. 20461	20469	20477	20485	20493	20501	20508	20516	20524	20532	20540	20548	1 = 2
29	20555	20563	20571	20579	20587	20595	20602	20610	20618	20626	20634	20642	2. 3
30	20649	20657	20665	20673	20680	20688	20696	20704	20711	20719	20727	20735	3. 5
31	20742	20750	20758	20766	20773	20781	20789	20797	20804	20812	20820	20828	4. 6
32	6. 20835	20843	20850	20858	20866	20874	20881	20889	20897	20905	20912	20920	1 = 2
33	20927	20935	20943	20951	20958	20966	20973	20981	20988	20996	21004	21012	2. 3
34	21019	21027	21034	21042	21049	21057	21065	21073	21080	21088	21095	21103	3. 5
35	21110	21118	21125	21133	21140	21148	21155	21163	21170	21178	21186	21194	4. 6
36	6. 21201	21209	21216	21224	21231	21239	21246	21254	21261	21269	21276	21284	1 = 2
37	21291	21299	21306	21314	21321	21329	21336	21344	21351	21358	21365	21373	2. 3
38	21380	21388	21395	21403	21410	21418	21425	21433	21440	21448	21455	21463	3. 5
39	21470	21477	21484	21492	21499	21507	21514	21522	21529	21536	21543	21551	4. 6
40	6. 21558	21566	21573	21581	21588	21595	21602	21610	21617	21625	21632	21639	1 = 2
41	21646	21654	21661	21669	21676	21683	21690	21698	21705	21712	21719	21727	2. 3
42	21734	21741	21748	21756	21763	21770	21777	21785	21792	21799	21806	21814	3. 5
43	21821	21828	21835	21843	21850	21857	21864	21872	21879	21886	21893	21901	4. 6
44	6. 21908	21915	21922	21929	21936	21944	21951	21958	21965	21972	21979	21987	1 = 1
45	21994	22001	22008	22015	22022	22030	22037	22044	22051	22058	22065	22072	2. 3
46	22079	22087	22094	22101	22108	22115	22122	22129	22136	22143	22150	22157	3. 4
47	22164	22172	22179	22186	22193	22200	22207	22214	22221	22228	22235	22242	4. 6
48	6. 22249	22256	22263	22270	22277	22284	22291	22298	22305	22312	22319	22326	1 = 1
49	22333	22340	22347	22354	22361	22368	22375	22382	22389	22396	22403	22410	2. 3
50	22417	22424	22431	22438	22445	22452	22458	22465	22472	22479	22486	22493	3. 4
51	22500	22507	22514	22521	22528	22535	22541	22548	22555	22562	22569	22576	4. 6
52	6. 22583	22590	22596	22603	22610	22617	22624	22631	22637	22644	22651	22658	1 = 1
53	22665	22672	22678	22685	22692	22699	22706	22713	22719	22726	22733	22740	2. 3
54	22746	22753	22760	22767	22773	22780	22787	22794	22801	22808	22814	22821	3. 4
55	22828	22835	22841	22848	22854	22861	22868	22875	22881	22888	22895	22902	4. 6
56	6. 22908	22915	22922	22929	22935	22942	22948	22955	22962	22969	22975	22982	1 = 1
57	22988	22995	23002	23009	23015	23022	23028	23035	23042	23049	23055	23062	2. 3
58	23068	23075	23081	23088	23095	23102	23108	23115	23121	23128	23134	23141	3. 4
59	23147	23154	23160	23167	23174	23181	23187	23194	23200	23207	23213	23220	4. 6
Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Propor. parts.
	8 HOURS.												

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TO REDUCE POINTS OF THE COMPASS TO DEGREES, AND CONVERSELY.

North-East Quadrant.	*South-East Quadrant.*	*Points.*	*Degrees, &c.*	*South-West Quadrant.*	*North-West Quadrant.*
			° ′ ″		
North.	South.	0.0	0. 0. 0	South.	North.
N. ¼ E.	S. ¼ E.	0.¼	2.48.45	S. ¼ W.	N. ¼ W.
N. ½ E.	S. ½ E.	0.½	5.37.30	S. ½ W.	N. ½ W.
N. ¾ E.	S. ¾ E.	0.¾	8.26.15	S. ¾ W.	N. ¾ W.
N. by E.	S. by E.	1.0	11.15. 0	S. by W.	N. by W.
N. by E. ¼ E.	S. by E. ¼ E.	1.¼	14. 3.45	S. by W. ¼ W.	N. by W. ¼ W.
N. by E. ½ E.	S. by E. ½ E.	1.½	16.52.30	S. by W. ½ W.	N. by W. ½ W.
N. by E. ¾ E.	S. by E. ¾ E.	1.¾	19.41.15	S. by W. ¾ W.	N. by W. ¾ W.
N. N. E.	S. S. E.	2.0	22.30. 0	S. S. W.	N. N. W.
N. N. E. ¼ E.	S. S. E. ¼ E.	2.¼	25.18.45	S. S. W. ¼ W.	N. N. W. ¼ W.
N. N. E. ½ E.	S. S. E. ½ E.	2.½	28. 7.30	S. S. W. ½ W.	N. N. W. ½ W.
N. N. E. ¾ E.	S. S. E. ¾ E.	2.¾	30.56.15	S. S. W. ¾ W.	N. N. W. ¾ W
N. E. by N.	S. E. by S.	3.0	33.45. 0	S. W. by S.	N. W. by N.
N. E. ¼ N.	S. E. ¼ S.	3.¼	36.33.45	S. W. ¼ S.	N. W. ¼ N.
N. E. ½ N.	S. E. ½ S.	3.½	39.22.30	S. W. ½ S.	N. W. ½ N.
N. E. ¾ N.	S. E. ¾ S.	3.¾	42.11.15	S. W. ¾ S.	N. W. ¾ N.
N. E.	S. E.	4.0	45. 0. 0	S. W.	N. W.
N. E. ¼ E.	S. E. ¼ E.	4.¼	47.48.45	S. W. ¼ W.	N. W. ¼ W.
N. E. ½ E.	S. E. ½ E.	4.½	50.37.30	S. W. ½ W.	N. W. ½ W.
N. E. ¾ E.	S. E. ¾ E.	4.¾	53.26.15	S. W. ¾ W.	N. W. ¾ W.
N. E. by E.	S. E. by E.	5.0	56.15. 0	S. W. by W.	N. W. by W.
N.E. by E. ¼E.	S.E. by E. ¼ E.	5.¼	59. 3.45	S.W.byW.¼ W.	N.W.byW ¼W.
N.E. by E. ½E.	S.E. by E. ½ E	5.½	61.52.30	S.W. byW.½W.	N.W.byW.½W.
N.E. by E. ¾E.	S. E. by E. ¾ E.	5.¾	64.41.15	S.W. byW.¾W.	N.W.byW.¾W.
E. N. E.	E. S. E.	6.0	67.30. 0	W. S. W.	W. N. W.
E. by N. ¾ N.	E. by S. ¾ S.	6.¼	70.18.45	W. by S. ¾ S.	W. by N. ¾ N.
E. by N. ½ N.	E. by S. ½ S.	6.½	73. 7.30	W. by S. ½ S.	W. by N. ½ N.
E. by N. ¼ N.	E. by S. ¼ S.	6.¾	75.56.15	W. by S. ¼ S.	W. by N. ¼ N.
E. by N.	E. by S.	7.0	78.45. 0	W. by S.	W. by N.
E. ¼ N.	E. ¼ S.	7.¼	81.33.45	W. ¼ S.	W. ¼ N.
E. ½ N.	E. ½ S.	7.½	84.22.30	W. ½ S	W. ½ N.
E. ¾ N.	E. ¾ S.	7.¾	87.11.15	W. ¾ S.	W. ¾ N.
East.	East.	8.0	90. 0. 0	West.	West.

TABLE XXXIV.

LOGARITHMIC SINES, TANGENTS, AND SECANTS, TO EVERY POINT AND QUARTER-POINT OF THE COMPASS.

Points	*Sine.*	*Co-sine.*	*Tangent.*	*Co-tangent.*	*Secant.*	*Co-secant.*	*Points*
0.0	0.000000	10.000000	0.000000	*Infinite.*	10.000000	*Infinite.*	8.0
0.¼	8.690796	9.999477	8.691319	11.308681	10.000523	11.309204	7.¾
0.½	8.991302	9.997904	8.993398	11.006602	10.002096	11.008698	7.½
0.¾	9.166520	9.995274	9.171247	10.828753	10.004726	10.833480	7.¼
1.0	9.290236	9.991574	9.298662	10.701338	10.008426	10.709764	7.0
1.¼	9.385571	9.986786	9.398785	10.601215	10.013214	10.614429	6.¾
1.½	9.462824	9.980885	9.481939	10.518061	10.019115	10.537176	6.½
1.¾	9.527488	9.973841	9.553647	10.446353	10.026159	10.472512	6.¼
2.0	9.582840	9.965615	9.617224	10.382776	10.034385	10.417160	6.0
2.¼	9.630992	9.956163	9.674829	10.325171	10.043837	10.369008	5.¾
2.½	9.673387	9.945430	9.727957	10.272043	10.054570	10.326613	5.½
2.¾	9.711050	9.933350	9.777700	10.222300	10.066650	10.288950	5.¼
3.0	9.744739	9.919846	9.824893	10.175107	10.080154	10.255261	5.0
3.¼	9.775027	9.904828	9.870199	10.129801	10.095172	10.224973	4.¾
3.½	9.802359	9.888185	9.914173	10.085827	10.111815	10.197641	4.½
3.¾	9.827084	9.869790	9.957295	10.042705	10.130210	10.172916	4.¼
4.0	9.849485	9.849485	10.000000	10.000000	10.150515	10.150515	4.0
Points	*Co-sine.*	*Sine.*	*Co-tangent.*	*Tangent.*	*Co-secant.*	*Secant.*	*Points*

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LOGARITHMIC SECANTS.

Minutes	Secant of 0 degree, or Co-secant of 90 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	59	
1	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	58	1″ = 0
2	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	57	2. 0
3	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	56	3. 0
4	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	55	4. 0
5	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	54	5. 0
6	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	53	6. 0
7	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	52	7. 0
8	10.000001	10.000001	10.000001	10.000001	10.000001	10.000001	51	8. 0
9	10.000001	10.000002	10.000002	10.000002	10.000002	10.000002	50	9. 0
10	10.000002	10.000002	10.000002	10.000002	10.000002	10.000002	49	
11	10.000002	10.000002	10.000002	10.000002	10.000003	10.000003	48	1 = 0
12	10.000003	10.000003	10.000003	10.000003	10.000003	10.000003	47	2. 0
13	10.000003	10.000003	10.000003	10.000003	10.000003	10.000004	46	3. 0
14	10.000004	10.000004	10.000004	10.000004	10.000004	10.000004	45	4. 0
15	10.000004	10.000004	10.000004	10.000004	10.000005	10.000005	44	5. 0
16	10.000005	10.000005	10.000005	10.000005	10.000005	10.000005	43	6. 0
17	10.000005	10.000005	10.000006	10.000006	10.000006	10.000006	42	7. 0
18	10.000006	10.000006	10.000006	10.000006	10.000006	10.000007	41	8. 0
19	10.000007	10.000007	10.000007	10.000007	10.000007	10.000007	40	9. 0
20	10.000007	10.000008	10.000008	10.000008	10.000008	10.000008	39	
21	10.000008	10.000008	10.000008	10.000009	10.000009	10.000009	38	1 = 0
22	10.000009	10.000009	10.000009	10.000009	10.000009	10.000010	37	2. 0
23	10.000010	10.000010	10.000010	10.000010	10.000010	10.000010	36	3. 0
24	10.000011	10.000011	10.000011	10.000011	10.000011	10.000011	35	4. 0
25	10.000012	10.000012	10.000012	10.000012	10.000012	10.000012	34	5. 0
26	10.000012	10.000013	10.000013	10.000013	10.000013	10.000013	33	6. 0
27	10.000013	10.000014	10.000014	10.000014	10.000014	10.000014	32	7. 0
28	10.000014	10.000015	10.000015	10.000015	10.000015	10.000015	31	8. 0
29	10.000015	10.000016	10.000016	10.000016	10.000016	10.000016	30	9. 0
30	10.000017	10.000017	10.000017	10.000017	10.000017	10.000018	29	
31	10.000018	10.000018	10.000018	10.000018	10.000018	10.000019	28	1 = 0
32	10.000019	10.000019	10.000019	10.000019	10.000020	10.000020	27	2. 0
33	10.000020	10.000020	10.000020	10.000021	10.000021	10.000021	26	3. 0
34	10.000021	10.000021	10.000022	10.000022	10.000022	10.000022	25	4. 0
35	10.000023	10.000023	10.000023	10.000023	10.000023	10.000024	24	5. 0
36	10.000024	10.000024	10.000024	10.000024	10.000025	10.000025	23	6. 0
37	10.000025	10.000025	10.000026	10.000026	10.000026	10.000026	22	7. 0
38	10.000027	10.000027	10.000027	10.000027	10.000027	10.000028	21	8. 0
39	10.000028	10.000028	10.000028	10.000029	10.000029	10.000029	20	9. 0
40	10.000029	10.000030	10.000030	10.000030	10.000030	10.000031	19	
41	10.000031	10.000031	10.000031	10.000032	10.000032	10.000032	18	1 = 0
42	10.000032	10.000033	10.000033	10.000033	10.000033	10.000034	17	2. 0
43	10.000034	10.000034	10.000035	10.000035	10.000035	10.000035	16	3. 0
44	10.000036	10.000036	10.000036	10.000036	10.000037	10.000037	15	4. 0
45	10.000037	10.000038	10.000038	10.000038	10.000038	10.000039	14	5.
46	10.000039	10.000039	10.000039	10.000040	10.000040	10.000040	13	6.
47	10.000041	10.000041	10.000041	10.000041	10.000042	10.000042	12	7.
48	10.000042	10.000043	10.000043	10.000043	10.000044	10.000044	11	8.
49	10.000044	10.000044	10.000045	10.000045	10.000045	10.000046	10	9.
50	10.000046	10.000046	10.000047	10.000047	10.000047	10.000048	9	
51	10.000048	10.000048	10.000048	10.000049	10.000049	10.000049	8	1 =
52	10.000050	10.000050	10.000050	10.000051	10.000051	10.000051	7	2.
53	10.000052	10.000052	10.000052	10.000053	10.000053	10.000053	6	3.
54	10.000054	10.000054	10.000054	10.000055	10.000055	10.000055	5	4.
55	10.000056	10.000056	10.000056	10.000057	10.000057	10.000057	4	5.
56	10.000058	10.000058	10.000058	10.000059	10.000059	10.000059	3	6.
57	10.000060	10.000060	10.000060	10.000061	10.000061	10.000061	2	7.
58	10.000062	10.000062	10.000063	10.000063	10.000063	10.000064	1	8.
59	10.000064	10.000064	10.000065	10.000065	10.000065	10.000066	0	9.
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 89 degrees, or Secant of 179 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 1 degree, or Co-secant of 91 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	10.000066	10.000067	10.000067	10.000067	10.000068	10.000068	59	
1	10.000068	10.000069	10.000069	10.000070	10.000070	10.000070	58	1″ = 0
2	10.000071	10.000071	10.000071	10.000072	10.000072	10.000073	57	2. 0
3	10.000073	10.000073	10.000074	10.000074	10.000075	10.000075	56	3. 0
4	10.000075	10.000076	10.000076	10.000076	10.000077	10.000077	55	4. 0
5	10.000078	10.000078	10.000078	10.000079	10.000079	10.000080	54	5. 0
6	10.000080	10.000080	10.000081	10.000081	10.000082	10.000082	53	6. 0
7	10.000082	10.000083	10.000083	10.000084	10.000084	10.000085	52	7. 0
8	10.000085	10.000085	10.000086	10.000086	10.000087	10.000087	51	8. 0
9	10.000087	10.000088	10.000088	10.000089	10.000089	10.000090	50	9. 0
10	10.000090	10.000090	10.000091	10.000091	10.000092	10.000092	49	
11	10.000093	10.000093	10.000094	10.000094	10.000094	10.000095	48	1 = 0
12	10.000095	10.000096	10.000096	10.000097	10.000097	10.000097	47	2. 0
13	10.000098	10.000098	10.000099	10.000099	10.000100	10.000100	46	3. 0
14	10.000101	10.000101	10.000102	10.000102	10.000102	10.000103	45	4. 0
15	10.000103	10.000104	10.000104	10.000105	10.000105	10.000106	44	5. 0
16	10.000106	10.000107	10.000107	10.000108	10.000108	10.000108	43	6. 0
17	10.000109	10.000109	10.000110	10.000110	10.000111	10.000111	42	7. 0
18	10.000112	10.000112	10.000113	10.000113	10.000114	10.000114	41	8. 0
19	10.000115	10.000115	10.000116	10.000116	10.000117	10.000117	40	9. 0
20	10.000118	10.000118	10.000119	10.000119	10.000120	10.000120	39	
21	10.000121	10.000121	10.000122	10.000122	10.000123	10.000123	38	1 = 0
22	10.000124	10.000124	10.000125	10.000125	10.000126	10.000126	37	2. 0
23	10.000127	10.000127	10.000128	10.000128	10.000129	10.000129	36	3. 0
24	10.000130	10.000130	10.000131	10.000131	10.000132	10.000132	35	4. 0
25	10.000133	10.000133	10.000134	10.000134	10.000135	10.000135	34	5. 0
26	10.000136	10.000136	10.000137	10.000138	10.000138	10.000139	33	6. 0
27	10.000139	10.000140	10.000140	10.000141	10.000141	10.000142	32	7. 0
28	10.000142	10.000143	10.000143	10.000144	10.000144	10.000145	31	8. 0
29	10.000146	10.000146	10.000147	10.000147	10.000148	10.000148	30	9. 1
30	10.000149	10.000149	10.000150	10.000151	10.000151	10.000152	29	
31	10.000152	10.000153	10.000153	10.000154	10.000154	10.000155	28	1 = 0
32	10.000156	10.000156	10.000157	10.000157	10.000158	10.000158	27	2. 0
33	10.000159	10.000160	10.000160	10.000161	10.000161	10.000162	26	3. 0
34	10.000162	10.000163	10.000164	10.000164	10.000165	10.000165	25	4. 0
35	10.000166	10.000166	10.000167	10.000168	10.000168	10.000169	24	5. 0
36	10.000169	10.000170	10.000171	10.000171	10.000172	10.000172	23	6. 0
37	10.000173	10.000174	10.000174	10.000175	10.000175	10.000176	22	7. 0
38	10.000177	10.000177	10.000178	10.000178	10.000179	10.000180	21	8. 0
39	10.000180	10.000181	10.000181	10.000182	10.000183	10.000183	20	9. 1
40	10.000184	10.000184	10.000185	10.000186	10.000186	10.000187	19	
41	10.000187	10.000188	10.000189	10.000189	10.000190	10.000191	18	1 = 0
42	10.000191	10.000192	10.000192	10.000193	10.000194	10.000194	17	2. 0
43	10.000195	10.000196	10.000196	10.000197	10.000198	10.000198	16	3. 0
44	10.000199	10.000199	10.000200	10.000201	10.000201	10.000202	15	4. 0
45	10.000203	10.000203	10.000204	10.000205	10.000205	10.000206	14	5. 0
46	10.000206	10.000207	10.000208	10.000208	10.000209	10.000210	13	6. 0
47	10.000210	10.000211	10.000212	10.000212	10.000213	10.000214	12	7. 0
48	10.000214	10.000215	10.000216	10.000216	10.000217	10.000218	11	8. 0
49	10.000218	10.000219	10.000220	10.000220	10.000221	10.000222	10	9. 1
50	10.000222	10.000223	10.000224	10.000224	10.000225	10.000226	9	
51	10.000226	10.000227	10.000228	10.000229	10.000229	10.000230	8	1 = 0
52	10.000231	10.000231	10.000232	10.000233	10.000233	10.000234	7	2. 0
53	10.000235	10.000235	10.000236	10.000237	10.000237	10.000238	6	3. 0
54	10.000239	10.000240	10.000240	10.000241	10.000242	10.000242	5	4. 0
55	10.000243	10.000244	10.000244	10.000245	10.000246	10.000247	4	5. 0
56	10.000247	10.000248	10.000249	10.000249	10.000250	10.000251	3	6. 0
57	10.000252	10.000252	10.000253	10.000254	10.000254	10.000255	2	7. 0
58	10.000256	10.000257	10.000257	10.000258	10.000259	10.000260	1	8. 0
59	10.000260	10.000261	10.000262	10.000262	10.000263	10.000264	0	9. 1
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 88 degrees, or Secant of 178 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 2 degrees, or Co-secant of 92 degrees.						Minutes	Proper. parts.
	0″	10″	20″	30″	40″	50″		
0	10.000265	10.000265	10.000266	10.000267	10.000268	10.000268	59	
1	10.000269	10.000270	10.000271	10.000271	10.000272	10.000273	58	1″ = 0
2	10.000274	10.000274	10.000275	10.000276	10.000277	10.000277	57	2. 0
3	10.000278	10.000279	10.000280	10.000280	10.000281	10.000282	56	3. 0
4	10.000283	10.000283	10.000284	10.000285	10.000286	10.000286	55	4. 0
5	10.000287	10.000288	10.000289	10.000289	10.000290	10.000291	54	5. 0
6	10.000292	10.000293	10.000293	10.000294	10.000295	10.000296	53	6. 0
7	10.000296	10.000297	10.000298	10.000299	10.000300	10.000300	52	7. 0
8	10.000301	10.000302	10.000303	10.000304	10.000304	10.000305	51	8. 1
9	10.000306	10.000307	10.000307	10.000308	10.000309	10.000310	50	9. 1
10	10.000311	10.000311	10.000312	10.000313	10.000314	10.000315	49	
11	10.000315	10.000316	10.000317	10.000318	10.000319	10.000319	48	1 = 0
12	10.000320	10.000321	10.000322	10.000323	10.000324	10.000324	47	2. 0
13	10.000325	10.000326	10.000327	10.000328	10.000328	10.000329	46	3. 0
14	10.000330	10.000331	10.000332	10.000333	10.000333	10.000334	45	4. 0
15	10.000335	10.000336	10.000337	10.000337	10.000338	10.000339	44	5. 0
16	10.000340	10.000341	10.000342	10.000342	10.000343	10.000344	43	6. 0
17	10.000345	10.000346	10.000347	10.000347	10.000348	10.000349	42	7. 1
18	10.000350	10.000351	10.000352	10.000353	10.000353	10.000354	41	8. 1
19	10.000355	10.000356	10.000357	10.000358	10.000359	10.000359	40	9. 1
20	10.000360	10.000361	10.000362	10.000363	10.000364	10.000365	39	
21	10.000365	10.000366	10.000367	10.000368	10.000369	10.000370	38	1 = 0
22	10.000371	10.000372	10.000372	10.000373	10.000374	10.000375	37	2. 0
23	10.000376	10.000377	10.000378	10.000379	10.000379	10.000380	36	3. 0
24	10.000381	10.000382	10.000383	10.000384	10.000385	10.000385	35	4. 0
25	10.000386	10.000387	10.000388	10.000389	10.000390	10.000391	34	5. 0
26	10.000392	10.000393	10.000394	10.000394	10.000395	10.000396	33	6. 1
27	10.000397	10.000398	10.000399	10.000400	10.000401	10.000402	32	7. 1
28	10.000403	10.000404	10.000404	10.000405	10.000406	10.000407	31	8. 1
29	10.000408	10.000409	10.000410	10.000411	10.000412	10.000413	30	9. 1
30	10.000414	10.000414	10.000415	10.000416	10.000417	10.000418	29	
31	10.000419	10.000420	10.000421	10.000422	10.000423	10.000424	28	1 = 0
32	10.000425	10.000426	10.000427	10.000427	10.000428	10.000429	27	2. 0
33	10.000430	10.000431	10.000432	10.000433	10.000434	10.000435	26	3. 0
34	10.000436	10.000437	10.000438	10.000439	10.000440	10.000441	25	4. 0
35	10.000442	10.000443	10.000443	10.000444	10.000445	10.000446	24	5. 0
36	10.000447	10.000448	10.000449	10.000450	10.000451	10.000452	23	6. 1
37	10.000453	10.000454	10.000455	10.000456	10.000457	10.000458	22	7. 1
38	10.000459	10.000460	10.000461	10.000462	10.000463	10.000464	21	8. 1
39	10.000465	10.000466	10.000467	10.000468	10.000469	10.000470	20	9. 1
40	10.000471	10.000472	10.000473	10.000474	10.000475	10.000476	19	
41	10.000476	10.000477	10.000478	10.000479	10.000480	10.000481	18	1 = 0
42	10.000482	10.000483	10.000484	10.000485	10.000486	10.000487	17	2. 0
43	10.000488	10.000489	10.000490	10.000491	10.000492	10.000493	16	3. 0
44	10.000494	10.000495	10.000496	10.000497	10.000498	10.000499	15	4. 0
45	10.000500	10.000501	10.000502	10.000503	10.000505	10.000506	14	5. 1
46	10.000507	10.000508	10.000509	10.000510	10.000511	10.000512	13	6. 1
47	10.000513	10.000514	10.000515	10.000516	10.000517	10.000518	12	7. 1
48	10.000519	10.000520	10.000521	10.000522	10.000523	10.000524	11	8. 1
49	10.000525	10.000526	10.000527	10.000528	10.000529	10.000530	10	9. 1
50	10.000531	10.000532	10.000533	10.000534	10.000535	10.000536	9	
51	10.000537	10.000539	10.000540	10.000541	10.000542	10.000543	8	1 = 0
52	10.000544	10.000545	10.000546	10.000547	10.000548	10.000549	7	2. 0
53	10.000550	10.000551	10.000552	10.000553	10.000554	10.000555	6	3. 0
54	10.000557	10.000558	10.000559	10.000560	10.000561	10.000562	5	4. 0
55	10.000563	10.000564	10.000565	10.000566	10.000567	10.000568	4	5. 1
56	10.000569	10.000571	10.000572	10.000573	10.000574	10.000575	3	6. 1
57	10.000576	10.000577	10.000578	10.000579	10.000580	10.000581	2	7. 1
58	10.000582	10.000584	10.000585	10.000586	10.000587	10.000588	1	8. 1
59	10.000589	10.000590	10.000591	10.000592	10.000593	10.000595	0	9. 1
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Proper. parts.
	Co-secant of 87 degrees, or Secant of 177 degrees.							

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LOGARITHMIC SECANTS.

Secant of 3 degrees, or Co-secant of 93 degrees.

Degrees	0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	10.000596	10.000597	10.000598	10.000599	10.000600	10.000601	59	
1	10.000602	10.000603	10.000604	10.000606	10.000607	10.000608	58	1″ = 0
2	10.000609	10.000610	10.000611	10.000612	10.000613	10.000615	57	2. 0
3	10.000616	10.000617	10.000618	10.000619	10.000620	10.000621	56	3. 0
4	10.000622	10.000624	10.000625	10.000626	10.000627	10.000628	55	4. 0
5	10.000629	10.000630	10.000631	10.000633	10.000634	10.000635	54	5. 1
6	10.000636	10.000637	10.000638	10.000639	10.000641	10.000642	53	6. 1
7	10.000643	10.000644	10.000645	10.000646	10.000647	10.000649	52	7. 1
8	10.000650	10.000651	10.000652	10.000653	10.000654	10.000656	51	8. 1
9	10.000657	10.000658	10.000659	10.000660	10.000661	10.000662	50	9. 1
10	10.000664	10.000665	10.000666	10.000667	10.000668	10.000670	49	
11	10.000671	10.000672	10.000673	10.000674	10.000675	10.000677	48	1 = 0
12	10.000678	10.000679	10.000680	10.000681	10.000682	10.000684	47	2. 0
13	10.000685	10.000686	10.000687	10.000688	10.000690	10.000691	46	3. 0
14	10.000692	10.000693	10.000694	10.000696	10.000697	10.000698	45	4. 0
15	10.000699	10.000700	10.000701	10.000703	10.000704	10.000705	44	5. 1
16	10.000706	10.000707	10.000709	10.000710	10.000711	10.000712	43	6. 1
17	10.000714	10.000715	10.000716	10.000717	10.000718	10.000720	42	7. 1
18	10.000721	10.000722	10.000723	10.000724	10.000726	10.000727	41	8. 1
19	10.000728	10.000729	10.000731	10.000732	10.000733	10.000734	40	9. 1
20	10.000735	10.000737	10.000738	10.000739	10.000740	10.000742	39	
21	10.000743	10.000744	10.000745	10.000746	10.000748	10.000749	38	1 = 0
22	10.000750	10.000751	10.000753	10.000754	10.000755	10.000756	37	2. 0
23	10.000758	10.000759	10.000760	10.000761	10.000763	10.000764	36	3. 0
24	10.000765	10.000766	10.000768	10.000769	10.000770	10.000771	35	4. 0
25	10.000773	10.000774	10.000775	10.000776	10.000778	10.000779	34	5. 1
26	10.000780	10.000781	10.000783	10.000784	10.000785	10.000787	33	6. 1
27	10.000788	10.000789	10.000790	10.000792	10.000793	10.000794	32	7. 1
28	10.000795	10.000797	10.000798	10.000799	10.000801	10.000802	31	8. 1
29	10.000803	10.000804	10.000806	10.000807	10.000808	10.000810	30	9. 1
30	10.000811	10.000812	10.000813	10.000815	10.000816	10.000817	29	
31	10.000819	10.000820	10.000821	10.000822	10.000824	10.000825	28	1 = 0
32	10.000826	10.000828	10.000829	10.000830	10.000832	10.000833	27	2. 0
33	10.000834	10.000835	10.000837	10.000838	10.000839	10.000841	26	3. 0
34	10.000842	10.000843	10.000845	10.000846	10.000847	10.000849	25	4. 1
35	10.000850	10.000851	10.000853	10.000854	10.000855	10.000857	24	5. 1
36	10.000858	10.000859	10.000861	10.000862	10.000863	10.000864	23	6. 1
37	10.000866	10.000867	10.000868	10.000870	10.000871	10.000872	22	7. 1
38	10.000874	10.000875	10.000876	10.000878	10.000879	10.000881	21	8. 1
39	10.000882	10.000883	10.000885	10.000886	10.000887	10.000889	20	9. 1
40	10.000890	10.000891	10.000893	10.000894	10.000895	10.000897	19	
41	10.000898	10.000899	10.000901	10.000902	10.000904	10.000905	18	1 = 0
42	10.000906	10.000908	10.000909	10.000910	10.000912	10.000913	17	2. 0
43	10.000914	10.000916	10.000917	10.000918	10.000920	10.000921	16	3. 0
44	10.000923	10.000924	10.000925	10.000927	10.000928	10.000930	15	4. 1
45	10.000931	10.000932	10.000934	10.000935	10.000936	10.000938	14	5. 1
46	10.000939	10.000941	10.000942	10.000943	10.000945	10.000946	13	6. 1
47	10.000947	10.000949	10.000950	10.000952	10.000953	10.000955	12	7. 1
48	10.000956	10.000957	10.000959	10.000960	10.000962	10.000963	11	8. 1
49	10.000964	10.000966	10.000967	10.000969	10.000970	10.000971	10	9. 1
50	10.000973	10.000974	10.000976	10.000977	10.000978	10.000980	9	
51	10.000981	10.000983	10.000984	10.000985	10.000987	10.000988	8	1 = 0
52	10.000990	10.000991	10.000993	10.000994	10.000995	10.000997	7	2. 0
53	10.000998	10.001000	10.001001	10.001003	10.001004	10.001005	6	3. 0
54	10.001007	10.001008	10.001010	10.001011	10.001013	10.001014	5	4. 1
55	10.001016	10.001017	10.001018	10.001020	10.001021	10.001023	4	5. 1
56	10.001024	10.001026	10.001027	10.001029	10.001030	10.001031	3	6. 1
57	10.001033	10.001034	10.001036	10.001037	10.001039	10.001040	2	7. 1
58	10.001042	10.001043	10.001045	10.001046	10.001047	10.001049	1	8. 1
59	10.001050	10.001052	10.001053	10.001055	10.001056	10.001058	0	9. 1
	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.

Co-secant of 86 degrees, or Secant of 176 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 4 degrees, or Co-secant of 94 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.001059	10.001061	10.001062	10.001064	10.001065	10.001067	59	
1	10.001068	10.001070	10.001071	10.001073	10.001074	10.001076	58	1″ = 0
2	10.001077	10.001078	10.001080	10.001081	10.001083	10.001084	57	2. 0
3	10.001086	10.001087	10.001089	10.001090	10.001092	10.001093	56	3. 0
4	10.001095	10.001096	10.001098	10.001099	10.001101	10.001102	55	4. 1
5	10.001104	10.001105	10.001107	10.001108	10.001110	10.001111	54	5. 1
6	10.001113	10.001114	10.001116	10.001117	10.001119	10.001120	53	6. 1
7	10.001122	10.001124	10.001125	10.001127	10.001128	10.001130	52	7. 1
8	10.001131	10.001133	10.001134	10.001136	10.001137	10.001139	51	8. 1
9	10.001140	10.001142	10.001143	10.001145	10.001146	10.001148	50	9. 1
10	10.001149	10.001151	10.001153	10.001154	10.001156	10.001157	49	
11	10.001159	10.001160	10.001162	10.001163	10.001165	10.001166	48	1 = 0
12	10.001168	10.001169	10.001171	10.001173	10.001174	10.001176	47	2. 0
13	10.001177	10.001179	10.001180	10.001182	10.001183	10.001185	46	3. 0
14	10.001187	10.001188	10.001190	10.001191	10.001193	10.001194	45	4. 1
15	10.001196	10.001197	10.001199	10.001201	10.001202	10.001204	44	5. 1
16	10.001205	10.001207	10.001208	10.001210	10.001212	10.001213	43	6. 1
17	10.001215	10.001216	10.001218	10.001219	10.001221	10.001223	42	7. 1
18	10.001224	10.001226	10.001227	10.001229	10.001231	10.001232	41	8. 1
19	10.00123	10.001235	10.001237	10.001239	10.001240	10.001242	40	9. 1
20	10.001243	10.001245	10.001247	10.001248	10.001250	10.001251	39	
21	10.001253	10.001255	10.001256	10.001258	10.001259	10.001261	38	1 = 0
22	10.001262	10.001264	10.001266	10.001267	10.001269	10.001271	37	2. 0
23	10.001272	10.001274	10.001275	10.001277	10.001279	10.001280	36	3. 0
24	10.001282	10.001284	10.001285	10.001287	10.001288	10.001290	35	4. 1
25	10.001292	10.001293	10.001295	10.001297	10.001298	10.001300	34	5. 1
26	10.001301	10.001303	10.001305	10.001306	10.001308	10.001310	33	6. 1
27	10.001311	10.001313	10.001314	10.001316	10.001318	10.001319	32	7. 1
28	10.001321	10.001323	10.001324	10.001326	10.001328	10.001329	31	8. 1
29	10.001331	10.001333	10.001334	10.001336	10.001338	10.001339	30	9. 1
30	10.001341	10.001343	10.001344	10.001346	10.001348	10.001349	29	
31	10.001351	10.001353	10.001354	10.001356	10.001358	10.001359	28	1 = 0
32	10.001361	10.001363	10.001364	10.001366	10.001368	10.001369	27	2. 0
33	10.001371	10.001373	10.001374	10.001376	10.001378	10.001379	26	3. 0
34	10.001381	10.001383	10.001384	10.001386	10.001388	10.001389	25	4. 1
35	10.001391	10.001393	10.001394	10.001396	10.001398	10.001400	24	5. 1
36	10.001401	10.001403	10.001405	10.001406	10.001408	10.001410	23	6. 1
37	10.001411	10.001413	10.001415	10.001417	10.001418	10.001420	22	7. 1
38	10.001422	10.001423	10.001425	10.001427	10.001428	10.001430	21	8. 1
39	10.001432	10.001434	10.001435	10.001437	10.001439	10.001440	20	9. 1
40	10.001442	10.001444	10.001446	10.001447	10.001449	10.001451	19	
41	10.001452	10.001454	10.001456	10.001458	10.001459	10.001461	18	1 = 0
42	10.001463	10.001465	10.001466	10.001468	10.001470	10.001472	17	2. 0
43	10.001473	10.001475	10.001477	10.001478	10.001480	10.001482	16	3. 0
44	10.001484	10.001485	10.001487	10.001489	10.001491	10.001492	15	4. 1
45	10.001494	10.001496	10.001498	10.001499	10.001501	10.001503	14	5. 1
46	10.001505	10.001506	10.001508	10.001510	10.001512	10.001513	13	6. 1
47	10.001515	10.001517	10.001519	10.001521	10.001522	10.001524	12	7. 1
48	10.001526	10.001528	10.001529	10.001531	10.001533	10.001535	11	8. 1
49	10.001536	10.001538	10.001540	10.001542	10.001544	10.001545	10	9. 1
50	10.001547	10.001549	10.001551	10.001552	10.001554	10.001556	9	
51	10.001558	10.001560	10.001561	10.001563	10.001565	10.001567	8	1 =
52	10.001569	10.001570	10.001572	10.001574	10.001576	10.001578	7	2.
53	10.001579	10.001581	10.001583	10.001585	10.001587	10.001588	6	3.
54	10.001590	10.001592	10.001594	10.001596	10.001597	10.001599	5	4.
55	10.001601	10.001603	10.001605	10.001606	10.001608	10.001610	4	5.
56	10.001612	10.001614	10.001616	10.001617	10.001619	10.001621	3	6.
57	10.001623	10.001625	10.001626	10.001628	10.001630	10.001632	2	7.
58	10.001634	10.001636	10.001637	10.001639	10.001641	10.001643	1	8.
59	10.001645	10.001647	10.001648	10.001650	10.001652	10.001654	0	9.
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 85 degrees, or Secant of 175 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 5 degrees, or Co-secant of 95 degrees. 0′	10′	20′	30′	40′	50′	Minutes	Propor. parts.
0	10. 001656	10. 001658	10. 001659	10. 001661	10. 001663	10. 001665	59	
1	10. 001667	10. 001669	10. 001671	10. 001672	10. 001674	10. 001676	58	1″ = 0
2	10. 001678	10. 001680	10. 001682	10. 001684	10. 001685	10. 001687	57	2. 0
3	10. 001689	10. 001691	10. 001693	10. 001695	10. 001697	10. 001698	56	3. 1
4	10. 001700	10. 001702	10. 001704	10. 001706	10. 001708	10. 001710	55	4. 1
5	10. 001711	10. 001713	10. 001715	10. 001717	10. 001719	10. 001721	54	5. 1
6	10. 001723	10. 001725	10. 001727	10. 001728	10. 001730	10. 001732	53	6. 1
7	10. 001734	10. 001736	10. 001738	10. 001740	10. 001742	10. 001744	52	7. 1
8	10. 001745	10. 001747	10. 001749	10. 001751	10. 001753	10. 001755	51	8. 2
9	10. 001757	10. 001759	10. 001761	10. 001762	10. 001764	10. 001766	50	9. 2
10	10. 001768	10. 001770	10. 001772	10. 001774	10. 001776	10. 001778	49	
11	10. 001780	10. 001782	10. 001783	10. 001785	10. 001787	10. 001789	48	1 = 0
12	10. 001791	10. 001793	10. 001795	10. 001797	10. 001799	10. 001801	47	2. 0
13	10. 001803	10. 001805	10. 001806	10. 001808	10. 001810	10. 001812	46	3. 1
14	10. 001814	10. 001816	10. 001818	10. 001820	10. 001822	10. 001824	45	4. 1
15	10. 001826	10. 001828	10. 001830	10. 001832	10. 001833	10. 001835	44	5. 1
16	10. 001837	10. 001839	10. 001841	10. 001843	10. 001845	10. 001847	43	6. 1
17	10. 001849	10. 001851	10. 001853	10. 001855	10. 001857	10. 001859	42	7. 1
18	10. 001861	10. 001863	10. 001865	10. 001867	10. 001869	10. 001871	41	8. 2
19	10. 001872	10. 001874	10. 001876	10. 001878	10. 001880	10. 001882	40	9. 2
20	10. 001884	10. 001886	10. 001888	10. 001890	10. 001892	10. 001894	39	
21	10. 001896	10. 001898	10. 001900	10. 001902	10. 001904	10. 001906	38	1 = 0
22	10. 001908	10. 001910	10. 001912	10. 001914	10. 001916	10. 001918	37	2. 0
23	10. 001920	10. 001922	10. 001924	10. 001926	10. 001928	10. 001930	36	3. 1
24	10. 001932	10. 001934	10. 001936	10. 001938	10. 001940	10. 001942	35	4. 1
25	10. 001944	10. 001946	10. 001948	10. 001950	10. 001952	10. 001954	34	5. 1
26	10. 001956	10. 001958	10. 001960	10. 001962	10. 001964	10. 001966	33	6. 1
27	10. 001968	10. 001970	10. 001972	10. 001974	10. 001976	10. 001978	32	7. 1
28	10. 001980	10. 001982	10. 001984	10. 001986	10. 001988	10. 001990	31	8. 2
29	10. 001992	10. 001994	10. 001996	10. 001998	10. 002000	10. 002002	30	9. 2
30	10. 002004	10. 002006	10. 002008	10. 002010	10. 002012	10. 002014	29	
31	10. 002016	10. 002018	10. 002020	10. 002022	10. 002024	10. 002026	28	1 = 0
32	10. 002028	10. 002030	10. 002033	10. 002035	10. 002037	10. 002039	27	2. 0
33	10. 002041	10. 002043	10. 002045	10. 002047	10. 002049	10. 002051	26	3. 1
34	10. 002053	10. 002055	10. 002057	10. 002059	10. 002061	10. 002063	25	4. 1
35	10. 002065	10. 002067	10. 002069	10. 002071	10. 002074	10. 002076	24	5. 1
36	10. 002078	10. 002080	10. 002082	10. 002084	10. 002086	10. 002088	23	6. 1
37	10. 002090	10. 002092	10. 002094	10. 002096	10. 002098	10. 002100	22	7. 1
38	10. 002103	10. 002105	10. 002107	10. 002109	10. 002111	10. 002113	21	8. 2
39	10. 002115	10. 002117	10. 002119	10. 002121	10. 002123	10. 002125	20	9. 2
40	10. 002128	10. 002130	10. 002132	10. 002134	10. 002136	10. 002138	19	
41	10. 002140	10. 002142	10. 002144	10. 002146	10. 002149	10. 002151	18	1 = 0
42	10. 002153	10. 002155	10. 002157	10. 002159	10. 002161	10. 002163	17	2. 0
43	10. 002165	10. 002167	10. 002170	10. 002172	10. 002174	10. 002176	16	3. 1
44	10. 002178	10. 002180	10. 002182	10. 002184	10. 002186	10. 002189	15	4. 1
45	10. 002191	10. 002193	10. 002195	10. 002197	10. 002199	10. 002201	14	5. 1
46	10. 002203	10. 002206	10. 002208	10. 002210	10. 002212	10. 002214	13	6. 1
47	10. 002216	10. 002218	10. 002220	10. 002223	10. 002225	10. 002227	12	7. 2
48	10. 002229	10. 002231	10. 002233	10. 002235	10. 002238	10. 002240	11	8. 2
49	10. 002242	10. 002244	10. 002246	10. 002248	10. 002250	10. 002253	10	9. 2
50	10. 002255	10. 002257	10. 002259	10. 002261	10. 002263	10. 002266	9	
51	10. 002268	10. 002270	10. 002272	10. 002274	10. 002276	10. 002278	8	1 = 0
52	10. 002281	10. 002283	10. 002285	10. 002287	10. 002289	10. 002291	7	2. 0
53	10. 002294	10. 002296	10. 002298	10. 002300	10. 002302	10. 002305	6	3. 1
54	10. 002307	10. 002309	10. 002311	10. 002313	10. 002315	10. 002318	5	4. 1
55	10. 002320	10. 002322	10. 002324	10. 002326	10. 002328	10. 002331	4	5. 1
56	10. 002333	10. 002335	10. 002337	10. 002339	10. 002342	10. 002344	3	6. 1
57	10. 002346	10. 002348	10. 002350	10. 002353	10. 002355	10. 002357	2	7. 2
58	10. 002359	10. 002361	10. 002364	10. 002366	10. 002368	10. 002370	1	8. 2
59	10. 002372	10. 002375	10. 002377	10. 002379	10. 002381	10. 002383	0	9. 2
Minutes	60′	50′	40′	30′	20′	10′	Minutes	Propor. parts.

Co-secant of 84 degrees, or Secant of 174 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 6 degrees, or Co-secant of 96 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.002386	10.002388	10.002390	10.002392	10.002395	10.002397	59	
1	10.002399	10.002401	10.002403	10.002406	10.002408	10.002410	58	1″ = 0
2	10.002412	10.002415	10.002417	10.002419	10.002421	10.002423	57	2. 0
3	10.002426	10.002428	10.002430	10.002432	10.002435	10.002437	56	3. 1
4	10.002439	10.002441	10.002444	10.002446	10.002448	10.002450	55	4. 1
5	10.002453	10.002455	10.002457	10.002459	10.002461	10.002464	54	5. 1
6	10.002466	10.002468	10.002471	10.002473	10.002475	10.002477	53	6. 1
7	10.002480	10.002482	10.002484	10.002486	10.002489	10.002491	52	7. 2
8	10.002493	10.002495	10.002498	10.002500	10.002502	10.002404	51	8. 2
9	10.002507	10.002509	10.002511	10.002513	10.002516	10.002518	50	9. 2
10	10.002520	10.002523	10.002525	10.002527	10.002529	10.002532	49	
11	10.002534	10.002536	10.002539	10.002541	10.002543	10.002545	48	1 = 0
12	10.002548	10.002550	10.002552	10.002555	10.002557	10.002559	47	2. 0
13	10.002561	10.002564	10.002566	10.002568	10.002571	10.002573	46	3. 1
14	10.002575	10.002578	10.002580	10.002582	10.002584	10.002587	45	4. 1
15	10.002589	10.002591	10.002594	10.002596	10.002598	10.002601	44	5. 1
16	10.002603	10.002605	10.002608	10.002610	10.002612	10.002614	43	6. 1
17	10.002617	10.002619	10.002621	10.002624	10.002626	10.002628	42	7. 2
18	10.002631	10.002633	10.002635	10.002638	10.002640	10.002642	41	8. 2
19	10.002645	10.002647	10.002649	10.002652	10.002654	10.002656	40	9. 2
20	10.002659	10.002661	10.002663	10.002666	10.002668	10.002670	39	
21	10.002673	10.002675	10.002677	10.002680	10.002682	10.002684	38	1 = 0
22	10.002687	10.002689	10.002691	10.002694	10.002696	10.002699	37	2. 0
23	10.002701	10.002703	10.002706	10.002708	10.002710	10.002713	36	3. 1
24	10.002715	10.002717	10.002720	10.002722	10.002724	10.002727	35	4. 1
25	10.002729	10.002732	10.002734	10.002736	10.002739	10.002741	34	5. 1
26	10.002743	10.002746	10.002748	10.002751	10.002753	10.002755	33	6. 1
27	10.002758	10.002760	10.002763	10.002765	10.002767	10.002770	32	7. 2
28	10.002772	10.002774	10.002777	10.002779	10.002782	10.002784	31	8. 2
29	10.002786	10.002789	10.002791	10.002794	10.002796	10.002798	30	9. 2
30	10.002801	10.002803	10.002806	10.002808	10.002810	10.002813	29	
31	10.002815	10.002818	10.002820	10.002822	10.002825	10.002827	28	1 = 0
32	10.002830	10.002832	10.002834	10.002837	10.002839	10.002842	27	2. 0
33	10.002844	10.002847	10.002849	10.002851	10.002854	10.002856	26	3. 1
34	10.002859	10.002861	10.002863	10.002866	10.002868	10.002871	25	4. 1
35	10.002873	10.002876	10.002878	10.002880	10.002883	10.002885	24	5. 1
36	10.002888	10.002890	10.002893	10.002895	10.002898	10.002900	23	6. 1
37	10.002902	10.002905	10.002907	10.002910	10.002912	10.002915	22	7. 2
38	10.002917	10.002920	10.002922	10.002924	10.002927	10.002929	21	8. 2
39	10.002932	10.002934	10.002937	10.002939	10.002942	10.002944	20	9. 2
40	10.002947	10.002949	10.002951	10.002954	10.002956	10.002959	19	
41	10.002961	10.002964	10.002966	10.002969	10.002971	10.002974	18	1 = 0
42	10.002976	10.002979	10.002981	10.002984	10.002986	10.002989	17	2. 1
43	10.002991	10.002993	10.002996	10.002998	10.003001	10.003003	16	3. 1
44	10.003006	10.003008	10.003011	10.003013	10.003016	10.003018	15	4. 1
45	10.003021	10.003023	10.003026	10.003028	10.003031	10.003033	14	5. 1
46	10.003036	10.003038	10.003041	10.003043	10.003046	10.003048	13	6. 2
47	10.003051	10.003053	10.003056	10.003058	10.003061	10.003063	12	7. 2
48	10.003066	10.003068	10.003071	10.003073	10.003076	10.003078	11	8. 2
49	10.003081	10.003083	10.003086	10.003089	10.003091	10.003094	10	9. 2
50	10.003096	10.003099	10.003101	10.003104	10.003106	10.003109	9	
51	10.003111	10.003114	10.003116	10.003119	10.003121	10.003124	8	1 = 0
52	10.003126	10.003129	10.003132	10.003134	10.003137	10.003139	7	2. 1
53	10.003142	10.003144	10.003147	10.003149	10.003152	10.003154	6	3. 1
54	10.003157	10.003159	10.003162	10.003165	10.003167	10.003170	5	4. 1
55	10.003172	10.003175	10.003177	10.003180	10.003182	10.003185	4	5. 1
56	10.003188	10.003190	10.003193	10.003195	10.003198	10.003200	3	6. 2
57	10.003203	10.003206	10.003208	10.003211	10.003213	10.003216	2	7. 2
58	10.003218	10.003221	10.003224	10.003226	10.003229	10.003231	1	8. 2
59	10.003234	10.003236	10.003239	10.003241	10.003244	10.003247	0	9. 2
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 83 degrees, or Secant of 173 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 7 degrees, or Co-secant of 97 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	10.003249	10.003252	10.003255	10.003257	10.003260	10.003262	59	
1	10.003265	10.003267	10.003270	10.003273	10.003275	10.003278	58	1″ = 0
2	10.003280	10.003283	10.003286	10.003288	10.003291	10.003293	57	2. 1
3	10.003296	10.003299	10.003301	10.003304	10.003306	10.003309	56	3. 1
4	10.003312	10.003314	10.003317	10.003320	10.003322	10.003325	55	4. 1
5	10.003327	10.003330	10.003333	10.003335	10.003338	10.003340	54	5. 1
6	10.003343	10.003346	10.003348	10.003351	10.003353	10.003356	53	6. 2
7	10.003359	10.003361	10.003364	10.003367	10.003369	10.003372	52	7. 2
8	10.003375	10.003377	10.003380	10.003382	10.003385	10.003388	51	8. 2
9	10.003390	10.003393	10.003396	10.003398	10.003401	10.003404	50	9. 2
10	10.003406	10.003409	10.003412	10.003414	10.003417	10.003419	49	
11	10.003422	10.003425	10.003427	10.003430	10.003433	10.003435	48	1 = 0
12	10.003438	10.003441	10.003443	10.003446	10.003449	10.003451	47	2. 1
13	10.003454	10.003457	10.003459	10.003462	10.003465	10.003467	46	3. 1
14	10.003470	10.003473	10.003475	10.003478	10.003481	10.003484	45	4. 1
15	10.003486	10.003489	10.003492	10.003494	10.003497	10.003500	44	5. 1
16	10.003502	10.003505	10.003508	10.003510	10.003513	10.003516	43	6. 2
17	10.003518	10.003521	10.003524	10.003527	10.003529	10.003532	42	7. 2
18	10.003535	10.003537	10.003540	10.003543	10.003545	10.003548	41	8. 2
19	10.003551	10.003553	10.003556	10.003559	10.003562	10.003564	40	9. 2
20	10.003567	10.003570	10.003572	10.003575	10.003578	10.003581	39	
21	10.003583	10.003586	10.003589	10.003591	10.003594	10.003597	38	1 = 0
22	10.003600	10.003602	10.003605	10.003608	10.003610	10.003613	37	2. 1
23	10.003616	10.003619	10.003621	10.003624	10.003627	10.003630	36	3. 1
24	10.003632	10.003635	10.003638	10.003640	10.003643	10.003646	35	4. 1
25	10.003649	10.003651	10.003654	10.003657	10.003660	10.003662	34	5. 1
26	10.003665	10.003668	10.003671	10.003673	10.003676	10.003679	33	6. 2
27	10.003682	10.003684	10.003687	10.003690	10.003693	10.003695	32	7. 2
28	10.003698	10.003701	10.003704	10.003707	10.003709	10.003712	31	8. 2
29	10.003715	10.003718	10.003720	10.003723	10.003726	10.003729	30	9. 3
30	10.003731	10.003734	10.003737	10.003740	10.003743	10.003745	29	
31	10.003748	10.003751	10.003754	10.003756	10.003759	10.003762	28	1 = 0
32	10.003765	10.003768	10.003770	10.003773	10.003776	10.003779	27	2. 1
33	10.003781	10.003784	10.003787	10.003790	10.003793	10.003796	26	3. 1
34	10.003798	10.003801	10.003804	10.003807	10.003810	10.003812	25	4. 1
35	10.003815	10.003818	10.003821	10.003823	10.003826	10.003829	24	5. 1
36	10.003832	10.003835	10.003837	10.003840	10.003843	10.003846	23	6. 2
37	10.003849	10.003852	10.003854	10.003857	10.003860	10.003863	22	7. 2
38	10.003866	10.003869	10.003871	10.003874	10.003877	10.003880	21	8. 2
39	10.003883	10.003885	10.003888	10.003891	10.003894	10.003897	20	9. 3
40	10.003900	10.003902	10.003905	10.003908	10.003911	10.003914	19	
41	10.003917	10.003919	10.003922	10.003925	10.003928	10.003931	18	1 = 0
42	10.003934	10.003937	10.003939	10.003942	10.003945	10.003948	17	2. 1
43	10.003951	10.003954	10.003956	10.003959	10.003962	10.003965	16	3. 1
44	10.003968	10.003971	10.003974	10.003976	10.003979	10.003982	15	4. 1
45	10.003985	10.003988	10.003991	10.003994	10.003997	10.003999	14	5. 1
46	10.004002	10.004005	10.004008	10.004011	10.004014	10.004017	13	6. 2
47	10.004020	10.004022	10.004025	10.004028	10.004031	10.004034	12	7. 2
48	10.004037	10.004040	10.004043	10.004046	10.004048	10.004051	11	8. 2
49	10.004054	10.004057	10.004060	10.004063	10.004066	10.004069	10	9. 3
50	10.004072	10.004074	10.004077	10.004080	10.004083	10.004086	9	
51	10.004089	10.004092	10.004095	10.004098	10.004101	10.004103	8	1 = 0
52	10.004106	10.004109	10.004112	10.004115	10.004118	10.004121	7	2. 1
53	10.004124	10.004127	10.004130	10.004133	10.004136	10.004138	6	3. 1
54	10.004141	10.004144	10.004147	10.004150	10.004153	10.004156	5	4. 1
55	10.004159	10.004162	10.004165	10.004168	10.004171	10.004174	4	5. 2
56	10.004177	10.004179	10.004182	10.004185	10.004188	10.004191	3	6. 2
57	10.004194	10.004197	10.004200	10.004203	10.004206	10.004209	2	7. 2
58	10.004212	10.004215	10.004218	10.004221	10.004224	10.004227	1	8. 2
59	10.004229	10.004232	10.004235	10.004238	10.004241	10.004244	0	9. 3
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 82 degrees, or Secant of 172 degrees.							

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LOGARITHMIC SECANTS.

Secant of 8 degrees, or Co-secant of 98 degrees.

0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
10.004247	10.004250	10.004253	10.004256	10.004259	10.004262	59	
10.004265	10.004268	10.004271	10.004274	10.004277	10.004280	58	1″ = 0
10.004283	10.004286	10.004289	10.004292	10.004295	10.004298	57	2. 1
10.004301	10.004304	10.004307	10.004310	10.004313	10.004316	56	3. 1
10.004319	10.004322	10.004325	10.004328	10.004330	10.004333	55	4. 1
10.004336	10.004339	10.004342	10.004345	10.004348	10.004351	54	5. 2
10.004354	10.004357	10.004360	10.004363	10.004366	10.004369	53	6. 2
10.004372	10.004375	10.004378	10.004281	10.004384	10.004387	52	7. 2
10.004390	10.004393	10.004396	10.004400	10.004403	10.004406	51	8. 2
10.004409	10.004412	10.004415	10.004418	10.004421	10.004424	50	9. 3
10.004427	10.004430	10.004433	10.004436	10.004439	10.004442	49	
10.004445	10.004448	10.004451	10.004454	10.004457	10.004460	48	1 = 0
10.004463	10.004466	10.004469	10.004472	10.004475	10.004478	47	2. 1
10.004481	10.004484	10.004487	10.004490	10.004493	10.004496	46	3. 1
10.004499	10.004503	10.004506	10.004509	10.004512	10.004515	45	4. 1
10.004518	10.004521	10.004524	10.004527	10.004530	10.004533	44	5. 2
10.004536	10.004539	10.004542	10.004545	10.004548	10.004551	43	6. 2
10.004554	10.004557	10.004561	10.004564	10.004567	10.004570	42	7. 2
10.004573	10.004576	10.004579	10.004582	10.004585	10.004588	41	8. 2
10.004591	10.004594	10.004597	10.004601	10.004604	10.004607	40	9. 3
10.004610	10.004613	10.004616	10.004619	10.004622	10.004625	39	
10.004628	10.004631	10.004634	10.004638	10.004641	10.004644	38	1 = 0
10.004647	10.004650	10.004653	10.004656	10.004659	10.004662	37	2. 1
10.004666	10.004669	10.004672	10.004675	10.004678	10.004681	36	3. 1
10.004684	10.004687	10.004690	10.004693	10.004697	10.004700	35	4. 1
10.004703	10.004706	10.004709	10.004712	10.004715	10.004718	34	5. 2
10.004722	10.004725	10.004728	10.004731	10.004734	10.004737	33	6. 2
10.004740	10.004743	10.004746	10.004750	10.004753	10.004756	32	7. 2
10.004759	10.004762	10.004765	10.004768	10.004772	10.004775	31	8. 3
10.004778	10.004781	10.004784	10.004787	10.004790	10.004794	30	9. 3
10.004797	10.004800	10.004803	10.004806	10.004809	10.004812	29	
10.004816	10.004819	10.004822	10.004825	10.004828	10.004831	28	1 = 0
10.004835	10.004838	10.004841	10.004844	10.004847	10.004850	27	2. 1
10.004854	10.004857	10.004860	10.004863	10.004866	10.004869	26	3. 1
10.004873	10.004876	10.004879	10.004882	10.004885	10.004888	25	4. 1
10.004892	10.004895	10.004898	10.004901	10.004904	10.004907	24	5. 2
10.004911	10.004914	10.004917	10.004920	10.004923	10.004927	23	6. 2
10.004930	10.004933	10.004936	10.004939	10.004943	10.004946	22	7. 2
10.004949	10.004952	10.004955	10.004959	10.004962	10.004965	21	8. 3
10.004968	10.004971	10.004975	10.004978	10.004981	10.004984	20	9. 3
10.004987	10.004991	10.004994	10.004997	10.005000	10.005003	19	
10.005007	10.005010	10.005013	10.005016	10.005020	10.005023	18	1 = 0
10.005026	10.005029	10.005032	10.005036	10.005039	10.005042	17	2. 1
10.005045	10.005049	10.005052	10.005055	10.005058	10.005061	16	3. 1
10.005065	10.005068	10.005071	10.005074	10.005078	10.005081	15	4. 1
10.005084	10.005087	10.005091	10.005094	10.005097	10.005100	14	5. 2
10.005104	10.005107	10.005110	10.005113	10.005117	10.005120	13	6. 2
10.005123	10.005126	10.005130	10.005133	10.005136	10.005139	12	7. 2
10.005143	10.005146	10.005149	10.005152	10.005156	10.005159	11	8. 3
10.005162	10.005166	10.005169	10.005172	10.005175	10.005179	10	9. 3
10.005182	10.005185	10.005188	10.005192	10.005195	10.005198	9	
10.005208	10.005205	10.005208	10.005211	10.005215	10.005218	8	1 = 0
10.005221	10.005224	10.005228	10.005231	10.005234	10.005238	7	2. 1
10.005241	10.005244	10.005247	10.005251	10.005254	10.005257	6	3. 1
10.005261	10.005264	10.005267	10.005271	10.005274	10.005277	5	4. 1
10.005280	10.005284	10.005287	10.005290	10.005294	10.005297	4	5. 2
10.005300	10.005304	10.005307	10.005310	10.005314	10.005317	3	6. 2
10.005320	10.005323	10.005327	10.005330	10.005333	10.005337	2	7. 2
10.005340	10.005343	10.005347	10.005350	10.005353	10.005357	1	8. 3
10.005360	10.005363	10.005367	10.005370	10.005373	10.005377	0	9. 3
60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.

Co-secant of 81 degrees, or Secant of 171 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 9 degrees, or Co-secant of 99 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	10.005380	10.005383	10.005387	10.005390	10.005393	10.005397	59	
1	10.005400	10.005403	10.005407	10.005410	10.005414	10.005417	58	1″ = 0
2	10.005420	10.005423	10.005427	10.005430	10.005434	10.005437	57	2. 1
3	10.005440	10.005444	10.005447	10.005450	10.005454	10.005457	56	3. 1
4	10.005460	10.005464	10.005467	10.005470	10.005474	10.005477	55	4. 1
5	10.005481	10.005484	10.005487	10.005491	10.005494	10.005497	54	5. 2
6	10.005501	10.005504	10.005508	10.005511	10.005514	10.005518	53	6. 2
7	10.005521	10.005524	10.005528	10.005531	10.005535	10.005538	52	7. 2
8	10.005541	10.005545	10.005548	10.005551	10.005555	10.005558	51	8. 3
9	10.005562	10.005565	10.005568	10.005572	10.005575	10.005579	50	9. 3
10	10.005582	10.005585	10.005589	10.005592	10.005596	10.005599	49	
11	10.005602	10.005606	10.005609	10.005613	10.005616	10.005619	48	1 = 0
12	10.005623	10.005626	10.005630	10.005633	10.005636	10.005640	47	2. 1
13	10.005643	10.005647	10.005650	10.005654	10.005657	10.005660	46	3. 1
14	10.005664	10.005667	10.005671	10.005674	10.005678	10.005681	45	4. 1
15	10.005684	10.005688	10.005691	10.005695	10.005698	10.005702	44	5. 2
16	10.005705	10.005708	10.005712	10.005715	10.005719	10.005722	43	6. 2
17	10.005726	10.005729	10.005733	10.005736	10.005739	10.005743	42	7. 2
18	10.005746	10.005750	10.005753	10.005757	10.005760	10.005764	41	8. 3
19	10.005767	10.005770	10.005774	10.005777	10.005781	10.005784	40	9. 3
20	10.005788	10.005791	10.005795	10.005798	10.005802	10.005805	39	
21	10.005809	10.005812	10.005815	10.005819	10.005822	10.005826	38	1 = 0
22	10.005829	10.005833	10.005836	10.005840	10.005843	10.005847	37	2. 1
23	10.005850	10.005854	10.005857	10.005861	10.005864	10.005868	36	3. 1
24	10.005871	10.005875	10.005878	10.005882	10.005885	10.005889	35	4. 1
25	10.005892	10.005896	10.005899	10.005903	10.005906	10.005910	34	5. 2
26	10.005913	10.005917	10.005920	10.005924	10.005927	10.005931	33	6. 2
27	10.005934	10.005938	10.005941	10.005945	10.005948	10.005952	32	7. 2
28	10.005955	10.005959	10.005962	10.005966	10.005969	10.005973	31	8. 3
29	10.005976	10.005980	10.005983	10.005987	10.005990	10.005994	30	9. 3
30	10.005997	10.006001	10.006004	10.006008	10.006011	10.006015	29	
31	10.006018	10.006022	10.006025	10.006029	10.006033	10.006036	28	1 = 0
32	10.006040	10.006043	10.006047	10.006050	10.006054	10.006057	27	2. 1
33	10.006061	10.006064	10.006068	10.006071	10.006075	10.006079	26	3. 1
34	10.006082	10.006086	10.006089	10.006093	10.006096	10.006100	25	4. 1
35	10.006103	10.006107	10.006111	10.006114	10.006118	10.006121	24	5. 2
36	10.006125	10.006128	10.006132	10.006135	10.006139	10.006143	23	6. 2
37	10.006146	10.006150	10.006153	10.006157	10.006160	10.006164	22	7. 2
38	10.006168	10.006171	10.006175	10.006178	10.006182	10.006185	21	8. 3
39	10.006189	10.006193	10.006196	10.006200	10.006203	10.006207	20	9. 3
40	10.006211	10.006214	10.006218	10.006221	10.006225	10.006228	19	
41	10.006232	10.006236	10.006239	10.006243	10.006246	10.006250	18	1 = 0
42	10.006254	10.006257	10.006261	10.006264	10.006268	10.006272	17	2. 1
43	10.006275	10.006279	10.006282	10.006286	10.006290	10.006293	16	3. 1
44	10.006297	10.006301	10.006304	10.006308	10.006311	10.006315	15	4. 1
45	10.006319	10.006322	10.006326	10.006330	10.006333	10.006337	14	5. 2
46	10.006340	10.006344	10.006348	10.006351	10.006355	10.006359	13	6. 2
47	10.006362	10.006366	10.006369	10.006373	10.006377	10.006380	12	7. 2
48	10.006384	10.006388	10.006391	10.006395	10.006398	10.006402	11	8. 3
49	10.006406	10.006409	10.006413	10.006417	10.006420	10.006424	10	9. 3
50	10.006428	10.006431	10.006435	10.006439	10.006442	10.006446	9	
51	10.006450	10.006453	10.006457	10.006461	10.006464	10.006468	8	1 = 0
52	10.006472	10.006475	10.006479	10.006482	10.006486	10.006490	7	2. 1
53	10.006494	10.006497	10.006501	10.006504	10.006508	10.006512	6	3. 1
54	10.006516	10.006519	10.006523	10.006527	10.006530	10.006534	5	4. 1
55	10.006538	10.006541	10.006545	10.006549	10.006552	10.006556	4	5. 2
56	10.006560	10.006563	10.006567	10.006571	10.006574	10.006578	3	6. 2
57	10.006582	10.006586	10.006589	10.006593	10.006597	10.006600	2	7. 3
58	10.006604	10.006608	10.006611	10.006615	10.006619	10.006623	1	8. 3
59	10.006626	10.006630	10.006634	10.006637	10.006641	10.006645	0	9. 3
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-secant of 80 degrees, or Secant of 170 degrees.							

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LOGARITHMIC SECANTS.

Minutes	Secant of 10 degrees, or Co-secant of 100 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts
0	10. 006649	006650	006652	006654	006656	006658	006660	006661	006663	006665	006667	006669	59	1″ =
1	10. 006671	006673	006675	006676	006678	006680	006682	006684	006686	006688	006689	006691	58	2.
2	10. 006693	006695	006697	006699	006701	006702	006704	006706	006708	006710	006712	006714	57	3.
3	10. 006715	006717	006719	006721	006723	006725	006727	006729	006730	006732	006734	006736	56	4.
4	10. 006738	006740	006742	006744	006745	006747	006749	006751	006753	006755	006757	006758	55	1 =
5	10. 006760	006762	006764	006766	006768	006770	006772	006773	006775	006777	006779	006781	54	2.
6	10. 006783	006785	006787	006788	006790	006792	006794	006796	006798	006800	006802	006803	53	3.
7	10. 006805	006807	006809	006811	006813	006815	006817	006819	006820	006822	006824	006826	52	4.
8	10. 006828	006830	006832	006834	006835	006837	006839	006841	006843	006845	006847	006849	51	1 =
9	10. 006851	006852	006854	006856	006858	006860	006862	006864	006866	006867	006869	006871	50	2.
10	10. 006873	006875	006877	006879	006881	006883	006884	006886	006888	006890	006892	006894	49	3.
11	10. 006896	006898	006900	006901	006903	006905	006907	006909	006911	006913	006915	006917	48	4.
12	10. 006919	006920	006922	006924	006926	006928	006930	006932	006934	006936	006937	006939	47	1 =
13	10. 006941	006943	006945	006947	006949	006951	006953	006955	006956	006958	006960	006962	46	2.
14	10. 006964	006966	006968	006970	006972	006974	006975	006977	006979	006981	006983	006985	45	3.
15	10. 006987	006989	006991	006993	006995	006996	006998	007000	007002	007004	007006	007008	44	4.
16	10. 007010	007012	007014	007015	007017	007019	007021	007023	007025	007027	007029	007031	43	1 =
17	10. 007033	007035	007036	007038	007040	007042	007044	007046	007048	007050	007052	007054	42	2.
18	10. 007056	007058	007059	007061	007063	007065	007067	007069	007071	007073	007075	007077	41	3.
19	10. 007079	007080	007082	007084	007086	007088	007090	007092	007094	007096	007098	007100	40	4.
20	10. 007102	007104	007105	007107	007109	007111	007113	007115	007117	007119	007121	007123	39	1 =
21	10. 007125	007127	007128	007130	007132	007134	007136	007138	007140	007142	007144	007146	38	2.
22	10. 007148	007150	007152	007154	007155	007157	007159	007161	007163	007165	007167	007169	37	3.
23	10. 007171	007173	007175	007177	007179	007181	007182	007184	007186	007188	007190	007192	36	4.
24	10. 007194	007196	007198	007200	007202	007204	007206	007208	007209	007211	007213	007215	35	1 =
25	10. 007217	007219	007221	007223	007225	007227	007229	007231	007233	007235	007237	007239	34	2.
26	10. 007241	007242	007244	007246	007248	007250	007252	007254	007256	007258	007260	007262	33	3.
27	10. 007264	007266	007268	007270	007272	007273	007275	007277	007279	007281	007283	007285	32	4.
28	10. 007287	007289	007291	007293	007295	007297	007299	007301	007303	007305	007307	007308	31	1 =
29	10. 007310	007312	007314	007316	007318	007320	007322	007324	007326	007328	007330	007332	30	2.
30	10. 007334	007336	007338	007340	007342	007344	007346	007347	007349	007351	007353	007355	29	3.
31	10. 007357	007359	007361	007363	007365	007367	007369	007371	007373	007375	007377	007379	28	4.
32	10. 007381	007383	007385	007387	007389	007391	007393	007394	007396	007398	007400	007402	27	1 =
33	10. 007404	007406	007408	007410	007412	007414	007416	007418	007420	007422	007424	007426	26	2.
34	10. 007428	007430	007432	007434	007436	007438	007440	007442	007444	007446	007448	007449	25	3.
35	10. 007451	007453	007455	007457	007459	007461	007463	007465	007467	007469	007471	007473	24	4.
36	10. 007475	007477	007479	007481	007483	007485	007487	007489	007491	007493	007495	007497	23	1 =
37	10. 007499	007501	007503	007505	007507	007509	007511	007513	007515	007516	007518	007520	22	2.
38	10. 007522	007524	007526	007528	007530	007532	007534	007536	007538	007540	007542	007544	21	3.
39	10. 007546	007548	007550	007552	007554	007556	007558	007560	007562	007564	007566	007568	20	4.
40	10. 007570	007572	007574	007576	007578	007580	007582	007584	007586	007588	007590	007592	19	1 =
41	10. 007594	007596	007598	007600	007602	007604	007606	007608	007610	007612	007614	007616	18	2.
42	10. 007618	007620	007622	007624	007626	007628	007630	007632	007634	007636	007638	007640	17	3.
43	10. 007642	007643	007645	007647	007649	007651	007653	007655	007657	007659	007661	007663	16	4.
44	10. 007665	007667	007669	007671	007673	007675	007677	007679	007681	007683	007685	007687	15	1 =
45	10. 007689	007691	007693	007695	007697	007699	007701	007703	007705	007707	007709	007711	14	2.
46	10. 007713	007715	007717	007719	007721	007723	007725	007727	007729	007731	007733	007735	13	3.
47	10. 007737	007739	007741	007743	007745	007747	007749	007751	007753	007755	007757	007759	12	4.
48	10. 007761	007763	007766	007768	007770	007772	007774	007776	007778	007780	007782	007784	11	1 =
49	10. 007786	007788	007790	007792	007794	007796	007798	007800	007802	007804	007806	007808	10	2.
50	10. 007810	007812	007814	007816	007818	007820	007822	007824	007826	007828	007830	007832	9	3.
51	10. 007834	007836	007838	007840	007842	007844	007846	007848	007850	007852	007854	007856	8	4.
52	10. 007858	007860	007862	007864	007866	007868	007870	007872	007874	007876	007878	007880	7	1 =
53	10. 007882	007884	007886	007888	007891	007893	007895	007897	007899	007901	007903	007905	6	2.
54	10. 007907	007909	007911	007913	007915	007917	007919	007921	007923	007925	007927	007929	5	3.
55	10. 007931	007933	007935	007937	007939	007941	007943	007945	007947	007949	007951	007953	4	4.
56	10. 007955	007957	007960	007962	007964	007966	007968	007970	007972	007974	007976	007978	3	1 =
57	10. 007980	007982	007984	007986	007988	007990	007992	007994	007996	007998	008000	008002	2	2.
58	10. 008004	008006	008008	008010	008012	008015	008017	008019	008021	008023	008025	008027	1	3.
59	10. 008029	008031	008033	008035	008037	008039	008041	008043	008045	008047	008049	008051	0	4.
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts

Co-secant of 79 degrees, or Secant of 169 degrees.

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LOGARITHMIC SECANTS.

Secant of 11 degrees, or Co-secant of 101 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.008053	008055	008057	008060	008062	008064	008066	008068	008070	008072	008074	008076	59	1″ = 0
1	10.008078	008080	008082	008084	008086	008088	008090	008092	008094	008096	008098	008101	58	2. 1
2	10.008103	008105	008107	008109	008111	008113	008115	008117	008119	008121	008123	008125	57	3. 1
3	10.008127	008129	008131	008133	008135	008137	008140	008142	008144	008146	008148	008150	56	4. 2
4	10.008152	008154	008156	008158	008160	008162	008164	008166	008168	008170	008173	008175	55	1 = 0
5	10.008177	008179	008181	008183	008185	008187	008189	008191	008193	008195	008197	008199	54	2. 1
6	10.008201	008203	008206	008208	008210	008212	008214	008216	008218	008220	008222	008224	53	3. 1
7	10.008226	008228	008230	008232	008234	008237	008239	008241	008243	008245	008247	008249	52	4. 2
8	10.008251	008253	008255	008257	008259	008261	008263	008266	008268	008270	008272	008274	51	1 = 0
9	10.008276	008278	008280	008282	008284	008286	008288	008290	008293	008295	008297	008299	50	2. 1
10	10.008301	008303	008305	008307	008309	008311	008313	008315	008317	008320	008322	008324	49	3. 1
11	10.008326	008328	008330	008332	008334	008336	008338	008340	008342	008345	008347	008349	48	4. 2
12	10.008351	008353	008355	008357	008359	008361	008363	008365	008367	008370	008372	008374	47	1 = 0
13	10.008376	008378	008380	008382	008384	008386	008388	008390	008393	008395	008397	008399	46	2. 1
14	10.008401	008403	008405	008407	008409	008411	008413	008416	008418	008420	008422	008424	45	3. 1
15	10.008426	008428	008430	008432	008434	008436	008439	008441	008443	008445	008447	008449	44	4. 2
16	10.008451	008453	008455	008457	008460	008462	008464	008466	008468	008470	008472	008474	43	1 = 0
17	10.008476	008478	008481	008483	008485	008487	008489	008491	008493	008495	008497	008499	42	2. 1
18	10.008502	008504	008506	008508	008510	008512	008514	008516	008518	008521	008523	008525	41	3. 1
19	10.008527	008529	008531	008533	008535	008537	008539	008542	008544	008546	008548	008550	40	4. 2
20	10.008552	008554	008556	008558	008561	008563	008565	008567	008569	008571	008573	008575	39	1 = 0
21	10.008577	008580	008582	008584	008586	008588	008590	008592	008594	008597	008599	008601	38	2. 1
22	10.008603	008605	008607	008609	008611	008613	008616	008618	008620	008622	008624	008626	37	3. 1
23	10.008628	008630	008633	008635	008637	008639	008641	008643	008645	008647	008649	008652	36	4. 2
24	10.008654	008656	008658	008660	008662	008664	008666	008669	008671	008673	008675	008677	35	1 = 0
25	10.008679	008681	008683	008686	008688	008690	008692	008694	008696	008698	008700	008703	34	2. 1
26	10.008705	008707	008709	008711	008713	008715	008718	008720	008722	008724	008726	008728	33	3. 1
27	10.008730	008732	008735	008737	008739	008741	008743	008745	008747	008750	008752	008754	32	4. 2
28	10.008756	008758	008760	008762	008764	008767	008769	008771	008773	008775	008777	008779	31	1 = 0
29	10.008782	008784	008786	008788	008790	008792	008794	008797	008799	008801	008803	008805	30	2. 1
30	10.008807	008809	008812	008814	008816	008818	008820	008822	008824	008827	008829	008831	29	3. 1
31	10.008833	008835	008837	008839	008842	008844	008846	008848	008850	008852	008854	008857	28	4. 2
32	10.008859	008861	008863	008865	008867	008869	008872	008874	008876	008878	008880	008882	27	1 = 0
33	10.008885	008887	008889	008891	008893	008895	008897	008900	008902	008904	008906	008908	26	2. 1
34	10.008910	008913	008915	008917	008919	008921	008923	008925	008928	008930	008932	008934	25	3. 1
35	10.008936	008938	008941	008943	008945	008947	008949	008951	008954	008956	008958	008960	24	4. 2
36	10.008962	008964	008966	008969	008971	008973	008975	008977	008979	008982	008984	008986	23	1 = 0
37	10.008988	008990	008992	008995	008997	008999	009001	009003	009005	009008	009010	009012	22	2. 1
38	10.009014	009016	009018	009021	009023	009025	009027	009029	009031	009034	009036	009038	21	3. 1
39	10.009040	009042	009044	009047	009049	009051	009053	009055	009057	009060	009062	009064	20	4. 2
40	10.009066	009068	009071	009073	009075	009077	009079	009081	009084	009086	009088	009090	19	1 = 0
41	10.009092	009094	009097	009099	009101	009103	009105	009108	009110	009112	009114	009116	18	2. 1
42	10.009118	009121	009123	009125	009127	009129	009132	009134	009136	009138	009140	009142	17	3. 1
43	10.009145	009147	009149	009151	009153	009156	009158	009160	009162	009164	009166	009169	16	4. 2
44	10.009171	009173	009175	009177	009180	009182	009184	009186	009188	009191	009193	009195	15	1 = 0
45	10.009197	009199	009201	009204	009206	009208	009210	009212	009215	009217	009219	009221	14	2. 1
46	10.009223	009226	009228	009230	009232	009234	009237	009239	009241	009243	009245	009248	13	3. 1
47	10.009250	009252	009254	009256	009259	009261	009263	009265	009267	009269	009272	009274	12	4. 2
48	10.009276	009278	009280	009283	009285	009287	009289	009291	009294	009296	009298	009300	11	1 = 0
49	10.009303	009305	009307	009309	009311	009314	009316	009318	009320	009322	009325	009327	10	2. 1
50	10.009329	009331	009333	009336	009338	009340	009342	009344	009347	009349	009351	009353	9	3. 1
51	10.009355	009358	009360	009362	009364	009366	009369	009371	009373	009375	009378	009380	8	4. 2
52	10.009382	009384	009386	009389	009391	009393	009395	009397	009400	009402	009404	009406	7	1 = 0
53	10.009409	009411	009413	009415	009417	009420	009422	009424	009426	009428	009431	009433	6	2. 1
54	10.009435	009437	009440	009442	009444	009446	009448	009451	009453	009455	009457	009460	5	3. 1
55	10.009462	009464	009466	009468	009471	009473	009475	009477	009480	009482	009484	009486	4	4. 2
56	10.009488	009491	009493	009495	009497	009500	009502	009504	009506	009508	009511	009513	3	1 = 0
57	10.009515	009517	009520	009522	009524	009526	009529	009531	009533	009535	009537	009540	2	2. 1
58	10.009542	009544	009546	009549	009551	009553	009555	009558	009560	009562	009564	009566	1	3. 1
59	10.009569	009571	009573	009575	009578	009580	009582	009584	009587	009589	009591	009593	0	4. 2
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 78 degrees, or Secant of 168 degrees.

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LOGARITHMIC SECANTS.

Secant of 12 degrees, or Co-secant of 102 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts
0	10. 009596	009598	009600	009602	009605	009607	009609	009611	009613	009616	009618	009620	59	1″ =
1	10. 009622	009625	009627	009629	009631	009634	009636	009638	009640	009643	009645	009647	58	2.
2	10. 009649	009652	009654	009656	009658	009661	009663	009665	009667	009670	009672	009674	57	3.
3	10. 009676	009679	009681	009683	009685	009688	009690	009692	009694	009697	009699	009701	56	4.
4	10. 009703	009706	009708	009710	009712	009715	009717	009719	009721	009724	009726	009728	55	1 =
5	10. 009730	009733	009735	009737	009739	009742	009744	009746	009748	009751	009753	009755	54	2.
6	10. 009757	009760	009762	009764	009766	009769	009771	009773	009775	009778	009780	009782	53	3.
7	10. 009784	009787	009789	009791	009794	009796	009798	009800	009803	009805	009807	009809	52	4.
8	10. 009812	009814	009816	009818	009821	009823	009825	009827	009830	009832	009834	009837	51	1 =
9	10. 009839	009841	009843	009846	009848	009850	009852	009855	009857	009859	009861	009864	50	2.
10	10. 009866	009868	009871	009873	009875	009877	009880	009882	009884	009886	009889	009891	49	3.
11	10. 009893	009896	009898	009900	009902	009905	009907	009909	009911	009914	009916	009918	48	4.
12	10. 009921	009923	009925	009927	009930	009932	009934	009936	009939	009941	009943	009946	47	1 =
13	10. 009948	009950	009952	009955	009957	009959	009962	009964	009966	009968	009971	009973	46	2.
14	10. 009975	009978	009980	009982	009984	009987	009989	009991	009994	009996	009998	010000	45	3.
15	10. 010003	010005	010007	010010	010012	010014	010016	010019	010021	010023	010026	010028	44	4.
16	10. 010030	010032	010035	010037	010039	010042	010044	010046	010048	010051	010053	010055	43	1 =
17	10. 010058	010060	010062	010064	010067	010069	010071	010074	010076	010078	010081	010083	42	2.
18	10. 010085	010087	010090	010092	010094	010097	010099	010101	010103	010106	010108	010110	41	3.
19	10. 010113	010115	010117	010120	010122	010124	010126	010129	010131	010133	010136	010138	40	4.
20	10. 010140	010143	010145	010147	010150	010152	010154	010156	010159	010161	010163	010166	39	1 =
21	10. 010168	010170	010173	010175	010177	010179	010182	010184	010186	010189	010191	010193	38	2.
22	10. 010196	010198	010200	010203	010205	010207	010209	010212	010214	010216	010219	010221	37	3.
23	10. 010223	010226	010228	010230	010233	010235	010237	010240	010242	010244	010246	010249	36	4.
24	10. 010251	010253	010256	010258	010260	010263	010265	010267	010270	010272	010274	010277	35	1 =
25	10. 010279	010281	010284	010286	010288	010290	010293	010295	010297	010300	010302	010304	34	2.
26	10. 010307	010309	010311	010314	010316	010318	010321	010323	010325	010328	010330	010332	33	3.
27	10. 010335	010337	010339	010342	010344	010346	010349	010351	010353	010356	010358	010360	32	4.
28	10. 010363	010365	010367	010369	010372	010374	010376	010379	010381	010383	010386	010388	31	1 =
29	10. 010390	010393	010395	010397	010400	010402	010404	010407	010409	010411	010414	010416	30	2.
30	10. 010418	010421	010423	010425	010428	010430	010432	010435	010437	010439	010442	010444	29	3.
31	10. 010446	010449	010451	010453	010456	010458	010460	010463	010465	010468	010470	010472	28	4.
32	10. 010475	010477	010479	010482	010484	010486	010489	010491	010493	010496	010498	010500	27	1 =
33	10. 010503	010505	010507	010510	010512	010514	010517	010519	010521	010524	010526	010528	26	2.
34	10. 010531	010533	010535	010538	010540	010543	010545	010547	010550	010552	010554	010557	25	3.
35	10. 010559	010561	010564	010566	010568	010571	010573	010575	010578	010580	010582	010585	24	4.
36	10. 010587	010590	010592	010594	010597	010599	010601	010604	010606	010608	010611	010613	23	1 =
37	10. 010615	010618	010620	010623	010625	010627	010630	010632	010634	010637	010639	010641	22	2.
38	10. 010644	010646	010648	010651	010653	010656	010658	010660	010663	010665	010667	010670	21	3.
39	10. 010672	010674	010677	010679	010682	010684	010686	010689	010691	010693	010696	010698	20	4.
40	10. 010700	010703	010705	010708	010710	010712	010715	010717	010719	010722	010724	010726	19	1 =
41	10. 010729	010731	010734	010736	010738	010741	010743	010745	010748	010750	010753	010755	18	2.
42	10. 010757	010760	010762	010764	010767	010769	010772	010774	010776	010779	010781	010783	17	3.
43	10. 010786	010788	010791	010793	010795	010798	010800	010802	010805	010807	010810	010812	16	4.
44	10. 010814	010817	010819	010821	010824	010826	010829	010831	010833	010836	010838	010840	15	1 =
45	10. 010843	010845	010848	010850	010852	010855	010857	010860	010862	010864	010867	010869	14	2.
46	10. 010871	010874	010876	010879	010881	010883	010886	010888	010891	010893	010895	010898	13	3.
47	10. 010900	010903	010905	010907	010910	010912	010914	010917	010919	010922	010924	010926	12	4.
48	10. 010929	010931	010934	010936	010938	010941	010943	010946	010948	010950	010953	010955	11	1 =
49	10. 010958	010960	010962	010965	010967	010970	010972	010974	010977	010979	010981	010984	10	2.
50	10. 010986	010989	010991	010993	010996	010998	011001	011003	011005	011008	011010	011013	9	3.
51	10. 011015	011017	011020	011022	011025	011027	011030	011032	011034	011037	011039	011042	8	4.
52	10. 011044	011046	011049	011051	011054	011056	011058	011061	011063	011066	011068	011070	7	1 =
53	10. 011073	011075	011078	011080	011082	011085	011087	011090	011092	011094	011097	011099	6	2.
54	10. 011102	011104	011107	011109	011111	011114	011116	011119	011121	011123	011126	011128	5	3.
55	10. 011131	011133	011136	011138	011140	011143	011145	011148	011150	011152	011155	011157	4	4.
56	10. 011160	011162	011164	011167	011169	011172	011174	011177	011179	011181	011184	011186	3	1 =
57	10. 011189	011191	011194	011196	011198	011201	011203	011206	011208	011210	011213	011215	2	2.
58	10. 011218	011220	011223	011225	011227	011230	011232	011235	011237	011240	011242	011244	1	3.
59	10. 011247	011249	011252	011254	011257	011259	011261	011264	011266	011269	011271	011274	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts

Co-secant of 77 degrees, or Secant of 167 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 13 degrees, or Co-secant of 103 degrees. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Propor. parts.
0	10.011276	011278	011281	011283	011286	011288	011291	011293	011295	011298	011300	011303	59	1″ = 0
1	10.011305	011308	011310	011313	011315	011317	011320	011322	011325	011327	011330	011332	58	2. 1
2	10.011334	011337	011339	011342	011344	011347	011349	011351	011354	011356	011359	011361	57	3. 1
3	10.011364	011366	011369	011371	011373	011376	011378	011381	011383	011386	011388	011391	56	4. 2
4	10.011393	011395	011398	011400	011403	011405	011408	011410	011413	011415	011417	011420	55	1 = 0
5	10.011422	011425	011427	011430	011432	011435	011437	011439	011442	011444	011447	011449	54	2. 1
6	10.011452	011454	011457	011459	011462	011464	011466	011469	011471	011474	011476	011479	53	3. 1
7	10.011481	011484	011486	011488	011491	011493	011496	011498	011501	011503	011506	011508	52	4. 2
8	10.011511	011513	011516	011518	011520	011523	011525	011528	011530	011533	011535	011538	51	1 = 0
9	10.011540	011543	011545	011547	011550	011552	011555	011557	011560	011562	011565	011567	50	2. 1
10	10.011570	011572	011575	011577	011579	011582	011584	011587	011589	011592	011594	011597	49	3. 1
11	10.011599	011602	011604	011607	011609	011612	011614	011616	011619	011621	011624	011626	48	4. 2
12	10.011629	011631	011634	011636	011639	011641	011644	011646	011649	011651	011654	011656	47	1 = 0
13	10.011658	011661	011663	011666	011668	011671	011673	011676	011678	011681	011683	011686	46	2. 1
14	10.011688	011691	011693	011696	011698	011701	011703	011705	011708	011710	011713	011715	45	3. 2
15	10.011718	011720	011723	011725	011728	011730	011733	011735	011738	011740	011743	011745	44	4. 2
16	10.011748	011750	011753	011755	011758	011760	011763	011765	011768	011770	011773	011775	43	1 = 1
17	10.011777	011780	011782	011785	011787	011790	011792	011795	011797	011800	011802	011805	42	2. 1
18	10.011807	011810	011812	011815	011817	011820	011822	011825	011827	011830	011832	011835	41	3. 2
19	10.011837	011840	011842	011845	011847	011850	011852	011855	011857	011860	011862	011865	40	4. 2
20	10.011867	011870	011872	011875	011877	011880	011882	011885	011887	011890	011892	011895	39	1 = 1
21	10.011897	011900	011902	011905	011907	011910	011912	011915	011917	011920	011922	011925	38	2. 1
22	10.011927	011930	011932	011935	011937	011940	011942	011945	011947	011950	011952	011955	37	3. 2
23	10.011957	011960	011962	011965	011967	011970	011972	011975	011977	011980	011982	011985	36	4. 2
24	10.011987	011990	011992	011995	011997	012000	012002	012005	012007	012010	012012	012015	35	1 = 1
25	10.012017	012020	012022	012025	012027	012030	012032	012035	012037	012040	012042	012045	34	2. 1
26	10.012047	012050	012052	012055	012057	012060	012063	012065	012068	012070	012073	012075	33	3. 2
27	10.012078	012080	012083	012085	012088	012090	012093	012095	012098	012100	012103	012105	32	4. 2
28	10.012108	012110	012113	012115	012118	012120	012123	012126	012128	012131	012133	012136	31	1 = 1
29	10.012138	012141	012143	012146	012148	012151	012153	012156	012158	012161	012163	012166	30	2. 1
30	10.012168	012171	012173	012176	012179	012181	012184	012186	012189	012191	012194	012196	29	3. 2
31	10.012199	012201	012204	012206	012209	012211	012214	012217	012219	012222	012224	012227	28	4. 2
32	10.012229	012232	012234	012237	012239	012242	012244	012247	012249	012252	012255	012257	27	1 = 1
33	10.012260	012262	012265	012267	012270	012272	012275	012277	012280	012282	012285	012288	26	2. 1
34	10.012290	012293	012295	012298	012300	012303	012305	012308	012310	012313	012315	012318	25	3. 2
35	10.012321	012323	012326	012328	012331	012333	012336	012338	012341	012343	012346	012349	24	4. 2
36	10.012351	012354	012356	012359	012361	012364	012366	012369	012371	012374	012377	012379	23	1 = 1
37	10.012382	012384	012387	012389	012392	012394	012397	012400	012402	012405	012407	012410	22	2. 1
38	10.012412	012415	012417	012420	012423	012425	012428	012430	012433	012435	012438	012440	21	3. 2
39	10.012443	012446	012448	012451	012453	012456	012458	012461	012463	012466	012469	012471	20	4. 2
40	10.012474	012476	012479	012481	012484	012486	012489	012492	012494	012497	012499	012502	19	1 = 1
41	10.012504	012507	012510	012512	012515	012517	012520	012522	012525	012527	012530	012533	18	2. 1
42	10.012535	012538	012540	012543	012545	012548	012551	012553	012556	012558	012561	012563	17	3. 2
43	10.012566	012569	012571	012574	012576	012579	012581	012584	012587	012589	012592	012594	16	4. 2
44	10.012597	012599	012602	012605	012607	012610	012612	012615	012617	012620	012623	012625	15	1 = 1
45	10.012628	012630	012633	012635	012638	012641	012643	012646	012648	012651	012654	012656	14	2. 1
46	10.012659	012661	012664	012666	012669	012672	012674	012677	012679	012682	012684	012687	13	3. 2
47	10.012690	012692	012695	012697	012700	012703	012705	012708	012710	012713	012715	012718	12	4. 2
48	10.012721	012723	012726	012728	012731	012734	012736	012739	012741	012744	012747	012749	11	1 = 1
49	10.012752	012754	012757	012759	012762	012765	012767	012770	012772	012775	012778	012780	10	2. 1
50	10.012783	012785	012788	012791	012793	012796	012798	012801	012804	012806	012809	012811	9	3. 2
51	10.012814	012817	012819	012822	012824	012827	012830	012832	012835	012837	012840	012842	8	4. 2
52	10.012845	012848	012850	012853	012855	012858	012861	012863	012866	012868	012871	012874	7	1 = 1
53	10.012876	012879	012882	012884	012887	012889	012892	012895	012897	012900	012902	012905	6	2. 1
54	10.012908	012910	012913	012915	012918	012921	012923	012926	012928	012931	012934	012936	5	3. 2
55	10.012939	012941	012944	012947	012949	012952	012954	012957	012960	012962	012965	012968	4	4. 2
56	10.012970	012973	012975	012978	012981	012983	012986	012988	012991	012994	012996	012999	3	1 = 1
57	10.013002	013004	013007	013009	013012	013015	013017	013020	013022	013025	013028	013030	2	2. 1
58	10.013033	013036	013038	013041	013043	013046	013049	013051	013054	013056	013059	013062	1	3. 2
59	10.013064	013067	013070	013072	013075	013077	013080	013083	013085	013088	013091	013093	0	4. 2
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-secant of 76 degrees, or Secant of 166 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 14 degrees, or Co-secant of 104 degrees.												Minutes	Propor. parts
	0′	5″	10′	15″	20″	25″	30′	35′	40″	45′	50″	55′		
0	10.013096	013098	013101	013104	013106	013109	013112	013114	013117	013119	013122	013125	59	1″ =
1	10.013127	013130	013133	013135	013138	013140	013143	013146	013148	013151	013154	013156	58	2.
2	10.013159	013162	013164	013167	013169	013172	013175	013177	013180	013183	013185	013188	57	3.
3	10.013191	013193	013196	013198	013201	013204	013206	013209	013212	013214	013217	013219	56	4.
4	10.013222	013225	013227	013230	013233	013235	013238	013241	013243	013246	013249	013251	55	1 =
5	10.013254	013256	013259	013262	013264	013267	013270	013272	013275	013278	013280	013283	54	2.
6	10.013286	013288	013291	013293	013296	013299	013301	013304	013307	013309	013312	013315	53	3.
7	10.013317	013320	013323	013325	013328	013331	013333	013336	013338	013341	013344	013346	52	4.
8	10.013349	013352	013354	013357	013360	013362	013365	013368	013370	013373	013376	013378	51	1 =
9	10.013381	013384	013386	013389	013392	013394	013397	013399	013402	013405	013407	013410	50	2.
10	10.013413	013415	013418	013421	013423	013426	013429	013431	013434	013437	013439	013442	49	3.
11	10.013445	013447	013450	013453	013455	013458	013461	013463	013466	013469	013471	013474	48	4.
12	10.013477	013479	013482	013485	013487	013490	013493	013495	013498	013501	013503	013506	47	1 =
13	10.013509	013511	013514	013517	013519	013522	013525	013527	013530	013533	013535	013538	46	2.
14	10.013541	013543	013546	013549	013551	013554	013557	013559	013562	013565	013567	013570	45	3.
15	10.013573	013575	013578	013581	013583	013586	013589	013591	013594	013597	013599	013602	44	4.
16	10.013605	013607	013610	013613	013616	013618	013621	013624	013626	013629	013632	013634	43	1 =
17	10.013637	013640	013642	013645	013648	013650	013653	013656	013658	013661	013664	013666	42	2.
18	10.013669	013672	013674	013677	013680	013683	013685	013688	013691	013693	013696	013699	41	3.
19	10.013701	013704	013707	013709	013712	013715	013717	013720	013723	013726	013728	013731	40	4.
20	10.013734	013736	013739	013742	013744	013747	013750	013752	013755	013758	013761	013763	39	1 =
21	10.013766	013769	013771	013774	013777	013779	013782	013785	013787	013790	013793	013796	38	2.
22	10.013798	013801	013804	013806	013809	013812	013814	013817	013820	013823	013825	013828	37	3.
23	10.013831	013833	013836	013839	013841	013844	013847	013850	013852	013855	013858	013860	36	4.
24	10.013863	013866	013868	013871	013874	013877	013879	013882	013885	013887	013890	013893	35	1 =
25	10.013895	013898	013901	013904	013906	013909	013912	013914	013917	013920	013923	013925	34	2.
26	10.013928	013931	013934	013936	013939	013942	013944	013947	013950	013952	013955	013958	33	3.
27	10.013961	013963	013966	013969	013971	013974	013977	013980	013982	013985	013988	013990	32	4.
28	10.013993	013996	013999	014001	014004	014007	014009	014012	014015	014018	014020	014023	31	1 =
29	10.014026	014028	014031	014034	014037	014039	014042	014045	014047	014050	014053	014056	30	2.
30	10.014058	014061	014064	014067	014069	014072	014075	014077	014080	014083	014086	014088	29	3.
31	10.014091	014094	014097	014099	014102	014105	014107	014110	014113	014116	014118	014121	28	4.
32	10.014124	014127	014129	014132	014135	014137	014140	014143	014146	014148	014151	014154	27	1 =
33	10.014157	014159	014162	014165	014167	014170	014173	014176	014178	014181	014184	014187	26	2.
34	10.014189	014192	014195	014198	014200	014203	014206	014209	014211	014214	014217	014219	25	3.
35	10.014222	014225	014228	014230	014233	014236	014239	014241	014244	014247	014250	014252	24	4.
36	10.014255	014258	014261	014263	014266	014269	014272	014274	014277	014280	014283	014285	23	1 =
37	10.014288	014291	014294	014296	014299	014302	014304	014307	014310	014313	014315	014318	22	2.
38	10.014321	014324	014326	014329	014332	014335	014337	014340	014343	014346	014348	014351	21	3.
39	10.014354	014357	014359	014362	014365	014368	014371	014373	014376	014379	014382	014384	20	4.
40	10.014387	014390	014393	014395	014398	014401	014404	014406	014409	014412	014415	014417	19	1 =
41	10.014420	014423	014426	014428	014431	014434	014437	014439	014442	014445	014448	014450	18	2.
42	10.014453	014456	014459	014462	014464	014467	014470	014473	014475	014478	014481	014484	17	3.
43	10.014486	014489	014492	014495	014497	014500	014503	014506	014509	014511	014514	014517	16	4.
44	10.014520	014522	014525	014528	014531	014533	014536	014539	014542	014545	014547	014550	15	1 =
45	10.014553	014556	014558	014561	014564	014567	014570	014572	014575	014578	014581	014583	14	2.
46	10.014586	014589	014592	014594	014597	014600	014603	014606	014608	014611	014614	014617	13	3.
47	10.014619	014622	014625	014628	014631	014633	014636	014639	014642	014644	014647	014650	12	4.
48	10.014653	014656	014658	014661	014664	014667	014669	014672	014675	014678	014681	014683	11	1 =
49	10.014686	014689	014692	014695	014697	014700	014703	014706	014708	014711	014714	014717	10	2.
50	10.014720	014722	014725	014728	014731	014734	014736	014739	014742	014745	014748	014750	9	3.
51	10.014753	014756	014759	014761	014764	014767	014770	014773	014775	014778	014781	014784	8	4.
52	10.014787	014789	014792	014795	014798	014801	014803	014806	014809	014812	014815	014817	7	1 =
53	10.014820	014823	014826	014829	014831	014834	014837	014840	014843	014845	014848	014851	6	2.
54	10.014854	014857	014859	014862	014865	014868	014871	014873	014876	014879	014882	014885	5	3.
55	10.014887	014890	014893	014896	014899	014901	014904	014907	014910	014913	014915	014918	4	4.
56	10.014921	014924	014927	014930	014932	014935	014938	014941	014944	014946	014949	014952	3	1 =
57	10.014955	014958	014960	014963	014966	014969	014972	014974	014977	014980	014983	014986	2	2.
58	10.014989	014991	014994	014997	015000	015003	015005	015008	015011	015014	015017	015020	1	3.
59	10.015022	015025	015028	015031	015034	015036	015039	015042	015045	015048	015051	015053	0	4.
Minutes	60′	55″	50′	45″	40′	35″	30′	25′	20′	15″	10′	5′	Minutes	Propor. parts
	Co-secant of 75 degrees, or Secant of 165 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 15 degrees, or Co-secant of 105 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.015056	015059	015062	015065	015067	015070	015073	015076	015079	015082	015084	015087	59	1″ = 1
1	10.015090	015093	015096	015099	015101	015104	015107	015110	015113	015115	015118	015121	58	2. 1
2	10.015124	015127	015130	015132	015135	015138	015141	015144	015147	015149	015152	015155	57	3. 2
3	10.015158	015161	015164	015166	015169	015172	015175	015178	015181	015183	015186	015189	56	4. 2
4	10.015192	015195	015198	015200	015203	015206	015209	015212	015215	015217	015220	015223	55	1 = 1
5	10.015226	015229	015232	015234	015237	015240	015243	015246	015249	015251	015254	015257	54	2. 1
6	10.015260	015263	015266	015269	015271	015274	015277	015280	015283	015286	015288	015291	53	3. 2
7	10.015294	015297	015300	015303	015305	015308	015311	015314	015317	015320	015323	015325	52	4. 2
8	10.015328	015331	015334	015337	015340	015342	015345	015348	015351	015354	015357	015360	51	1 = 1
9	10.015362	015365	015368	015371	015374	015377	015380	015382	015385	015388	015391	015394	50	2. 1
10	10.015397	015399	015402	015405	015408	015411	015414	015417	015419	015422	015425	015428	49	3. 2
11	10.015431	015434	015437	015439	015442	015445	015448	015451	015454	015457	015459	015462	48	4. 2
12	10.015465	015468	015471	015474	015477	015480	015482	015485	015488	015491	015494	015497	47	1 = 1
13	10.015500	015502	015505	015508	015511	015514	015517	015520	015522	015525	015528	015531	46	2. 1
14	10.015534	015537	015540	015543	015545	015548	015551	015554	015557	015560	015563	015565	45	3. 2
15	10.015568	015571	015574	015577	015580	015583	015586	015588	015591	015594	015597	015600	44	4. 2
16	10.015603	015606	015609	015611	015614	015617	015620	015623	015626	015629	015632	015634	43	1 = 1
17	10.015637	015640	015643	015646	015649	015652	015655	015657	015660	015663	015666	015669	42	2. 1
18	10.015672	015675	015678	015681	015683	015686	015689	015692	015695	015698	015701	015704	41	3. 2
19	10.015706	015709	015712	015715	015718	015721	015724	015727	015730	015732	015735	015738	40	4. 2
20	10.015741	015744	015747	015750	015753	015756	015758	015761	015764	015767	015770	015773	39	1 = 1
21	10.015776	015779	015782	015784	015787	015790	015793	015796	015799	015802	015805	015808	38	2. 1
22	10.015810	015813	015816	015819	015822	015825	015828	015831	015834	015836	015839	015842	37	3. 2
23	10.015845	015848	015851	015854	015857	015860	015863	015865	015868	015871	015874	015877	36	4. 2
24	10.015880	015883	015886	015889	015892	015894	015897	015900	015903	015906	015909	015912	35	1 = 1
25	10.015915	015918	015921	015923	015926	015929	015932	015935	015938	015941	015944	015947	34	2. 1
26	10.015950	015953	015955	015958	015961	015964	015967	015970	015973	015976	015979	015982	33	3. 2
27	10.015985	015987	015990	015993	015996	015999	016002	016005	016008	016011	016014	016017	32	4. 2
28	10.016019	016022	016025	016028	016031	016034	016037	016040	016043	016046	016049	016052	31	1 = 1
29	10.016054	016057	016060	016063	016066	016069	016072	016075	016078	016081	016084	016087	30	2. 1
30	10.016089	016092	016095	016098	016101	016104	016107	016110	016113	016116	016119	016122	29	3. 2
31	10.016124	016127	016130	016133	016136	016139	016142	016145	016148	016151	016154	016157	28	4. 2
32	10.016160	016163	016165	016168	016171	016174	016177	016180	016183	016186	016189	016192	27	1 = 1
33	10.016195	016198	016201	016204	016206	016209	016212	016215	016218	016221	016224	016227	26	2. 1
34	10.016230	016233	016236	016239	016242	016245	016247	016250	016253	016256	016259	016262	25	3. 2
35	10.016265	016268	016271	016274	016277	016280	016283	016286	016289	016292	016294	016297	24	4. 2
36	10.016300	016303	016306	016309	016312	016315	016318	016321	016324	016327	016330	016333	23	1 = 1
37	10.016336	016339	016342	016344	016347	016350	016353	016356	016359	016362	016365	016368	22	2. 1
38	10.016371	016374	016377	016380	016383	016386	016389	016392	016395	016398	016400	016403	21	3. 2
39	10.016406	016409	016412	016415	016418	016421	016424	016427	016430	016433	016436	016439	20	4. 2
40	10.016442	016445	016448	016451	016454	016457	016459	016462	016465	016468	016471	016474	19	1 = 1
41	10.016477	016480	016483	016486	016489	016492	016495	016498	016501	016504	016507	016510	18	2. 1
42	10.016513	016516	016519	016522	016525	016528	016530	016533	016536	016539	016542	016545	17	3. 2
43	10.016548	016551	016554	016557	016560	016563	016566	016569	016572	016575	016578	016581	16	4. 2
44	10.016584	016587	016590	016593	016596	016599	016602	016605	016608	016611	016613	016616	15	1 = 1
45	10.016619	016622	016625	016628	016631	016634	016637	016640	016643	016646	016649	016652	14	2. 1
46	10.016655	016658	016661	016664	016667	016670	016673	016676	016679	016682	016685	016688	13	3. 2
47	10.016691	016694	016697	016700	016703	016706	016709	016712	016715	016718	016721	016723	12	4. 2
48	10.016726	016729	016732	016735	016738	016741	016744	016747	016750	016753	016756	016759	11	1 = 1
49	10.016762	016765	016768	016771	016774	016777	016780	016783	016786	016789	016792	016795	10	2. 1
50	10.016798	016801	016804	016807	016810	016813	016816	016819	016822	016825	016828	016831	9	3. 2
51	10.016834	016837	016840	016843	016846	016849	016852	016855	016858	016861	016864	016867	8	4. 2
52	10.016870	016873	016876	016879	016882	016885	016888	016891	016894	016897	016900	016903	7	1 = 1
53	10.016906	016909	016912	016915	016918	016921	016924	016927	016930	016933	016936	016939	6	2. 1
54	10.016942	016945	016948	016951	016954	016957	016960	016963	016966	016969	016972	016975	5	3. 2
55	10.016978	016981	016984	016987	016990	016993	016996	016999	017002	017005	017008	017011	4	4. 2
56	10.017014	017017	017020	017023	017026	017029	017032	017035	017038	017041	017044	017047	3	1 = 1
57	10.017050	017053	017056	017059	017062	017065	017068	017071	017074	017077	017080	017083	2	2. 1
58	10.017086	017089	017092	017095	017098	017101	017104	017107	017110	017113	017116	017119	1	3. 2
59	10.017122	017125	017128	017131	017134	017137	017140	017143	017146	017149	017152	017155	0	4. 2
	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proper. parts.
	Co-secant of 74 degrees, or Secant of 164 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 16 degrees, or Co-secant of 106 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.017158	017161	017164	017167	017170	017173	017176	017179	017182	017185	017189	017192	59	1″ = 1
1	10.017195	017198	017201	017204	017207	017210	017213	017216	017219	017222	017225	017228	58	2. 1
2	10.017231	017234	017237	017240	017243	017246	017249	017252	017255	017258	017261	017264	57	3. 1
3	10.017267	017270	017273	017276	017279	017282	017285	017288	017291	017294	017297	017300	56	4. 1
4	10.017304	017307	017310	017313	017316	017319	017322	017325	017328	017331	017334	017337	55	1 =
5	10.017340	017343	017346	017349	017352	017355	017358	017361	017364	017367	017370	017373	54	2.
6	10.017376	017379	017382	017385	017389	017392	017395	017398	017401	017404	017407	017410	53	3.
7	10.017413	017416	017419	017422	017425	017428	017431	017434	017437	017440	017443	017446	52	4.
8	10.017449	017452	017455	017459	017462	017465	017468	017471	017474	017477	017480	017483	51	1 =
9	10.017486	017489	017492	017495	017498	017501	017504	017507	017510	017513	017516	017519	50	2.
10	10.017523	017526	017529	017532	017535	017538	017541	017544	017547	017550	017553	017556	49	3.
11	10.017559	017562	017565	017568	017571	017574	017578	017581	017584	017587	017590	017593	48	4.
12	10.017596	017599	017602	017605	017608	017611	017614	017617	017620	017623	017626	017630	47	1 =
13	10.017633	017636	017639	017642	017645	017648	017651	017654	017657	017660	017663	017666	46	2.
14	10.017669	017672	017675	017679	017682	017685	017688	017691	017694	017697	017700	017703	45	3.
15	10.017706	017709	017712	017715	017718	017722	017725	017728	017731	017734	017737	017740	44	4.
16	10.017743	017746	017749	017752	017755	017758	017761	017765	017768	017771	017774	017777	43	1 =
17	10.017780	017783	017786	017789	017792	017795	017798	017801	017804	017808	017811	017814	42	2.
18	10.017817	017820	017823	017826	017829	017832	017835	017838	017841	017845	017848	017851	41	3.
19	10.017854	017857	017860	017863	017866	017869	017872	017875	017878	017882	017885	017888	40	4.
20	10.017891	017894	017897	017900	017903	017906	017909	017912	017915	017919	017922	017925	39	1 =
21	10.017928	017931	017934	017937	017940	017943	017946	017949	017953	017956	017959	017962	38	2.
22	10.017965	017968	017971	017974	017977	017980	017983	017987	017990	017993	017996	017999	37	3.
23	10.018002	018005	018008	018011	018014	018017	018021	018024	018027	018030	018033	018036	36	4.
24	10.018039	018042	018045	018048	018052	018055	018058	018061	018064	018067	018070	018073	35	1 =
25	10.018076	018079	018083	018086	018089	018092	018095	018098	018101	018104	018107	018111	34	2.
26	10.018114	018117	018120	018123	018126	018129	018132	018135	018138	018142	018145	018148	33	3.
27	10.018151	018154	018157	018160	018163	018166	018170	018173	018176	018179	018182	018185	32	4.
28	10.018188	018191	018194	018198	018201	018204	018207	018210	018213	018216	018219	018222	31	1 =
29	10.018226	018229	018232	018235	018238	018241	018244	018247	018251	018254	018257	018260	30	2.
30	10.018263	018266	018269	018272	018275	018279	018282	018285	018288	018291	018294	018297	29	3.
31	10.018300	018304	018307	018310	018313	018316	018319	018322	018325	018329	018332	018335	28	4.
32	10.018338	018341	018344	018347	018350	018354	018357	018360	018363	018366	018369	018372	27	1 =
33	10.018375	018379	018382	018385	018388	018391	018394	018397	018400	018404	018407	018410	26	2.
34	10.018413	018416	018419	018422	018426	018429	018432	018435	018438	018441	018444	018447	25	3.
35	10.018451	018454	018457	018460	018463	018466	018469	018473	018476	018479	018482	018485	24	4.
36	10.018488	018491	018495	018498	018501	018504	018507	018510	018513	018516	018520	018523	23	1 =
37	10.018526	018529	018532	018535	018538	018542	018545	018548	018551	018554	018557	018560	22	2.
38	10.018564	018567	018570	018573	018576	018579	018583	018586	018589	018592	018595	018598	21	3.
39	10.018601	018605	018608	018611	018614	018617	018620	018623	018627	018630	018633	018636	20	4.
40	10.018639	018642	018645	018649	018652	018655	018658	018661	018664	018668	018671	018674	19	1 =
41	10.018677	018680	018683	018687	018690	018693	018696	018699	018702	018705	018709	018712	18	2.
42	10.018715	018718	018721	018724	018728	018731	018734	018737	018740	018743	018747	018750	17	3.
43	10.018753	018756	018759	018762	018765	018769	018772	018775	018778	018781	018784	018788	16	4.
44	10.018791	018794	018797	018800	018803	018807	018810	018813	018816	018819	018822	018826	15	1 =
45	10.018829	018832	018835	018838	018841	018845	018848	018851	018854	018857	018860	018864	14	2.
46	10.018867	018870	018873	018876	018880	018883	018886	018889	018892	018895	018899	018902	13	3.
47	10.018905	018908	018911	018914	018918	018921	018924	018927	018930	018934	018937	018940	12	4.
48	10.018943	018946	018949	018953	018956	018959	018962	018965	018968	018972	018975	018978	11	1 =
49	10.018981	018984	018988	018991	018994	018997	019000	019003	019007	019010	019013	019016	10	2.
50	10.019019	019023	019026	019029	019032	019035	019039	019042	019045	019048	019051	019054	9	3.
51	10.019058	019061	019064	019067	019070	019074	019077	019080	019083	019086	019090	019093	8	4.
52	10.019096	019099	019102	019106	019109	019112	019115	019118	019121	019125	019128	019131	7	1 =
53	10.019134	019137	019141	019144	019147	019150	019153	019157	019160	019163	019166	019169	6	2.
54	10.019173	019176	019179	019182	019185	019189	019192	019195	019198	019201	019205	019208	5	3.
55	10.019211	019214	019217	019221	019224	019227	019230	019233	019237	019240	019243	019246	4	4.
56	10.019249	019253	019256	019259	019262	019265	019269	019272	019275	019278	019282	019285	3	1 =
57	10.019288	019291	019294	019298	019301	019304	019307	019310	019314	019317	019320	019323	2	2.
58	10.019326	019330	019333	019336	019339	019343	019346	019349	019352	019355	019359	019362	1	3.
59	10.019365	019368	019371	019375	019378	019381	019384	019388	019391	019394	019397	019400	0	4.
Minutes	60″	55″	50″	45″	40″	35	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 73 degrees, or Secant of 163 degrees.													

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LOGARITHMIC SECANTS.

Secant of 17 degrees, or Co-secant of 107 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.019404	019407	019410	019413	019417	019420	019423	019426	019429	019433	019436	019439	59	1″ =
1	10.019442	019445	019449	019452	019455	019458	019462	019465	019468	019471	019475	019478	58	2.
2	10.019481	019484	019487	019491	019494	019497	019500	019504	019507	019510	019513	019516	57	3.
3	10.019520	019523	019526	019529	019533	019536	019539	019542	019546	019549	019552	019555	56	4.
4	10.019558	019562	019565	019568	019571	019575	019578	019581	019584	019588	019591	019594	55	1 =
5	10.019597	019600	019604	019607	019610	019613	019617	019620	019623	019626	019630	019633	54	2.
6	10.019636	019639	019643	019646	019649	019652	019656	019659	019662	019665	019668	019672	53	3.
7	10.019675	019678	019681	019685	019688	019691	019694	019698	019701	019704	019707	019711	52	4.
8	10.019714	019717	019720	019724	019727	019730	019733	019737	019740	019743	019746	019750	51	1 =
9	10.019753	019756	019759	019763	019766	019769	019772	019776	019779	019782	019785	019789	50	2.
10	10.019792	019795	019798	019802	019805	019808	019811	019815	019818	019821	019824	019828	49	3.
11	10.019831	019834	019837	019841	019844	019847	019850	019854	019857	019860	019863	019867	48	4.
12	10.019870	019873	019877	019880	019883	019886	019890	019893	019896	019899	019903	019906	47	1 =
13	10.019909	019912	019916	019919	019922	019925	019929	019932	019935	019939	019942	019945	46	2.
14	10.019948	019952	019955	019958	019961	019965	019968	019971	019974	019978	019981	019984	45	3.
15	10.019988	019991	019994	019997	020001	020004	020007	020010	020014	020017	020020	020023	44	4.
16	10.020027	020030	020033	020037	020040	020043	020046	020050	020053	020056	020059	020063	43	1 =
17	10.020066	020069	020073	020076	020079	020082	020086	020089	020092	020096	020099	020102	42	2.
18	10.020105	020109	020112	020115	020118	020122	020125	020128	020132	020135	020138	020141	41	3.
19	10.020145	020148	020151	020155	020158	020161	020164	020168	020171	020174	020178	020181	40	4.
20	10.020184	020187	020191	020194	020197	020201	020204	020207	020210	020214	020217	020220	39	1 = 1
21	10.020224	020227	020230	020233	020237	020240	020243	020247	020250	020253	020256	020260	38	2. 1
22	10.020263	020266	020270	020273	020276	020280	020283	020286	020289	020293	020296	020299	37	3. 2
23	10.020303	020306	020309	020313	020316	020319	020322	020326	020329	020332	020336	020339	36	4. 3
24	10.020342	020345	020349	020352	020355	020359	020362	020365	020369	020372	020375	020378	35	1 = 1
25	10.020382	020385	020388	020392	020395	020398	020402	020405	020408	020412	020415	020418	34	2. 1
26	10.020421	020425	020428	020431	020435	020438	020441	020445	020448	020451	020455	020458	33	3. 2
27	10.020461	020464	020468	020471	020474	020478	020481	020484	020488	020491	020494	020498	32	4. 3
28	10.020501	020504	020507	020511	020514	020517	020521	020524	020527	020531	020534	020537	31	1 = 1
29	10.020541	020544	020547	020551	020554	020557	020561	020564	020567	020570	020574	020577	30	2. 1
30	10.020580	020584	020587	020590	020594	020597	020600	020604	020607	020610	020614	020617	29	3. 2
31	10.020620	020624	020627	020630	020634	020637	020640	020644	020647	020650	020654	020657	28	4. 3
32	10.020660	020664	020667	020670	020673	020677	020680	020683	020687	020690	020693	020697	27	1 = 1
33	10.020700	020703	020707	020710	020713	020717	020720	020723	020727	020730	020733	020737	26	2. 1
34	10.020740	020743	020747	020750	020753	020757	020760	020763	020767	020770	020773	020777	25	3. 2
35	10.020780	020783	020787	020790	020793	020797	020800	020803	020807	020810	020813	020817	24	4. 3
36	10.020820	020824	020827	020830	020834	020837	020840	020844	020847	020850	020854	020857	23	1 = 1
37	10.020860	020864	020867	020870	020874	020877	020880	020884	020887	020890	020894	020897	22	2. 1
38	10.020900	020904	020907	020910	020914	020917	020920	020924	020927	020931	020934	020937	21	3. 2
39	10.020941	020944	020947	020951	020954	020957	020961	020964	020967	020971	020974	020977	20	4. 3
40	10.020981	020984	020987	020991	020994	020998	021001	021004	021008	021011	021014	021018	19	1 = 1
41	10.021021	021024	021028	021031	021034	021038	021041	021045	021048	021051	021055	021058	18	2. 1
42	10.021061	021065	021068	021071	021075	021078	021082	021085	021088	021092	021095	021098	17	3. 2
43	10.021102	021105	021108	021112	021115	021119	021122	021125	021129	021132	021135	021139	16	4. 3
44	10.021142	021145	021149	021152	021156	021159	021162	021166	021169	021172	021176	021179	15	1 = 1
45	10.021182	021186	021189	021193	021196	021199	021203	021206	021209	021213	021216	021220	14	2. 1
46	10.021223	021226	021230	021233	021236	021240	021243	021247	021250	021253	021257	021260	13	3. 2
47	10.021263	021267	021270	021274	021277	021280	021284	021287	021290	021294	021297	021301	12	4. 3
48	10.021304	021307	021311	021314	021318	021321	021324	021328	021331	021334	021338	021341	11	1 = 1
49	10.021345	021348	021351	021355	021358	021361	021365	021368	021372	021375	021378	021382	10	2. 1
50	10.021385	021389	021392	021395	021399	021402	021406	021409	021412	021416	021419	021422	9	3. 2
51	10.021426	021429	021433	021436	021439	021443	021446	021450	021453	021456	021460	021463	8	4. 3
52	10.021467	021470	021473	021477	021480	021484	021487	021490	021494	021497	021500	021504	7	1 = 1
53	10.021507	021511	021514	021517	021521	021524	021528	021531	021534	021538	021541	021545	6	2. 1
54	10.021548	021551	021555	021558	021562	021565	021568	021572	021575	021579	021582	021585	5	3. 2
55	10.021589	021592	021596	021599	021603	021606	021609	021613	021616	021620	021623	021626	4	4. 3
56	10.021630	021633	021637	021640	021643	021647	021650	021654	021657	021660	021664	021667	3	1 = 1
57	10.021671	021674	021677	021681	021684	021688	021691	021695	021698	021701	021705	021708	2	2. 1
58	10.021712	021715	021718	021722	021725	021729	021732	021736	021739	021742	021746	021749	1	3. 2
59	10.021753	021756	021759	021763	021766	021770	021773	021777	021780	021783	021787	021790	0	4. 3
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 72 degrees, or Secant of 162 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 18 degrees, or Co-secant of 108 degrees.												Minutes	Proportional parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 021794	021797	021800	021804	021807	021811	021814	021818	021821	021824	021828	021831	59	1″ =
1	10. 021835	021838	021842	021845	021848	021852	021855	021859	021862	021866	021869	021872	58	2.
2	10. 021876	021879	021883	021886	021890	021893	021896	021900	021903	021907	021910	021914	57	3.
3	10. 021917	021920	021924	021927	021931	021934	021938	021941	021944	021948	021951	021955	56	4.
4	10. 021958	021962	021965	021968	021972	021975	021979	021982	021986	021989	021992	021996	55	1 =
5	10. 021999	022003	022006	022010	022013	022017	022020	022023	022027	022030	022034	022037	54	2.
6	10. 022041	022044	022048	022051	022054	022058	022061	022065	022068	022072	022075	022079	53	3.
7	10. 022082	022085	022089	022092	022096	022099	022103	022106	022110	022113	022116	022120	52	4.
8	10. 022123	022127	022130	022134	022137	022141	022144	022147	022151	022154	022158	022161	51	1 =
9	10. 022165	022168	022172	022175	022179	022182	022185	022189	022192	022196	022199	022203	50	2.
10	10. 022206	022210	022213	022216	022220	022223	022227	022230	022234	022237	022241	022244	49	3.
11	10. 022248	022251	022255	022258	022261	022265	022268	022272	022275	022279	022282	022286	48	4.
12	10. 022289	022293	022296	022300	022303	022306	022310	022313	022317	022320	022324	022327	47	1 =
13	10. 022331	022334	022338	022341	022345	022348	022351	022355	022358	022362	022365	022369	46	2.
14	10. 022372	022376	022379	022383	022386	022390	022393	022397	022400	022403	022407	022410	45	3.
15	10. 022414	022417	022421	022424	022428	022431	022435	022438	022442	022445	022449	022452	44	4.
16	10. 022456	022459	022463	022466	022469	022473	022476	022480	022483	022487	022490	022494	43	1 =
17	10. 022497	022501	022504	022508	022511	022515	022518	022522	022525	022529	022532	022536	42	2.
18	10. 022539	022543	022546	022550	022553	022556	022560	022563	022567	022570	022574	022577	41	3.
19	10. 022581	022584	022588	022591	022595	022598	022602	022605	022609	022612	022616	022619	40	4.
20	10. 022623	022626	022630	022633	022637	022640	022644	022647	022651	022654	022658	022661	39	1 =
21	10. 022665	022668	022672	022675	022679	022682	022686	022689	022693	022696	022700	022703	38	2.
22	10. 022707	022710	022714	022717	022721	022724	022728	022731	022735	022738	022742	022745	37	3.
23	10. 022749	022752	022756	022759	022763	022766	022770	022773	022777	022780	022784	022787	36	4.
24	10. 022791	022794	022798	022801	022805	022808	022812	022815	022819	022822	022826	022829	35	1 =
25	10. 022833	022836	022840	022843	022847	022850	022854	022857	022861	022864	022868	022871	34	2.
26	10. 022875	022878	022882	022885	022889	022892	022896	022899	022903	022906	022910	022913	33	3.
27	10. 022917	022920	022924	022927	022931	022934	022938	022941	022945	022948	022952	022955	32	4.
28	10. 022959	022962	022966	022969	022973	022976	022980	022984	022987	022991	022994	022998	31	1 =
29	10. 023001	023005	023008	023012	023015	023019	023022	023026	023029	023033	023036	023040	30	2.
30	10. 023043	023047	023050	023054	023057	023061	023065	023068	023072	023075	023079	023082	29	3.
31	10. 023086	023089	023093	023096	023100	023103	023107	023110	023114	023117	023121	023124	28	4.
32	10. 023128	023132	023135	023139	023142	023146	023149	023153	023156	023160	023163	023167	27	1 =
33	10. 023170	023174	023177	023181	023184	023188	023192	023195	023199	023202	023206	023209	26	2.
34	10. 023213	023216	023220	023223	023227	023230	023234	023238	023241	023245	023248	023252	25	3.
35	10. 023255	023259	023262	023266	023269	023273	023276	023280	023284	023287	023291	023294	24	4.
36	10. 023298	023301	023305	023308	023312	023315	023319	023323	023326	023330	023333	023337	23	1 =
37	10. 023340	023344	023347	023351	023354	023358	023362	023365	023369	023372	023376	023379	22	2.
38	10. 023383	023386	023390	023393	023397	023401	023404	023408	023411	023415	023418	023422	21	3.
39	10. 023425	023429	023433	023436	023440	023443	023447	023450	023454	023457	023461	023465	20	4.
40	10. 023468	023472	023475	023479	023482	023486	023489	023493	023497	023500	023504	023507	19	1 =
41	10. 023511	023514	023518	023521	023525	023529	023532	023536	023539	023543	023546	023550	18	2.
42	10. 023554	023557	023561	023564	023568	023571	023575	023578	023582	023586	023589	023593	17	3.
43	10. 023596	023600	023603	023607	023611	023614	023618	023621	023625	023628	023632	023636	16	4.
44	10. 023639	023643	023646	023650	023653	023657	023661	023664	023668	023671	023675	023678	15	1 =
45	10. 023682	023686	023689	023693	023696	023700	023703	023707	023711	023714	023718	023721	14	2.
46	10. 023725	023728	023732	023736	023739	023743	023746	023750	023754	023757	023761	023764	13	3.
47	10. 023768	023771	023775	023779	023782	023786	023789	023793	023797	023800	023804	023807	12	4.
48	10. 023811	023814	023818	023822	023825	023829	023832	023836	023840	023843	023847	023850	11	1 =
49	10. 023854	023857	023861	023865	023868	023872	023875	023879	023883	023886	023890	023893	10	2.
50	10. 023897	023901	023904	023908	023911	023915	023918	023922	023926	023929	023933	023936	9	3.
51	10. 023940	023944	023947	023951	023954	023958	023962	023965	023969	023972	023976	023980	8	4.
52	10. 023983	023987	023990	023994	023998	024001	024005	024008	024012	024016	024019	024023	7	1 =
53	10. 024026	024030	024034	024037	024041	024044	024048	024052	024055	024059	024062	024066	6	2.
54	10. 024070	024073	024077	024080	024084	024088	024091	024095	024098	024102	024106	024109	5	3.
55	10. 024113	024117	024120	024124	024127	024131	024135	024138	024142	024145	024149	024153	4	4.
56	10. 024156	024160	024163	024167	024171	024174	024178	024182	024185	024189	024192	024196	3	1 =
57	10. 024200	024203	024207	024210	024214	024218	024221	024225	024228	024232	024236	024239	2	2.
58	10. 024243	024247	024250	024254	024257	024261	024265	024268	024272	024276	024279	024283	1	3.
59	10. 024286	024290	024294	024297	024301	024305	024308	024312	024315	024319	024323	024326	0	4.
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts
	Co-secant of 71 degrees, or Secant of 161 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 19 degrees, or Co-secant of 109 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.024330	024334	024337	024341	024344	024348	024352	024355	024359	024363	024366	024370	59	1″ = 1
1	10.024373	024377	024381	024384	024388	024392	024395	024399	024402	024406	024410	024413	58	2. 1
2	10.024417	024421	024424	024428	024431	024435	024439	024442	024446	024450	024453	024457	57	3. 2
3	10.024461	024464	024468	024471	024475	024479	024482	024486	024490	024493	024497	024501	56	4. 3
4	10.024504	024508	024511	024515	024519	024522	024526	024530	024533	024537	024541	024544	55	1 = 1
5	10.024548	024552	024555	024559	024562	024566	024570	024573	024577	024581	024584	024588	54	2. 1
6	10.024592	024595	024599	024603	024606	024610	024613	024617	024621	024624	024628	024632	53	3. 2
7	10.024635	024639	024643	024646	024650	024654	024657	024661	024665	024668	024672	024676	52	4. 3
8	10.024679	024683	024687	024690	024694	024697	024701	024705	024708	024712	024716	024719	51	1 = 1
9	10.024723	024727	024730	024734	024738	024741	024745	024749	024752	024756	024760	024763	50	2. 1
10	10.024767	024771	024774	024778	024782	024785	024789	024793	024796	024800	024804	024807	49	3. 2
11	10.024811	024815	024818	024822	024826	024829	024833	024837	024840	024844	024848	024851	48	4. 3
12	10.024855	024859	024862	024866	024870	024873	024877	024881	024884	024888	024892	024895	47	1 = 1
13	10.024899	024903	024906	024910	024914	024917	024921	024925	024928	024932	024936	024939	46	2. 1
14	10.024943	024947	024950	024954	024958	024961	024965	024969	024972	024976	024980	024983	45	3. 2
15	10.024987	024991	024994	024998	025002	025005	025009	025013	025016	025020	025024	025027	44	4. 3
16	10.025031	025035	025039	025042	025046	025050	025053	025057	025061	025064	025068	025072	43	1 = 1
17	10.025075	025079	025083	025086	025090	025094	025097	025101	025105	025108	025112	025116	42	2. 1
18	10.025120	025123	025127	025131	025134	025138	025142	025145	025149	025153	025156	025160	41	3. 2
19	10.025164	025167	025171	025175	025179	025182	025186	025190	025193	025197	025201	025204	40	4. 3
20	10.025208	025212	025215	025219	025223	025227	025230	025234	025238	025241	025245	025249	39	1 = 1
21	10.025252	025256	025260	025264	025267	025271	025275	025278	025282	025286	025289	025293	38	2. 1
22	10.025297	025301	025304	025308	025312	025315	025319	025323	025326	025330	025334	025338	37	3. 2
23	10.025341	025345	025349	025352	025356	025360	025363	025367	025371	025375	025378	025382	36	4. 3
24	10.025386	025389	025393	025397	025401	025404	025408	025412	025415	025419	025423	025427	35	1 = 1
25	10.025430	025434	025438	025441	025445	025449	025453	025456	025460	025464	025467	025471	34	2. 1
26	10.025475	025478	025482	025486	025490	025493	025497	025501	025505	025508	025512	025516	33	3. 2
27	10.025519	025523	025527	025531	025534	025538	025542	025545	025549	025553	025557	025560	32	4. 3
28	10.025564	025568	025571	025575	025579	025583	025586	025590	025594	025598	025601	025605	31	1 = 1
29	10.025609	025612	025616	025620	025624	025627	025631	025635	025638	025642	025646	025650	30	2. 2
30	10.025653	025657	025661	025665	025668	025672	025676	025680	025683	025687	025691	025694	29	3. 2
31	10.025698	025702	025706	025709	025713	025717	025721	025724	025728	025732	025735	025739	28	4. 3
32	10.025743	025747	025750	025754	025758	025762	025765	025769	025773	025777	025780	025784	27	1 = 1
33	10.025788	025792	025795	025799	025803	025806	025810	025814	025818	025821	025825	025829	26	2. 2
34	10.025833	025836	025840	025844	025848	025851	025855	025859	025863	025866	025870	025874	25	3. 2
35	10.025878	025881	025885	025889	025893	025896	025900	025904	025908	025911	025915	025919	24	4. 3
36	10.025923	025926	025930	025934	025938	025941	025945	025949	025953	025956	025960	025964	23	1 = 1
37	10.025968	025971	025975	025979	025983	025986	025990	025994	025998	026001	026005	026009	22	2. 2
38	10.026013	026016	026020	026024	026028	026031	026035	026039	026043	026046	026050	026054	21	3. 2
39	10.026058	026061	026065	026069	026073	026076	026080	026084	026088	026092	026095	026099	20	4. 3
40	10.026103	026107	026110	026114	026118	026122	026125	026129	026133	026137	026140	026144	19	1 = 1
41	10.026148	026152	026156	026159	026163	026167	026171	026174	026178	026182	026186	026189	18	2. 2
42	10.026193	026197	026201	026205	026208	026212	026216	026220	026223	026227	026231	026235	17	3. 2
43	10.026238	026242	026246	026250	026254	026257	026261	026265	026269	026272	026276	026280	16	4. 3
44	10.026284	026288	026291	026295	026299	026303	026306	026310	026314	026318	026322	026325	15	1 = 1
45	10.026329	026333	026337	026340	026344	026348	026352	026356	026359	026363	026367	026371	14	2. 2
46	10.026374	026378	026382	026386	026390	026393	026397	026401	026405	026409	026412	026416	13	3. 2
47	10.026420	026424	026427	026431	026435	026439	026443	026446	026450	026454	026458	026462	12	4. 3
48	10.026465	026469	026473	026477	026481	026484	026488	026492	026496	026499	026503	026507	11	1 = 1
49	10.026511	026515	026518	026522	026526	026530	026534	026537	026541	026545	026549	026553	10	2. 2
50	10.026556	026560	026564	026568	026572	026575	026579	026583	026587	026591	026594	026598	9	3. 2
51	10.026602	026606	026610	026613	026617	026621	026625	026629	026632	026636	026640	026644	8	4. 3
52	10.026648	026651	026655	026659	026663	026667	026670	026674	026678	026682	026686	026689	7	1 = 1
53	10.026693	026697	026701	026705	026709	026712	026716	026720	026724	026728	026731	026735	6	2. 2
54	10.026739	026743	026747	026750	026754	026758	026762	026766	026769	026773	026777	026781	5	3. 2
55	10.026785	026789	026792	026796	026800	026804	026808	026811	026815	026819	026823	026827	4	4. 3
56	10.026831	026834	026838	026842	026846	026850	026853	026857	026861	026865	026869	026873	3	1 = 1
57	10.026876	026880	026884	026888	026892	026895	026899	026903	026907	026911	026915	026918	2	2. 2
58	10.026922	026926	026930	026934	026938	026941	026945	026949	026953	026957	026961	026964	1	3. 2
59	10.026968	026972	026976	026980	026983	026987	026991	026995	026999	027003	027006	027010	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 70 degrees, or Secant of 160 degrees.													

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LOGARITHMIC SECANTS.

Secant of 20 degrees, or Co-secant of 110 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.027014	027018	027022	027026	027029	027033	027037	027041	027045	027049	027052	027056	59	1″ =
1	10.027060	027064	027068	027072	027075	027079	027083	027087	027091	027095	027099	027102	58	2.
2	10.027106	027110	027114	027118	027122	027125	027129	027133	027137	027141	027145	027148	57	3.
3	10.027152	027156	027160	027164	027168	027171	027175	027179	027183	027187	027191	027195	56	4.
4	19.027198	027202	027206	027210	027214	027218	027221	027225	027229	027233	027237	027241	55	1 =
5	10.027245	027248	027252	027256	027260	027264	027268	027272	027275	027279	027283	027287	54	2.
6	10.027291	027295	027298	027302	027306	027310	027314	027318	027322	027325	027329	027333	53	3.
7	10.027337	027341	027345	027349	027352	027356	027360	027364	027368	027372	027376	027379	52	4.
8	10.027383	027387	027391	027395	027399	027403	027406	027410	027414	027418	027422	027426	51	1 =
9	10.027430	027434	027437	027441	027445	027449	027453	027457	027461	027464	027468	027472	50	2.
10	10.027476	027480	027484	027488	027491	027495	027499	027503	027507	027511	027515	027519	49	3.
11	10.027522	027526	027530	027534	027538	027542	027546	027550	027553	027557	027561	027565	48	4.
12	10.027569	027573	027577	027581	027584	027588	027592	027596	027600	027604	027608	027612	47	1 =
13	10.027615	027619	027623	027627	027631	027635	027639	027643	027646	027650	027654	027658	46	2.
14	10.027662	027666	027670	027674	027677	027681	027685	027689	027693	027697	027701	027705	45	3.
15	10.027709	027712	027716	027720	027724	027728	027732	027736	027740	027743	027747	027751	44	4.
16	10.027755	027759	027763	027767	027771	027775	027778	027782	027786	027790	027794	027798	43	1 =
17	10.027802	027806	027810	027814	027817	027821	027825	027829	027833	027837	027841	027845	42	2.
18	10.027849	027852	027856	027860	027864	027868	027872	027876	027880	027884	027887	027891	41	3.
19	10.027895	027899	027903	027907	027911	027915	027919	027923	027926	027930	027934	027938	40	4.
20	10.027942	027946	027950	027954	027958	027962	027965	027969	027973	027977	027981	027985	39	1 =
21	10.027989	027993	027997	028001	028005	028008	028012	028016	028020	028024	028028	028032	38	2.
22	10.028036	028040	028044	028048	028051	028055	028059	028063	028067	028071	028075	028079	37	3.
23	10.028083	028087	028091	028094	028098	028102	028106	028110	028114	028118	028122	028126	36	4.
24	10.028130	028134	028138	028141	028145	028149	028153	028157	028161	028165	028169	028173	35	1 =
25	10.028177	028181	028185	028188	028192	028196	028200	028204	028208	028212	028216	028220	34	2.
26	10.028224	028228	028232	028235	028239	028243	028247	028251	028255	028259	028263	028267	33	3.
27	10.028271	028275	028279	028283	028287	028290	028294	028298	028302	028306	028310	028314	32	4.
28	10.028318	028322	028326	028330	028334	028338	028342	028345	028349	028353	028357	028361	31	1 =
29	10.028365	028369	028373	028377	028381	028385	028389	028393	028397	028401	028404	028408	30	2.
30	10.028412	028416	028420	028424	028428	028432	028436	028440	028444	028448	028452	028456	29	3.
31	10.028460	028464	028467	028471	028475	028479	028483	028487	028491	028495	028499	028503	28	4.
32	10.028507	028511	028515	028519	028523	028527	028531	028534	028538	028542	028546	028550	27	1 =
33	10.028554	028558	028562	028566	028570	028574	028578	028582	028586	028590	028594	028598	26	2.
34	10.028602	028606	028609	028613	028617	028621	028625	028629	028633	028637	028641	028645	25	3.
35	10.028649	028653	028657	028661	028665	028669	028673	028677	028681	028685	028689	028693	24	4.
36	10.028696	028700	028704	028708	028712	028716	028720	028724	028728	028732	028736	028740	23	1 =
37	10.028744	028748	028752	028756	028760	028764	028768	028772	028776	028780	028784	028788	22	2.
38	10.028792	028795	028799	028803	028807	028811	028815	028819	028823	028827	028831	028835	21	3.
39	10.028839	028843	028847	028851	028855	028859	028863	028867	028871	028875	028879	028883	20	4.
40	10.028887	028891	028895	028899	028903	028907	028911	028915	028919	028923	028926	028930	19	1 =
41	10.028934	028938	028942	028946	028950	028954	028958	028962	028966	028970	028974	028978	18	2.
42	10.028982	028986	028990	028994	028998	029002	029006	029010	029014	029018	029022	029026	17	3.
43	10.029030	029034	029038	029042	029046	029050	029054	029058	029062	029066	029070	029074	16	4.
44	10.029078	029082	029086	029090	029094	029098	029102	029106	029110	029114	029118	029122	15	1 =
45	10.029126	029130	029134	029138	029141	029145	029149	029153	029157	029161	029165	029169	14	2.
46	10.029173	029177	029181	029185	029189	029193	029197	029201	029205	029209	029213	029217	13	3.
47	10.029221	029225	029229	029233	029237	029241	029245	029249	029253	029257	029261	029265	12	4.
48	10.029269	029273	029277	029281	029285	029289	029293	029297	029301	029305	029309	029313	11	1 =
49	10.029317	029321	029325	029329	029333	029337	029341	029345	029349	029353	029357	029361	10	2.
50	10.029365	029369	029373	029377	029381	029385	029389	029393	029397	029401	029405	029409	9	3.
51	10.029413	029417	029421	029426	029430	029434	029438	029442	029446	029450	029454	029458	8	4.
52	10.029462	029466	029470	029474	029478	029482	029486	029490	029494	029498	029502	029506	7	1 =
53	10.029510	029514	029518	029522	029526	029530	029534	029538	029542	029546	029550	029554	6	2.
54	10.029558	029562	029566	029570	029574	029578	029582	029586	029590	029594	029598	029602	5	3.
55	10.029606	029610	029614	029618	029622	029626	029630	029634	029638	029642	029647	029651	4	4.
56	10.029655	029659	029663	029667	029671	029675	029679	029683	029687	029691	029695	029699	3	1 =
57	10.029703	029707	029711	029715	029719	029723	029727	029731	029735	029739	029743	029747	2	2.
58	10.029751	029755	029759	029763	029767	029771	029776	029780	029784	029788	029792	029796	1	3.
59	10.029800	029804	029808	029812	029816	029820	029824	029828	029832	029836	029840	029844	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 69 degrees, or Secant of 159 degrees.

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LOGARITHMIC SECANTS.

Secant of 21 degrees, or Co-secant of 111 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.029848	029852	029856	029860	029864	029868	029872	029877	029881	029885	029889	029893	59	1″ = 1
1	10.029897	029901	029905	029909	029913	029917	029921	029925	029929	029933	029937	029941	58	2. 2
2	10.029945	029949	029953	029957	029961	029966	029970	029974	029978	029982	029986	029990	57	3. 2
3	10.029994	029998	030002	030006	030010	030014	030018	030022	030026	030030	030034	030038	56	4. 3
4	10.030043	030047	030051	030055	030059	030063	030067	030071	030075	030079	030083	030087	55	1 = 1
5	10.030091	030095	030099	030103	030107	030112	030116	030120	030124	030128	030132	030136	54	2. 2
6	10.030140	030144	030148	030152	030156	030160	030164	030168	030172	030177	030181	030185	53	3. 2
7	10.030189	030193	030197	030201	030205	030209	030213	030217	030221	030225	030229	030233	52	4. 3
8	10.030238	030242	030246	030250	030254	030258	030262	030266	030270	030274	030278	030282	51	1 = 1
9	10.030286	030290	030295	030299	030303	030307	030311	030315	030319	030323	030327	030331	50	2. 2
10	10.030335	030339	030343	030347	030352	030356	030360	030364	030368	030372	030376	030380	49	3. 2
11	10.030384	030388	030392	030396	030401	030405	030409	030413	030417	030421	030425	030429	48	4. 3
12	10.030433	030437	030441	030445	030450	030454	030458	030462	030466	030470	030474	030478	47	1 = 1
13	10.030482	030486	030490	030494	030499	030503	030507	030511	030515	030519	030523	030527	46	2. 2
14	10.030531	030535	030539	030544	030548	030552	030556	030560	030564	030568	030572	030576	45	3. 2
15	10.030580	030584	030589	030593	030597	030601	030605	030609	030613	030617	030621	030625	44	4. 3
16	10.030630	030634	030638	030642	030646	030650	030654	030658	030662	030666	030671	030675	43	1 = 1
17	10.030679	030683	030687	030691	030695	030699	030703	030707	030712	030716	030720	030724	42	2. 2
18	10.030728	030732	030736	030740	030744	030748	030753	030757	030761	030765	030769	030773	41	3. 2
19	10.030777	030781	030785	030790	030794	030798	030802	030806	030810	030814	030818	030822	40	4. 3
20	10.030827	030831	030835	030839	030843	030847	030851	030855	030859	030864	030868	030872	39	1 = 1
21	10.030876	030880	030884	030888	030892	030896	030901	030905	030909	030913	030917	030921	38	2. 2
22	10.030925	030929	030934	030938	030942	030946	030950	030954	030958	030962	030967	030971	37	3. 2
23	10.030975	030979	030983	030987	030991	030995	030999	031004	031008	031012	031016	031020	36	4. 3
24	10.031024	031028	031032	031037	031041	031045	031049	031053	031057	031061	031066	031070	35	1 = 1
25	10.031074	031078	031082	031086	031090	031094	031099	031103	031107	031111	031115	031119	34	2. 2
26	10.031123	031127	031132	031136	031140	031144	031148	031152	031156	031161	031165	031169	33	3. 2
27	10.031173	031177	031181	031185	031189	031194	031198	031202	031206	031210	031214	031218	32	4. 3
28	10.031223	031227	031231	031235	031239	031243	031247	031252	031256	031260	031264	031268	31	1 = 1
29	10.031272	031276	031281	031285	031289	031293	031297	031301	031305	031310	031314	031318	30	2. 2
30	10.031322	031326	031330	031334	031339	031343	031347	031351	031355	031359	031364	031368	29	3. 2
31	10.031372	031376	031380	031384	031388	031393	031397	031401	031405	031409	031413	031418	28	4. 3
32	10.031422	031426	031430	031434	031438	031442	031447	031451	031455	031459	031463	031467	27	1 = 1
33	10.031472	031476	031480	031484	031488	031492	031496	031501	031505	031509	031513	031517	26	2. 2
34	10.031521	031526	031530	031534	031538	031542	031546	031551	031555	031559	031563	031567	25	3. 3
35	10.031571	031576	031580	031584	031588	031592	031596	031601	031605	031609	031613	031617	24	4. 3
36	10.031621	031626	031630	031634	031638	031642	031646	031651	031655	031659	031663	031667	23	1 = 1
37	10.031671	031676	031680	031684	031688	031692	031696	031701	031705	031709	031713	031717	22	2. 2
38	10.031722	031726	031730	031734	031738	031742	031747	031751	031755	031759	031763	031767	21	3. 3
39	10.031772	031776	031780	031784	031788	031793	031797	031801	031805	031809	031813	031818	20	4. 3
40	10.031822	031826	031830	031834	031839	031843	031847	031851	031855	031859	031864	031868	19	1 = 1
41	10.031872	031876	031880	031885	031889	031893	031897	031901	031906	031910	031914	031918	18	2. 2
42	10.031922	031926	031931	031935	031939	031943	031947	031952	031956	031960	031964	031968	17	3. 3
43	10.031973	031977	031981	031985	031989	031994	031998	032002	032006	032010	032015	032019	16	4. 3
44	10.032023	032027	032031	032035	032040	032044	032048	032052	032056	032061	032065	032069	15	1 = 1
45	10.032073	032077	032082	032086	032090	032094	032098	032103	032107	032111	032115	032119	14	2. 2
46	10.032124	032128	032132	032136	032141	032145	032149	032153	032157	032162	032166	032170	13	3. 3
47	10.032174	032178	032183	032187	032191	032195	032199	032204	032208	032212	032216	032220	12	4. 3
48	10.032225	032229	032233	032237	032242	032246	032250	032254	032258	032263	032267	032271	11	1 = 1
49	10.032275	032279	032284	032288	032292	032296	032301	082305	032309	032313	032317	032322	10	2. 2
50	10.032326	032330	032334	032338	032343	032347	032351	032355	032360	032364	032368	032372	9	3. 3
51	10.032376	032381	032385	032389	032393	032398	032402	032406	032410	032414	032419	032423	8	4. 3
52	10.032427	032431	032436	032440	032444	032448	032452	032457	032461	032465	032469	032474	7	1 = 1
53	10.032478	032482	032486	032491	032495	032499	032503	032507	032512	032516	032520	032524	6	2. 2
54	10.032529	032533	032537	032541	032546	032550	032554	032558	032562	032567	032571	032575	5	3. 3
55	10.032579	032584	032588	032592	032596	032601	032605	032609	032613	032618	032622	032626	4	4. 3
56	10.032630	032635	032639	032643	032647	032651	032656	032660	032664	032668	032673	032677	3	1 = 1
57	10.032681	032685	032690	032694	032698	032702	032707	032711	032715	032719	032724	032728	2	2. 2
58	10.032732	032736	032741	032745	032749	032753	032758	032762	032766	032770	032775	032779	1	3. 3
59	10.032783	032787	032792	032796	032800	032804	032809	032813	032817	032821	032826	032830	0	4. 3
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 68 degrees, or Secant of 158 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 22 degrees, or Co-secant of 112 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.032834	032838	032843	032847	032851	032855	032860	032864	032868	032872	032877	032881	59	1″ =
1	10.032885	032889	032894	032898	032902	032906	032911	032915	032919	032923	032928	032932	58	2.
2	10.032936	032941	032945	032949	032953	032958	032962	032966	032970	032975	032979	032983	57	3.
3	10.032987	032992	032996	033000	033004	033009	033013	033017	033022	033026	033030	033034	56	4.
4	10.033039	033043	033047	033051	033056	033060	033064	033068	033073	033077	033081	033086	55	1 =
5	10.033090	033094	033098	033103	033107	033111	033115	033120	033124	033128	033133	033137	54	2.
6	10.033141	033145	033150	033154	033158	033162	033167	033171	033175	033180	033184	033188	53	3.
7	10.033192	033197	033201	033205	033210	033214	033218	033222	033227	033231	033235	033240	52	4.
8	10.033244	033248	033252	033257	033261	033265	033269	033274	033278	033282	033287	033291	51	1 =
9	10.033295	033299	033304	033308	033312	033317	033321	033325	033329	033334	033338	033342	50	2.
10	10.033347	033351	033355	033360	033364	033368	033372	033377	033381	033385	033390	033394	49	3.
11	10.033398	033402	033407	033411	033415	033420	033424	033428	033432	033437	033441	033445	48	4.
12	10.033450	033454	033458	033463	033467	033471	033475	033480	033484	033488	033493	033497	47	1 =
13	10.033501	033506	033510	033514	033518	033523	033527	033531	033536	033540	033544	033549	46	2.
14	10.033553	033557	033561	033566	033570	033574	033579	033583	033587	033592	033596	033600	45	3.
15	10.033605	033609	033613	033617	033622	033626	033630	033635	033639	033643	033648	033652	44	4.
16	10.033656	033661	033665	033669	033673	033678	033682	033686	033691	033695	033699	033704	43	1 =
17	10.033708	033712	033717	033721	033725	033730	033734	033738	033742	033747	033751	033755	42	2.
18	10.033760	033764	033768	033773	033777	033781	033786	033790	033794	033799	033803	033807	41	3.
19	10.033812	033816	033820	033825	033829	033833	033838	033842	033846	033851	033855	033859	40	4.
20	10.033863	033868	033872	033876	033881	033885	033889	033894	033898	033902	033907	033911	39	1 =
21	10.033915	033920	033924	033928	033933	033937	033941	033946	033950	033954	033959	033963	38	2.
22	10.033967	033972	033976	033980	033985	033989	033993	033998	034002	034006	034011	034015	37	3.
23	10.034019	034024	034028	034032	034037	034041	034045	034050	034054	034058	034063	034067	36	4.
24	10.034071	034076	034080	034084	034089	034093	034097	034102	034106	034110	034115	034119	35	1 =
25	10.034124	034128	034132	034137	034141	034145	034150	034154	034158	034163	034167	034171	34	2.
26	10.034176	034180	034184	034189	034193	034197	034202	034206	034210	034215	034219	034223	33	3.
27	10.034228	034232	034237	034241	034245	034250	034254	034258	034263	034267	034271	034276	32	4.
28	10.034280	034284	034289	034293	034297	034302	034306	034311	034315	034319	034324	034328	31	1 =
29	10.034332	034337	034341	034345	034350	034354	034358	034363	034367	034372	034376	034380	30	2.
30	10.034385	034389	034393	034398	034402	034406	034411	034415	034419	034424	034428	034433	29	3.
31	10.034437	034441	034446	034450	034454	034459	034463	034468	034472	034476	034481	034485	28	4.
32	10.034489	034494	034498	034502	034507	034511	034516	034520	034524	034529	034533	034537	27	1 =
33	10.034542	034546	034551	034555	034559	034564	034568	034572	034577	034581	034586	034590	26	2.
34	10.034594	034599	034603	034607	034612	034616	034621	034625	034629	034634	034638	034642	25	3.
35	10.034647	034651	034656	034660	034664	034669	034673	034677	034682	034686	034691	034695	24	4.
36	10.034699	034704	034708	034712	034717	034721	034726	034730	034734	034739	034743	034748	23	1 =
37	10.034752	034756	034761	034765	034770	034774	034778	034783	034787	034791	034796	034800	22	2.
38	10.034805	034809	034813	034818	034822	034827	034831	034835	034840	034844	034849	034853	21	3.
39	10.034857	034862	034866	034870	034875	034879	034884	034888	034892	034897	034901	034906	20	4.
40	10.034910	034914	034919	034923	034928	034932	034936	034941	034945	034950	034954	034958	19	1 =
41	10.034963	034967	034972	034976	034980	034985	034989	034994	034998	035002	035007	035011	18	2.
42	10.035016	035020	035024	035029	035033	035038	035042	035046	035051	035055	035060	035064	17	3.
43	10.035069	035073	035077	035082	035086	035091	035095	035099	035104	035108	035113	035117	16	4.
44	10.035121	035126	035130	035135	035139	035143	035148	035152	035157	035161	035166	035170	15	1 =
45	10.035174	035179	035183	035188	035192	035196	035201	035205	035210	035214	035219	035223	14	2.
46	10.035227	035232	035236	035241	035245	035249	035254	035258	035263	035267	035272	035276	13	3.
47	10.035280	035285	035289	035294	035298	035303	035307	035311	035316	035320	035325	035329	12	4.
48	10.035333	035338	035342	035347	035351	035356	035360	035364	035369	035373	035378	035382	11	1 =
49	10.035387	035391	035395	035400	035404	035409	035413	035418	035422	035426	035431	035435	10	2.
50	10.035440	035444	035449	035453	035458	035462	035466	035471	035475	035480	035484	035489	9	3.
51	10.035493	035497	035502	035506	035511	035515	035520	035524	035529	035533	035537	035542	8	4.
52	10.035546	035551	035555	035560	035564	035568	035573	035577	035582	035586	035591	035595	7	1 =
53	10.035600	035604	035608	035613	035617	035622	035626	035631	035635	035640	035644	035648	6	2.
54	10.035653	035657	035662	035666	035671	035675	035680	035684	035688	035693	035697	035702	5	3.
55	10.035706	035711	035715	035720	035724	035729	035733	035737	035742	035746	035751	035755	4	4.
56	10.035760	035764	035769	035773	035778	035782	035786	035791	035795	035800	035804	035809	3	1 =
57	10.035813	035818	035822	035827	035831	035835	035840	035844	035849	035853	035858	035862	2	2.
58	10.035867	035871	035876	035880	035885	035889	035893	035898	035902	035907	035911	035916	1	3.
59	10.035920	035925	035929	035934	035938	035943	035947	035952	035956	035960	035965	035969	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-secant of 67 degrees, or Secant of 157 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 23 degrees, or Co-secant of 113 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts
0	10.035974	035978	035983	035987	035992	035996	036001	036005	036010	036014	036019	036023	59	1″ = 1
1	10.036028	036032	036036	036041	036045	036050	036054	036059	036063	036068	036072	036077	58	2. 2
2	10.036081	036086	036090	036095	036099	036104	036108	036113	036117	036121	036126	036130	57	3. 3
3	10.036135	036139	036144	036148	036153	036157	036162	036166	036171	036175	036180	036184	56	4. 4
4	10.036189	036193	036198	036202	036207	036211	036216	036220	036225	036229	036234	036238	55	1 = 1
5	10.036243	036247	036252	036256	036260	036265	036269	036274	036278	036283	036287	036292	54	2. 2
6	10.036296	036301	036305	036310	036314	036319	036323	036328	036332	036337	036341	036346	53	3. 3
7	10.036350	036355	036359	036364	036368	036373	036377	036382	036386	036391	036395	036400	52	4. 4
8	10.036404	036409	036413	036418	036422	036427	036431	036436	036440	036445	036449	036454	51	1 = 1
9	10.036458	036463	036467	036472	036476	036481	036485	036490	036494	036499	036503	036508	50	2. 2
10	10.036512	036517	036521	036526	036530	036535	036539	036544	036548	036553	036557	036562	49	3. 3
11	10.036566	036571	036575	036580	036584	036589	036593	036598	036602	036607	036611	036616	48	4. 4
12	10.036620	036625	036630	036634	036639	036643	036648	036652	036657	036661	036666	036670	47	1 = 1
13	10.036675	036679	036684	036688	036693	036697	036702	036706	036711	036715	036720	036724	46	2. 2
14	10.036729	036733	036738	036742	036747	036751	036756	036761	036765	036770	036774	036779	45	3. 3
15	10.036783	036788	036792	036797	036801	036806	036810	036815	036819	036824	036828	036833	44	4. 4
16	10.036837	036842	036846	036851	036856	036860	036865	036869	036874	036878	036883	036887	43	1 = 1
17	10.036892	036896	036901	036905	036910	036914	036919	036923	036928	036933	036937	036942	42	2. 2
18	10.036946	036951	036955	036960	036964	036969	036973	036978	036982	036987	036991	036996	41	3. 3
19	10.037001	037005	037010	037014	037019	037023	037028	037032	037037	037041	037046	037051	40	4. 4
20	10.037055	037060	037064	037069	037073	037078	037082	037087	037091	037096	037100	037105	39	1 = 1
21	10.037110	037114	037119	037123	037128	037132	037137	037141	037146	037150	037155	037160	38	2. 2
22	10.037164	037169	037173	037178	037182	037187	037191	037196	037201	037205	037210	037214	37	3. 3
23	10.037219	037223	037228	037232	037237	037241	037246	037251	037255	037260	037264	037269	36	4. 4
24	10.037273	037278	037282	037287	037292	037296	037301	037305	037310	037314	037319	037324	35	1 = 1
25	10.037328	037333	037337	037342	037346	037351	037355	037360	037365	037369	037374	037378	34	2. 2
26	10.037383	037387	037392	037396	037401	037406	037410	037415	037419	037424	037428	037433	33	3. 3
27	10.037438	037442	037447	037451	037456	037460	037465	037470	037474	037479	037483	037488	32	4. 4
28	10.037492	037497	037502	037506	037511	037515	037520	037524	037529	037534	037538	037543	31	1 = 1
29	10.037547	037552	037556	037561	037566	037570	037575	037579	037584	037588	037593	037598	30	2. 2
30	10.037602	037607	037611	037616	037620	037625	037630	037634	037639	037643	037648	037653	29	3. 3
31	10.037657	037662	037666	037671	037675	037680	037685	037689	037694	037698	037703	037708	28	4. 4
32	10.037712	037717	037721	037726	037730	037735	037740	037744	037749	037753	037758	037763	27	1 = 1
33	10.037767	037772	037776	037781	037786	037790	037795	037799	037804	037808	037813	037818	26	2. 2
34	10.037822	037827	037831	037836	037841	037845	037850	037854	037859	037864	037868	037873	25	3. 3
35	10.037877	037882	037887	037891	037896	037900	037905	037910	037914	037919	037923	037928	24	4. 4
36	10.037933	037937	037942	037946	037951	037956	037960	037965	037969	037974	037979	037983	23	1 = 1
37	10.037988	037992	037997	038002	038006	038011	038015	038020	038025	038029	038034	038038	22	2. 2
38	10.038043	038048	038052	038057	038061	038066	038071	038075	038080	038084	038089	038094	21	3. 3
39	10.038098	038103	038108	038112	038117	038121	038126	038131	038135	038140	038144	038149	20	4. 4
40	10.038154	038158	038163	038167	038172	038177	038181	038186	038191	038195	038200	038204	19	1 = 1
41	10.038209	038214	038218	038223	038228	038232	038237	038241	038246	038251	038255	038260	18	2. 2
42	10.038264	038269	038274	038278	038283	038288	038292	038297	038301	038306	038311	038315	17	3. 3
43	10.038320	038325	038329	038334	038338	038343	038348	038352	038357	038362	038366	038371	16	4. 4
44	10.038375	038380	038385	038389	038394	038399	038403	038408	038413	038417	038422	038426	15	1 = 1
45	10.038431	038436	038440	038445	038450	038454	038459	038463	038468	038473	038477	038482	14	2. 2
46	10.038487	038491	038496	038501	038505	038510	038514	038519	038524	038528	038533	038538	13	3. 3
47	10.038542	038547	038552	038556	038561	038566	038570	038575	038579	038584	038589	038593	12	4. 4
48	10.038598	038603	038607	038612	038617	038621	038626	038631	038635	038640	038644	038649	11	1 = 1
49	10.038654	038658	038663	038668	038672	038677	038682	038686	038691	038696	038700	038705	10	2. 2
50	10.038710	038714	038719	038723	038728	038733	038737	038742	038747	038751	038756	038761	9	3. 3
51	10.038765	038770	038775	038779	038784	038789	038793	038798	038803	038807	038812	038817	8	4. 4
52	10.038821	038826	038831	038835	038840	038845	038849	038854	038858	038863	038868	038872	7	1 = 1
53	10.038877	038882	038886	038891	038896	038900	038905	038910	038914	038919	038924	038928	6	2. 2
54	10.038933	038938	038942	038947	038952	038956	038961	038966	038970	038975	038980	038984	5	3. 3
55	10.038989	038994	038999	039003	039008	039012	039017	039022	039026	039031	039036	039040	4	4. 4
56	10.039045	039050	039055	039059	039064	039069	039073	039078	039083	039087	039092	039097	3	1 = 1
57	10.039101	039106	039111	039115	039120	039125	039129	039134	039139	039143	039148	039153	2	2. 2
58	10.039157	039162	039167	039171	039176	039181	039185	039190	039195	039200	039204	039209	1	3. 3
59	10.039214	039218	039223	039228	039232	039237	039242	039246	039251	039256	039260	039265	0	4. 4
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 66 degrees, or Secant of 156 degrees.													

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LOGARITHMIC SECANTS.

Secant of 24 degrees, or Co-secant of 114 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts
0	10. 039270	039274	039279	039284	039289	039293	039298	039303	039307	039312	039317	039321	59	1″ =
1	10. 039326	039331	039335	039340	039345	039350	039354	039359	039364	039368	039373	039378	58	2.
2	10. 039382	039387	039392	039396	039401	039406	039411	039415	039420	039425	039429	039434	57	3.
3	10. 039439	039443	039448	039453	039458	039462	039467	039472	039476	039481	039486	039490	56	4.
4	10. 039495	039500	039505	039509	039514	039519	039523	039528	039533	039537	039542	039547	55	1 =
5	10. 039552	039556	039561	039566	039570	039575	039580	039585	039589	039594	039599	039603	54	2.
6	10. 039608	039613	039617	039622	039627	039632	039636	039641	039646	039650	039655	039660	53	3.
7	10. 039665	039669	039674	039679	039683	039688	039693	039698	039702	039707	039712	039716	52	4.
8	10. 039721	039726	039731	039735	039740	039745	039749	039754	039759	039764	039768	039773	51	1 =
9	10. 039778	039783	039787	039792	039797	039801	039806	039811	039816	039820	039825	039830	50	2.
10	10. 039834	039839	039844	039849	039853	039858	039863	039868	039872	039877	039882	039886	49	3.
11	10. 039891	039896	039901	039905	039910	039915	039920	039924	039929	039934	039938	039943	48	4.
12	10. 039948	039953	039957	039962	039967	039972	039976	039981	039986	039991	039995	040000	47	1 =
13	10. 040005	040009	040014	040019	040024	040028	040033	040038	040043	040047	040052	040057	46	2.
14	10. 040062	040066	040071	040076	040081	040085	040090	040095	040099	040104	040109	040114	45	3.
15	10. 040118	040123	040128	040133	040137	040142	040147	040152	040156	040161	040166	040171	44	4.
16	10. 040175	040180	040185	040190	040194	040199	040204	040209	040213	040218	040223	040228	43	1 =
17	10. 040232	040237	040242	040247	040251	040256	040261	040266	040270	040275	040280	040285	42	2.
18	10. 040289	040294	040299	040304	040308	040313	040318	040323	040327	040332	040337	040342	41	3.
19	10. 040346	040351	040356	040361	040365	040370	040375	040380	040384	040389	040394	040399	40	4.
20	10. 040404	040408	040413	040418	040423	040427	040432	040437	040442	040446	040451	040456	39	1 =
21	10. 040461	040465	040470	040475	040480	040485	040489	040494	040499	040504	040508	040513	38	2.
22	10. 040518	040523	040527	040532	040537	040542	040546	040551	040556	040561	040566	040570	37	3.
23	10. 040575	040580	040585	040589	040594	040599	040604	040609	040613	040618	040623	040628	36	4.
24	10. 040632	040637	040642	040647	040652	040656	040661	040666	040671	040675	040680	040685	35	1 =
25	10. 040690	040695	040699	040704	040709	040714	040718	040723	040728	040733	040738	040742	34	2.
26	10. 040747	040752	040757	040761	040766	040771	040776	040781	040785	040790	040795	040800	33	3.
27	10. 040805	040809	040814	040819	040824	040828	040833	040838	040843	040848	040852	040857	32	4.
28	10. 040862	040867	040872	040876	040881	040886	040891	040896	040900	040905	040910	040915	31	1 =
29	10. 040919	040924	040929	040934	040939	040943	040948	040953	040958	040963	040967	040972	30	2.
30	10. 040977	040982	040987	040991	040996	041001	041006	041011	041015	041020	041025	041030	29	3.
31	10. 041035	041039	041044	041049	041054	041059	041063	041068	041073	041078	041083	041087	28	4.
32	10. 041092	041097	041102	041107	041111	041116	041121	041126	041131	041136	041140	041145	27	1 =
33	10. 041150	041155	041160	041164	041169	041174	041179	041184	041188	041193	041198	041203	26	2.
34	10. 041208	041212	041217	041222	041227	041232	041237	041241	041246	041251	041256	041261	25	3.
35	10. 041265	041270	041275	041280	041285	041290	041294	041299	041304	041309	041314	041318	24	4.
36	10. 041323	041328	041333	041338	041343	041347	041352	041357	041362	041367	041371	041376	23	1 =
37	10. 041381	041386	041391	041396	041400	041405	041410	041415	041420	041425	041429	041434	22	2.
38	10. 041439	041444	041449	041454	041458	041463	041468	041473	041478	041483	041487	041492	21	3.
39	10. 041497	041502	041507	041511	041516	041521	041526	041531	041536	041540	041545	041550	20	4.
40	10. 041555	041560	041565	041569	041574	041579	041584	041589	041594	041599	041603	041608	19	1 =
41	10. 041613	041618	041623	041628	041632	041637	041642	041647	041652	041657	041661	041666	18	2.
42	10. 041671	041676	041681	041686	041690	041695	041700	041705	041710	041715	041720	041724	17	3.
43	10. 041729	041734	041739	041744	041749	041753	041758	041763	041768	041773	041778	041783	16	4.
44	10. 041787	041792	041797	041802	041807	041812	041817	041821	041826	041831	041836	041841	15	1 =
45	10. 041846	041850	041855	041860	041865	041870	041875	041880	041884	041889	041894	041899	14	2.
46	10. 041904	041909	041914	041918	041923	041928	041933	041938	041943	041948	041952	041957	13	3.
47	10. 041962	041967	041972	041977	041982	041987	041991	041996	042001	042006	042011	042016	12	4.
48	10. 042021	042025	042030	042035	042040	042045	042050	042055	042059	042064	042069	042074	11	1 =
49	10. 042079	042084	042089	042094	042098	042103	042108	042113	042118	042123	042128	042133	10	2.
50	10. 042137	042142	042147	042152	042157	042162	042167	042171	042176	042181	042186	042191	9	3.
51	10. 042196	042201	042206	042210	042215	042220	042225	042230	042235	042240	042245	042250	8	4.
52	10. 042254	042259	042264	042269	042274	042279	042284	042289	042293	042298	042303	042308	7	1 =
53	10. 042313	042318	042323	042328	042333	042337	042342	042347	042352	042357	042362	042367	6	2.
54	10. 042372	042376	042381	042386	042391	042396	042401	042406	042411	042416	042420	042425	5	3.
55	10. 042430	042435	042440	042445	042450	042455	042460	042464	042469	042474	042479	042484	4	4.
56	10. 042489	042494	042499	042504	042509	042513	042518	042523	042528	042533	042538	042543	3	1 =
57	10. 042548	042553	042558	042562	042567	042572	042577	042582	042587	042592	042597	042602	2	2.
58	10. 042607	042611	042616	042621	042626	042631	042636	042641	042646	042651	042656	042660	1	3.
59	10. 042665	042670	042675	042680	042685	042690	042695	042700	042705	042710	042714	042719	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts

Co-secant of 65 degrees, or Secant of 155 degrees.

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LOGARITHMIC SECANTS.

Secant of 25 degrees, or Co-secant of 115 degrees.

Minutes	0′	5″	10′	15″	20″	25″	30′	35″	40′	45″	50′	55′	Minutes	Propor. parts.
0	10. 042724	042729	042734	042739	042744	042749	042754	042759	042764	042768	042773	042778	59	1″ = 1
1	10. 042783	042788	042793	042798	042803	042808	042813	042818	042822	042827	042832	042837	58	2. 2
2	10. 042842	042847	042852	042857	042862	042867	042872	042877	042881	042886	042891	042896	57	3. 3
3	10. 042901	042906	042911	042916	042921	042926	042931	042936	042941	042945	042950	042955	56	4. 4
4	10. 042960	042965	042970	042975	042980	042985	042990	042995	043000	043005	043009	043014	55	1 = 1
5	10. 043019	043024	043029	043034	043039	043044	043049	043054	043059	043064	043069	043074	54	2. 2
6	10. 043078	043083	043088	043093	043098	043103	043108	043113	043118	043123	043128	043133	53	3. 3
7	10. 043138	043143	043148	043153	043157	043162	043167	043172	043177	043182	043187	043192	52	4. 4
8	10. 043197	043202	043207	043212	043217	043222	043227	043232	043236	043241	043246	043251	51	1 = 1
9	10. 043256	043261	043266	043271	043276	043281	043286	043291	043296	043301	043306	043311	50	2. 2
10	10. 043316	043321	043325	043330	043335	043340	043345	043350	043355	043360	043365	043370	49	3. 3
11	10. 043375	043380	043385	043390	043395	043400	043405	043410	043415	043420	043424	043429	48	4. 4
12	10. 043434	043439	043444	043449	043454	043459	043464	043469	043474	043479	043484	043489	47	1 = 1
13	10. 043494	043499	043504	043509	043514	043519	043524	043529	043534	043538	043543	043548	46	2. 2
14	10. 043553	043558	043563	043568	043573	043578	043583	043588	043593	043598	043603	043608	45	3. 3
15	10. 043613	043618	043623	043628	043633	043638	043643	043648	043653	043658	043663	043668	44	4. 4
16	10. 043673	043677	043682	043687	043692	043697	043702	043707	043712	043717	043722	043727	43	1 = 1
17	10. 043732	043737	043742	043747	043752	043757	043762	043767	043772	043777	043782	043787	42	2. 2
18	10. 043792	043797	043802	043807	043812	043817	043822	043827	043832	043837	043842	043847	41	3. 3
19	10. 043852	043857	043862	043867	043872	043877	043881	043886	043891	043896	043901	043906	40	4. 4
20	10. 043911	043916	043921	043926	043931	043936	043941	043946	043951	043956	043961	043966	39	1 = 1
21	10. 043971	043976	043981	043986	043991	043996	044001	044006	044011	044016	044021	044026	38	2. 2
22	10. 044031	044036	044041	044046	044051	044056	044061	044066	044071	044076	044081	044086	37	3. 3
23	10. 044091	044096	044101	044106	044111	044116	044121	044126	044131	044136	044141	044146	36	4. 4
24	10. 044151	044156	044161	044166	044171	044176	044181	044186	044191	044196	044201	044206	35	1 = 1
25	10. 044211	044216	044221	044226	044231	044236	044241	044246	044251	044256	044261	044266	34	2. 2
26	10. 044271	044276	044281	044286	044291	044296	044301	044306	044311	044316	044321	044326	33	3. 3
27	10. 044331	044336	044341	044346	044351	044356	044361	044366	044371	044376	044381	044386	32	4. 4
28	10. 044391	044396	044401	044406	044411	044416	044421	044426	044431	044436	044441	044446	31	1 = 1
29	10. 044451	044456	044462	044467	044472	044477	044482	044487	044492	044497	044502	044507	30	2. 2
30	10. 044512	044517	044522	044527	044532	044537	044542	044547	044552	044557	044562	044567	29	3. 3
31	10. 044572	044577	044582	044587	044592	044597	044602	044607	044612	044617	044622	044627	28	4. 4
32	10. 044632	044637	044642	044647	044652	044657	044662	044668	044673	044678	044683	044688	27	1 = 1
33	10. 044693	044698	044703	044708	044713	044718	044723	044728	044733	044738	044743	044748	26	2. 2
34	10. 044753	044758	044763	044768	044773	044778	044783	044788	044793	044798	044803	044809	25	3. 3
35	10. 044814	044819	044824	044829	044834	044839	044844	044849	044854	044859	044864	044869	24	4. 4
36	10. 044874	044879	044884	044889	044894	044899	044904	044909	044914	044919	044925	044930	23	1 = 1
37	10. 044935	044940	044945	044950	044955	044960	044965	044970	044975	044980	044985	044990	22	2. 2
38	10. 044995	045000	045005	045010	045015	045020	045026	045031	045036	045041	045046	045051	21	3. 3
39	10. 045056	045061	045066	045071	045076	045081	045086	045091	045096	045101	045106	045111	20	4. 4
40	10. 045117	045122	045127	045132	045137	045142	045147	045152	045157	045162	045167	045172	19	1 = 1
41	10. 045177	045182	045187	045192	045198	045203	045208	045213	045218	045223	045228	045233	18	2. 2
42	10. 045238	045243	045248	045253	045258	045263	045268	045274	045279	045284	045289	045294	17	3. 3
43	10. 045299	045304	045309	045314	045319	045324	045329	045334	045339	045345	045350	045355	16	4. 4
44	10. 045360	045365	045370	045375	045380	045385	045390	045395	045400	045405	045410	045416	15	1 = 1
45	10. 045421	045426	045431	045436	045441	045446	045451	045456	045461	045466	045471	045477	14	2. 2
46	10. 045482	045487	045492	045497	045502	045507	045512	045517	045522	045527	045532	045538	13	3. 3
47	10. 045543	045548	045553	045558	045563	045568	045573	045578	045583	045588	045593	045599	12	4. 4
48	10. 045604	045609	045614	045619	045624	045629	045634	045639	045644	045649	045655	045660	11	1 = 1
49	10. 045665	045670	045675	045680	045685	045690	045695	045700	045705	045711	045716	045721	10	2. 2
50	10. 045726	045731	045736	045741	045746	045751	045756	045762	045767	045772	045777	045782	9	3. 3
51	10. 045787	045792	045797	045802	045807	045813	045818	045823	045828	045833	045838	045843	8	4. 4
52	10. 045848	045853	045859	045864	045869	045874	045879	045884	045889	045894	045899	045904	7	1 = 1
53	10. 045910	045915	045920	045925	045930	045935	045940	045945	045950	045956	045961	045966	6	2. 2
54	10. 045971	045976	045981	045986	045991	045996	046002	046007	046012	046017	046022	046027	5	3. 3
55	10. 046032	046037	046042	046048	046053	046058	046063	046068	046073	046078	046083	046089	4	4. 4
56	10. 046094	046099	046104	046109	046114	046119	046124	046130	046135	046140	046145	046150	3	1 = 1
57	10. 046155	046160	046165	046170	046176	046181	046186	046191	046196	046201	046206	046211	2	2. 2
58	10. 046217	046222	046227	046232	046237	046242	046247	046253	046258	046263	046268	046273	1	3. 3
59	10. 046278	046283	046288	046294	046299	046304	046309	046314	046319	046324	046329	046335	0	4. 4
Minutes	60′	55″	50′	45″	40′	35″	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.

Co-secant of 64 degrees, or Secant of 154 degrees.

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LOGARITHMIC SECANTS.

Secant of 26 degrees, or Co-secant of 116 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 046340	046345	046350	046355	046360	046365	046371	046376	046381	046386	046391	046396	59	1″ =
1	10. 046401	046407	046412	046417	046422	046427	046432	046437	046443	046448	046453	046458	58	2.
2	10. 046463	046468	046473	046479	046484	046489	046494	046499	046504	046509	046515	046520	57	3.
3	10. 046525	046530	046535	046540	046545	046551	046556	046561	046566	046571	046576	046581	56	4.
4	10. 046587	046592	046597	046602	046607	046612	046617	046623	046628	046633	046638	046643	55	1 =
5	10. 046648	046654	046659	046664	046669	046674	046679	046684	046690	046695	046700	046705	54	2.
6	10. 046710	046715	046721	046726	046731	046736	046741	046746	046752	046757	046762	046767	53	3.
7	10. 046772	046777	046783	046788	046793	046798	046803	046808	046813	046819	046824	046829	52	4.
8	10. 046834	046839	046844	046850	046855	046860	046865	046870	046875	046881	046886	046891	51	1 =
9	10. 046896	046901	046906	046912	046917	046922	046927	046932	046938	046943	046948	046953	50	2.
10	10. 046958	046963	046969	046974	046979	046984	046989	046994	047000	047005	047010	047015	49	3.
11	10. 047020	047025	047031	047036	047041	047046	047051	047057	047062	047067	047072	047077	48	4.
12	10. 047082	047088	047093	047098	047103	047108	047114	047119	047124	047129	047134	047139	47	1 =
13	10. 047145	047150	047155	047160	047165	047171	047176	047181	047186	047191	047196	047202	46	2.
14	10. 047207	047212	047217	047222	047228	047233	047238	047243	047248	047254	047259	047264	45	3.
15	10. 047269	047274	047280	047285	047290	047295	047300	047305	047311	047316	047321	047326	44	4.
16	10. 047331	047337	047342	047347	047352	047357	047363	047368	047373	047378	047383	047389	43	1 =
17	10. 047394	047399	047404	047409	047415	047420	047425	047430	047435	047441	047446	047451	42	2.
18	10. 047456	047461	047467	047472	047477	047482	047487	047493	047498	047503	047508	047513	41	3.
19	10. 047519	047524	047529	047534	047540	047545	047550	047555	047560	047566	047571	047576	40	4.
20	10. 047581	047586	047592	047597	047602	047607	047612	047618	047623	047628	047633	047639	39	1
21	10. 047644	047649	047654	047659	047665	047670	047675	047680	047685	047691	047696	047701	38	2.
22	10. 047706	047712	047717	047722	047727	047732	047738	047743	047748	047753	047759	047764	37	3.
23	10. 047769	047774	047779	047785	047790	047795	047800	047806	047811	047816	047821	047826	36	4.
24	10. 047832	047837	047842	047847	047853	047858	047863	047868	047873	047879	047884	047889	35	1 =
25	10. 047894	047900	047905	047910	047915	047921	047926	047931	047936	047941	047947	047952	34	2.
26	10. 047957	047962	047968	047973	047978	047983	047989	047994	047999	048004	048010	048015	33	3.
27	10. 048020	048025	048030	048036	048041	048046	048051	048057	048062	048067	048072	048078	32	4.
28	10. 048083	048088	048093	048099	048104	048109	048114	048120	048125	048130	048135	048141	31	1 =
29	10. 048146	048151	048156	048162	048167	048172	048177	048183	048188	048193	048198	048204	30	2
30	10. 048209	048214	048219	048225	048230	048235	048240	048246	048251	048256	048261	048267	29	3.
31	10. 048272	048277	048282	048288	048293	048298	048303	048309	048314	048319	048324	048330	28	4.
32	10. 048335	048340	048345	048351	048356	048361	048366	048372	048377	048382	048387	048393	27	1 =
33	10. 048398	048403	048408	048414	048419	048424	048430	048435	048440	048445	048451	048456	26	2.
34	10. 048461	048466	048472	048477	048482	048487	048493	048498	048503	048508	048514	048519	25	3.
35	10. 048524	048530	048535	048540	048545	048551	048556	048561	048566	048572	048577	048582	24	4.
36	10. 048588	048593	048598	048603	048609	048614	048619	048624	048630	048635	048640	048646	23	1 =
37	10. 048651	048656	048661	048667	048672	048677	048682	048688	048693	048698	048704	048709	22	2.
38	10. 048714	048719	048725	048730	048735	048741	048746	048751	048756	048762	048767	048772	21	3.
39	10. 048778	048783	048788	048793	048799	048804	048809	048814	048820	048825	048830	048836	20	4.
40	10. 048841	048846	048852	048857	048862	048867	048873	048878	048883	048889	048894	048899	19	1 =
41	10. 048904	048910	048915	048920	048926	048931	048936	048941	048947	048952	048957	048963	18	2.
42	10. 048968	048973	048979	048984	048989	048994	049000	049005	049010	049016	049021	049026	17	3.
43	10. 049031	049037	049042	049047	049053	049058	049063	049069	049074	049079	049084	049090	16	4.
44	10. 049095	049100	049106	049111	049116	049122	049127	049132	049138	049143	049148	049153	15	1 =
45	10. 049159	049164	049169	049175	049180	049185	049191	049196	049201	049207	049212	049217	14	2.
46	10. 049222	049228	049233	049238	049244	049249	049254	049260	049265	049270	049276	049281	13	3.
47	10. 049286	049291	049297	049302	049307	049313	049318	049323	049329	049334	049339	049345	12	4.
48	10. 049350	049355	049361	049366	049371	049377	049382	049387	049393	049398	049403	049408	11	1 =
49	10. 049414	049419	049424	049430	049435	049440	049446	049451	049456	049462	049467	049472	10	2.
50	10. 049478	049483	049488	049494	049499	049504	049510	049515	049520	049526	049531	049536	9	3.
51	10. 049542	049547	049552	049558	049563	049568	049574	049579	049584	049590	049595	049600	8	4.
52	10. 049606	049611	049616	049622	049627	049632	049638	049643	049648	049654	049659	049664	7	1 =
53	10. 049670	049675	049680	049686	049691	049696	049702	049707	049712	049718	049723	049728	6	2.
54	10. 049734	049739	049744	049750	049755	049760	049766	049771	049776	049782	049787	049792	5	3.
55	10. 049798	049803	049808	049814	049819	049825	049830	049835	049841	049846	049851	049857	4	4.
56	10. 049862	049867	049873	049878	049883	049889	049894	049899	049905	049910	049915	049921	3	1 =
57	10. 049926	049932	049937	049942	049948	049953	049958	049964	049969	049974	049980	049985	2	2.
58	10. 049990	049996	050001	050006	050012	050017	050023	050028	050033	050039	050044	050049	1	3.
59	10. 050055	050060	050065	050071	050076	050082	050087	050092	050098	050103	050108	050114	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 63 degrees, or Secant of 153 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 27 degrees, or Co-secant of 117 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.050119	050124	050130	050135	050141	050146	050151	050157	050162	050167	050173	050178	59	1″ = 1
1	10.050183	050189	050194	050200	050205	050210	050216	050221	050226	050232	050237	050243	58	2. 2
2	10.050248	050253	050259	050264	050269	050275	050280	050286	050291	050296	050302	050307	57	3. 3
3	10.050312	050318	050323	050329	050334	050339	050345	050350	050355	050361	050366	050372	56	4. 4
4	10.050377	050382	050388	050393	050398	050404	050409	050415	050420	050425	050431	050436	55	1 = 1
5	10.050441	050447	050452	050458	050463	050468	050474	050479	050485	050490	050495	050501	54	2. 2
6	10.050506	050512	050517	050522	050528	050533	050538	050544	050549	050555	050560	050565	53	3. 3
7	10.050571	050576	050582	050587	050592	050598	050603	050609	050614	050619	050625	050630	52	4. 4
8	10.050635	050641	050646	050652	050657	050662	050668	050673	050679	050684	050689	050695	51	1 = 1
9	10.050700	050706	050711	050716	050722	050727	050733	050738	050743	050749	050754	050760	50	2. 2
10	10.050765	050770	050776	050781	050787	050792	050797	050803	050808	050814	050819	050825	49	3. 3
11	10.050830	050835	050841	050846	050852	050857	050862	050868	050873	050879	050884	050889	48	4. 4
12	10.050895	050900	050906	050911	050916	050922	050927	050933	050938	050944	050949	050954	47	1 = 1
13	10.050960	050965	050971	050976	050981	050987	050992	050998	051003	051009	051014	051019	46	2. 2
14	10.051025	051030	051036	051041	051046	051052	051057	051063	051068	051074	051079	051084	45	3. 3
15	10.051090	051095	051101	051106	051112	051117	051122	051128	051133	051139	051144	051149	44	4. 4
16	10.051155	051160	051166	051171	051177	051182	051187	051193	051198	051204	051209	051215	43	1 = 1
17	10.051220	051225	051231	051236	051242	051247	051253	051258	051263	051269	051274	051280	42	2. 2
18	10.051285	051291	051296	051302	051307	051312	051318	051323	051329	051334	051340	051345	41	3. 3
19	10.051350	051356	051361	051367	051372	051378	051383	051389	051394	051399	051405	051410	40	4. 4
20	10.051416	051421	051427	051432	051437	051443	051448	051454	051459	051465	051470	051476	39	1 = 1
21	10.051481	051486	051492	051497	051503	051508	051514	051519	051525	051530	051536	051541	38	2. 2
22	10.051546	051552	051557	051563	051568	051574	051579	051585	051590	051595	051601	051606	37	3. 3
23	10.051612	051617	051623	051628	051634	051639	051645	051650	051655	051661	051666	051672	36	4. 4
24	10.051677	051683	051688	051694	051699	051705	051710	051715	051721	051726	051732	051737	35	1 = 1
25	10.051743	051748	051754	051759	051765	051770	051776	051781	051786	051792	051797	051803	34	2. 2
26	10.051808	051814	051819	051825	051830	051836	051841	051847	051852	051858	051863	051868	33	3. 3
27	10.051874	051879	051885	051890	051896	051901	051907	051912	051918	051923	051929	051934	32	4. 4
28	10.051940	051945	051951	051956	051961	051967	051972	051978	051983	051989	051994	052000	31	1 = 1
29	10.052005	052011	052016	052022	052027	052033	052038	052044	052049	052055	052060	052066	30	2. 2
30	10.052071	052077	052082	052087	052093	052098	052104	052109	052115	052120	052126	052131	29	3. 3
31	10.052137	052142	052148	052153	052159	052164	052170	052175	052181	052186	052192	052197	28	4. 4
32	10.052203	052208	052214	052219	052225	052230	052236	052241	052247	052252	052258	052263	27	1 = 1
33	10.052269	052274	052280	052285	052290	052296	052301	052307	052312	052318	052323	052329	26	2. 2
34	10.052334	052340	052345	052351	052356	052362	052367	052373	052378	052384	052389	052395	25	3. 3
35	10.052400	052406	052411	052417	052422	052428	052433	052439	052444	052450	052455	052461	24	4. 4
36	10.052466	052472	052477	052483	052488	052494	052499	052505	052510	052516	052522	052527	23	1 = 1
37	10.052533	052538	052544	052549	052555	052560	052566	052571	052577	052582	052588	052593	22	2. 2
38	10.052599	052604	052610	052615	052621	052626	052632	052637	052643	052648	052654	052659	21	3. 3
39	10.052665	052670	052676	052681	052687	052692	052698	052703	052709	052714	052720	052725	20	4. 4
40	10.052731	052737	052742	052748	052753	052759	052764	052770	052775	052781	052786	052792	19	1 = 1
41	10.052797	052803	052808	052814	052819	052825	052830	052836	052841	052847	052853	052858	18	2. 2
42	10.052864	052869	052875	052880	052886	052891	052897	052902	052908	052913	052919	052924	17	3. 3
43	10.052930	052935	052941	052947	052952	052958	052963	052969	052974	052980	052985	052991	16	4. 4
44	10.052996	053002	053007	053013	053018	053024	053030	053035	053041	053046	053052	053057	15	1 = 1
45	10.053063	053068	053074	053079	053085	053090	053096	053102	053107	053113	053118	053124	14	2. 2
46	10.053129	053135	053140	053146	053151	053157	053162	053168	053174	053179	053185	053190	13	3. 3
47	10.053196	053201	053207	053212	053218	053224	053229	053235	053240	053246	053251	053257	12	4. 4
48	10.053262	053268	053273	053279	053285	053290	053296	053301	053307	053312	053318	053323	11	1 = 1
49	10.053329	053335	053340	053346	053351	053357	053362	053368	053373	053379	053385	053390	10	2. 2
50	10.053396	053401	053407	053412	053418	053423	053429	053435	053440	053446	053451	053457	9	3. 3
51	10.053462	053468	053474	053479	053485	053490	053496	053501	053507	053512	053518	053524	8	4. 4
52	10.053529	053535	053540	053546	053551	053557	053563	053568	053574	053579	053585	053590	7	1 = 1
53	10.053596	053602	053607	053613	053618	053624	053629	053635	053641	053646	053652	053657	6	2. 2
54	10.053663	053668	053674	053680	053685	053691	053696	053702	053707	053713	053719	053724	5	3. 3
55	10.053730	053735	053741	053746	053752	053758	053763	053769	053774	053780	053786	053791	4	4. 4
56	10.053797	053802	053808	053813	053819	053825	053830	053836	053841	053847	053853	053858	3	1 = 1
57	10.053864	053869	053875	053880	053886	053892	053897	053903	053908	053914	053920	053925	2	2. 2
58	10.053931	053936	053942	053948	053953	053959	053964	053970	053976	053981	053987	053992	1	3. 3
59	10.053998	054003	054009	054015	054020	054026	054031	054037	054043	054048	054054	054059	0	4. 4
Minutes	60′	55″	50′	45″	40″	35″	30″	25	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 62 degrees, or Secant of 152 degrees.													

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LOGARITHMIC SECANTS.

Secant of 28 degrees, or Co-secant of 118 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
0	10.054065	054071	054076	054082	054087	054093	054099	054104	054110	054115	054121	054127	59	1″ =
1	10.054132	054138	054143	054149	054155	054160	054166	054171	054177	054183	054188	054194	58	2.
2	10.054199	054205	054211	054216	054222	054227	054233	054239	054244	054250	054256	054261	57	3.
3	10.054267	054272	054278	054284	054289	054295	054300	054306	054312	054317	054323	054328	56	4.
4	10.054334	054340	054345	054351	054357	054362	054368	054373	054379	054385	054390	054396	55	1 =
5	10.054401	054407	054413	054418	054424	054430	054435	054441	054446	054452	054458	054463	54	2.
6	10.054469	054475	054480	054486	054491	054497	054503	054508	054514	054520	054525	054531	53	3.
7	10.054536	054542	054548	054553	054559	054565	054570	054576	054581	054587	054593	054598	52	4.
8	10.054604	054610	054615	054621	054626	054632	054638	054643	054649	054655	054660	054666	51	1 =
9	10.054671	054677	054683	054688	054694	054700	054705	054711	054717	054722	054728	054733	50	2.
10	10.054739	054745	054750	054756	054762	054767	054773	054779	054784	054790	054795	054801	49	3.
11	10.054807	054812	054818	054824	054829	054835	054841	054846	054852	054858	054863	054869	48	4.
12	10.054874	054880	054886	054891	054897	054903	054908	054914	054920	054925	054931	054937	47	1 =
13	10.054942	054948	054954	054959	054965	054970	054976	054982	054987	054993	054999	055004	46	2.
14	10.055010	055016	055021	055027	055033	055038	055044	055050	055055	055061	055067	055072	45	3.
15	10.055078	055084	055089	055095	055101	055106	055112	055118	055123	055129	055134	055140	44	4.
16	10.055146	055151	055157	055163	055168	055174	055180	055185	055191	055197	055202	055208	43	1 =
17	10.055214	055219	055225	055231	055236	055242	055248	055253	055259	055265	055270	055276	42	2.
18	10.055282	055287	055293	055299	055304	055310	055316	055321	055327	055333	055338	055344	41	3.
19	10.055350	055355	055361	055367	055372	055378	055384	055390	055395	055401	055407	055412	40	4.
20	10.055418	055424	055429	055435	055441	055446	055452	055458	055463	055469	055475	055480	39	1 =
21	10.055486	055492	055497	055503	055509	055514	055520	055526	055531	055537	055543	055549	38	2.
22	10.055554	055560	055566	055571	055577	055583	055588	055594	055600	055605	055611	055617	37	3.
23	10.055622	055628	055634	055640	055645	055651	055657	055662	055668	055674	055679	055685	36	4.
24	10.055691	055696	055702	055708	055714	055719	055725	055731	055736	055742	055748	055753	35	1 =
25	10.055759	055765	055770	055776	055782	055788	055793	055799	055805	055810	055816	055822	34	2.
26	10.055827	055833	055839	055845	055850	055856	055862	055867	055873	055879	055884	055890	33	3.
27	10.055896	055902	055907	055913	055919	055924	055930	055936	055942	055947	055953	055959	32	4.
28	10.055964	055970	055976	055981	055987	055993	055999	056004	056010	056016	056021	056027	31	1 =
29	10.056033	056039	056044	056050	056056	056061	056067	056073	056079	056084	056090	056096	30	2.
30	10.056101	056107	056113	056119	056124	056130	056136	056141	056147	056153	056159	056164	29	3.
31	10.056170	056176	056182	056187	056193	056199	056204	056210	056216	056222	056227	056233	28	4.
32	10.056239	056244	056250	056256	056262	056267	056273	056279	056285	056290	056296	056302	27	1 =
33	10.056307	056313	056319	056325	056330	056336	056342	056348	056353	056359	056365	056370	26	2.
34	10.056376	056382	056388	056393	056399	056405	056411	056416	056422	056428	056434	056439	25	3.
35	10.056445	056451	056456	056462	056468	056474	056479	056485	056491	056497	056502	056508	24	4.
36	10.056514	056520	056525	056531	056537	056543	056548	056554	056560	056566	056571	056577	23	1 =
37	10.056583	056589	056594	056600	056606	056611	056617	056623	056629	056634	056640	056646	22	2.
38	10.056652	056657	056663	056669	056675	056680	056686	056692	056698	056703	056709	056715	21	3.
39	10.056721	056726	056732	056738	056744	056749	056755	056761	056767	056772	056778	056784	20	4.
40	10.056790	056796	056801	056807	056813	056819	056824	056830	056836	056842	056847	056853	19	1 =
41	10.056859	056865	056870	056876	056882	056888	056893	056899	056905	056911	056916	056922	18	2.
42	10.056928	056934	056940	056945	056951	056957	056963	056968	056974	056980	056986	056991	17	3.
43	10.056997	057003	057009	057014	057020	057026	057032	057038	057043	057049	057055	057061	16	4.
44	10.057066	057072	057078	057084	057089	057095	057101	057107	057113	057118	057124	057130	15	1 =
45	10.057136	057141	057147	057153	057159	057165	057170	057176	057182	057188	057193	057199	14	2.
46	10.057205	057211	057217	057222	057228	057234	057240	057245	057251	057257	057263	057269	13	3.
47	10.057274	057280	057286	057292	057298	057303	057309	057315	057321	057326	057332	057338	12	4.
48	10.057344	057350	057355	057361	057367	057373	057379	057384	057390	057396	057402	057408	11	1 =
49	10.057413	057419	057425	057431	057436	057442	057448	057454	057460	057465	057471	057477	10	2.
50	10.057483	057489	057494	057500	057506	057512	057518	057523	057529	057535	057541	057547	9	3.
51	10.057552	057558	057564	057570	057576	057581	057587	057593	057599	057605	057610	057616	8	4.
52	10.057622	057628	057634	057639	057645	057651	057657	057663	057668	057674	057680	057686	7	1 =
53	10.057692	057697	057703	057709	057715	057721	057727	057732	057738	057744	057750	057756	6	2.
54	10.057761	057767	057773	057779	057785	057790	057796	057802	057808	057814	057820	057825	5	3.
55	10.057831	057837	057843	057849	057854	057860	057866	057872	057878	057884	057889	057895	4	4.
56	10.057901	057907	057913	057918	057924	057930	057936	057942	057948	057953	057959	057965	3	1 =
57	10.057971	057977	057982	057988	057994	058000	058006	058012	058017	058023	058029	058035	2	2.
58	10.058041	058047	058052	058058	058064	058070	058076	058082	058087	058093	058099	058105	1	3.
59	10.058111	058117	058122	058128	058134	058140	058146	058152	058157	058163	058169	058175	0	4.
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts

Co-secant of 61 degrees, or Secant of 151 degrees.

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LOGARITHMIC SECANTS.

Secant of 29 degrees, or Co-secant of 119 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.058181	058187	058192	058198	058204	058210	058216	058222	058227	058233	058239	058245	59	1″ = 1
1	10.058251	058257	058262	058268	058274	058280	058286	058292	058297	058303	058309	058315	58	2. 2
2	10.058321	058327	058333	058338	058344	058350	058356	058362	058368	058373	058379	058385	57	3. 4
3	10.058391	058397	058403	058409	058414	058420	058426	058432	058438	058444	058449	058455	56	4. 5
4	10.058461	058467	058473	058479	058485	058490	058496	058502	058508	058514	058520	058526	55	1 = 1
5	10.058531	058537	058543	058549	058555	058561	058567	058572	058578	058584	058590	058596	54	2. 2
6	10.058602	058608	058613	058619	058625	058631	058637	058643	058649	058654	058660	058666	53	3. 4
7	10.058672	058678	058684	058690	058696	058701	058707	058713	058719	058725	058731	058737	52	4. 5
8	10.058742	058748	058754	058760	058766	058772	058778	058784	058789	058795	058801	058807	51	1 = 1
9	10.058813	058819	058825	058830	058836	058842	058848	058854	058860	058866	058872	058878	50	2. 2
10	10.058883	058889	058895	058901	058907	058913	058919	058924	058930	058936	058942	058948	49	3. 4
11	10.058954	058960	058966	058972	058977	058983	058989	058995	059001	059007	059013	059019	48	4. 5
12	10.059024	059030	059036	059042	059048	059054	059060	059066	059072	059077	059083	059089	47	1 = 1
13	10.059095	059101	059107	059113	059119	059125	059130	059136	059142	059148	059154	059160	46	2. 2
14	10.059166	059172	059178	059183	059189	059195	059201	059207	059213	059219	059225	059231	45	3. 4
15	10.059237	059242	059248	059254	059260	059266	059272	059278	059284	059290	059295	059301	44	4. 5
16	10.059307	059313	059319	059325	059331	059337	059343	059349	059354	059360	059366	059372	43	1 = 1
17	10.059378	059384	059390	059396	059402	059408	059414	059419	059425	059431	059437	059443	42	2. 2
18	10.059449	059455	059461	059467	059473	059479	059484	059490	059496	059502	059508	059514	41	3. 4
19	10.059520	059526	059532	059538	059544	059549	059555	059561	059567	059573	059579	059585	40	4. 5
20	10.059591	059597	059603	059609	059615	059620	059626	059632	059638	059644	059650	059656	39	1 = 1
21	10.059662	059668	059674	059680	059686	059691	059697	059703	059709	059715	059721	059727	38	2. 2
22	10.059733	059739	059745	059751	059757	059763	059768	059774	059780	059786	059792	059798	37	3. 4
23	10.059804	059810	059816	059822	059828	059834	059840	059846	059851	059857	059863	059869	36	4. 5
24	10.059875	059881	059887	059893	059899	059905	059911	059917	059923	059929	059935	059940	35	1 = 1
25	10.059946	059952	059958	059964	059970	059976	059982	059988	059994	060000	060006	060012	34	2. 2
26	10.060018	060024	060030	060035	060041	060047	060053	060059	060065	060071	060077	060083	33	3. 4
27	10.060089	060095	060101	060107	060113	060119	060125	060131	060137	060142	060148	060154	32	4. 5
28	10.060160	060166	060172	060178	060184	060190	060196	060202	060208	060214	060220	060226	31	1 = 1
29	10.060232	060238	060244	060250	060256	060261	060267	060273	060279	060285	060291	060297	30	2. 2
30	10.060303	060309	060315	060321	060327	060333	060339	060345	060351	060357	060363	060369	29	3. 4
31	10.060375	060381	060387	060393	060399	060404	060410	060416	060422	060428	060434	060440	28	4. 5
32	10.060446	060452	060458	060464	060470	060476	060482	060488	060494	060500	060506	060512	27	1 = 1
33	10.060518	060524	060530	060536	060542	060548	060554	060560	060566	060572	060578	060583	26	2. 2
34	10.060589	060595	060601	060607	060613	060619	060625	060631	060637	060643	060649	060655	25	3. 4
35	10.060661	060667	060673	060679	060685	060691	060697	060703	060700	060715	060721	060727	24	4. 5
36	10.060733	060739	060745	060751	060757	060763	060769	060775	060781	060787	060793	060799	23	1 = 1
37	10.060805	060811	060817	060823	060829	060835	060841	060847	060853	060859	060865	060871	22	2. 2
38	10.060877	060883	060889	060894	060900	060906	060912	060918	060924	060930	060936	060942	21	3. 4
39	10.060948	060954	060960	060966	060972	060978	060984	060990	060996	061002	061008	061014	20	4. 5
40	10.061020	061026	061032	061038	061044	061050	061056	061062	061068	061074	061080	061086	19	1 = 1
41	10.061092	061098	061104	061110	061116	061122	061128	061134	061140	061146	061152	061158	18	2. 2
42	10.061164	061170	061176	061182	061188	061194	061200	061206	061212	061218	061224	061230	17	3. 4
43	10.061236	061242	061248	061254	061260	061266	001273	061279	061285	061291	061297	061303	16	4. 5
44	10.061309	061315	061321	061327	061333	061339	061345	061351	061357	061363	061369	061375	15	1 = 1
45	10.061381	061387	061393	061399	061405	061411	061417	061423	061429	061435	061441	061447	14	2. 2
46	10.061453	061459	061465	061471	061477	061483	061489	061495	061501	061507	061513	061519	13	3. 4
47	10.061525	061531	061537	061543	061549	061555	061561	061567	061573	061580	061586	061592	12	4. 5
48	10.061598	061604	061610	061616	061622	061628	061634	061640	061646	061652	061658	061664	11	1 = 1
49	10.061670	061676	061682	061688	061694	061700	061706	061712	061718	061724	061730	061736	10	2. 2
50	10.061742	061748	061754	061761	061767	061773	061779	061785	061791	061797	061803	061809	9	3. 4
51	10.061815	061821	061827	061833	061839	061845	061851	061857	061863	061869	061875	061881	8	4. 5
52	10.061887	061893	061899	061906	061912	061918	061924	061930	061936	061942	061948	061954	7	1 = 1
53	10.061960	061966	061972	061978	061984	061990	061996	062002	062008	062014	062020	062027	6	2. 2
54	10.062033	062039	062045	062051	062057	062063	062069	062075	062081	062087	062093	062099	5	3. 4
55	10.062105	062111	062117	062123	062129	062136	062142	062148	062154	062160	062166	062172	4	4. 5
56	10.062178	062184	062190	062196	062202	062208	062214	062220	062226	062233	062239	062245	3	1 = 1
57	10.062251	062257	062263	062269	062275	062281	062287	062293	062299	062305	062311	062317	2	2. 2
58	10.062324	062330	062336	062342	062348	062354	062360	062366	062372	062378	062384	062390	1	3. 4
59	10.062396	062402	062409	062415	062421	062427	062433	062439	062445	062451	062457	062463	0	4. 5
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 60 degrees, or Secant of 150 degrees.

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LOGARITHMIC SECANTS.

Secant of 30 degrees, or Co-secant of 120 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper. parts.
0	10. 062469	062475	062481	062488	062494	062500	062506	062512	062518	062524	062530	062536	59	1″ =
1	10. 062542	062548	062554	062561	062567	062573	062579	062585	062591	062597	062603	062609	58	2.
2	10. 062615	062621	062627	062634	062640	062646	062652	062658	062664	062670	062676	062682	57	3.
3	10. 062688	062694	062701	062707	062713	062719	062725	062731	062737	062743	062749	062755	56	4.
4	10. 062761	062768	062774	062780	062786	062792	062798	062804	062810	062816	062822	062829	55	1 =
5	10. 062835	062841	062847	062853	062859	062865	062871	062877	062883	062890	062896	062902	54	2.
6	10. 062908	062914	062920	062926	062932	062938	062944	062951	062957	062963	062969	062975	53	3.
7	10. 062981	062987	062993	062999	063006	063012	063018	063024	063030	063036	063042	063048	52	4.
8	10. 063054	063060	063067	063073	063079	063085	063091	063097	063103	063109	063116	063122	51	1 =
9	10. 063128	063134	063140	063146	063152	063158	063164	063171	063177	063183	063189	063195	50	2.
10	10. 063201	063207	063213	063220	063226	063232	063238	063244	063250	063256	063262	063268	49	3.
11	10. 063275	063281	063287	063293	063299	063305	063311	063317	063324	063330	063336	063342	48	4.
12	10. 063348	063354	063360	063366	063373	063379	063385	063391	063397	063403	063409	063416	47	1 =
13	10. 063422	063428	063434	063440	063446	063452	063458	063465	063471	063477	063483	063489	46	2.
14	10. 063495	063501	063508	063514	063520	063526	063532	063538	063544	063550	063557	063563	45	3.
15	10. 063569	063575	063581	063587	063593	063600	063606	063612	063618	063624	063630	063636	44	4.
16	10. 063643	063649	063655	063661	063667	063673	063679	063686	063692	063698	063704	063710	43	1 =
17	10. 063716	063722	063729	063735	063741	063747	063753	063759	063766	063772	063778	063784	42	2.
18	10. 063790	063796	063802	063809	063815	063821	063827	063833	063839	063846	063852	063858	41	3.
19	10. 063864	063870	063876	063882	063889	063895	063901	063907	063913	063919	063926	063932	40	4.
20	10. 063938	063944	063950	063956	063963	063969	063975	063981	063987	063993	064000	064006	39	1 =
21	10. 064012	064018	064024	064030	064036	064043	064049	064055	064061	064067	064073	064080	38	2.
22	10. 064086	064092	064098	064104	064111	064117	064123	064129	064135	064141	064148	064154	37	3.
23	10. 064160	064166	064172	064178	064185	064191	064197	064203	064209	064215	064222	064228	36	4.
24	10. 064234	064240	064246	064252	064259	064265	064271	064277	064283	064290	064296	064302	35	1 =
25	10. 064308	064314	064320	064327	064333	064339	064345	064351	064358	064364	064370	064376	34	2.
26	10. 064382	064388	064395	064401	064407	064413	064419	064426	064432	064438	064444	064450	33	3.
27	10. 064457	064463	064469	064475	064481	064487	064494	064500	064506	064512	064518	064525	32	4.
28	10. 064531	064537	064543	064549	064556	064562	064568	064574	064580	064587	064593	064599	31	1 =
29	10. 064605	064611	064618	064624	064630	064636	064642	064649	064655	064661	064667	064673	30	2.
30	10. 064680	064686	064692	064698	064704	064711	064717	064723	064729	064735	064742	064748	29	3.
31	10. 064754	064760	064766	064773	064779	064785	064791	064797	064804	064810	064816	064822	28	4.
32	10. 064828	064835	064841	064847	064853	064860	064866	064872	064878	064884	064891	064897	27	1 =
33	10. 064903	064909	064915	064922	064928	064934	064940	064947	064953	064959	064965	064971	26	2.
34	10. 064978	064984	064990	064996	065002	065009	065015	065021	065027	065034	065040	065046	25	3.
35	10. 065052	065058	065065	065071	065077	065083	065090	065096	065102	065108	065114	065121	24	4.
36	10. 065127	065133	065139	065146	065152	065158	065164	065171	065177	065183	065189	065195	23	1 =
37	10. 065202	065208	065214	065220	065227	065233	065239	065245	065252	065258	065264	065270	22	2.
38	10. 065276	065283	065289	065295	065301	065308	065314	065320	065326	065333	065339	065345	21	3.
39	10. 065351	065358	065364	065370	065376	065382	065389	065395	065401	065407	065414	065420	20	4.
40	10. 065426	065432	065439	065445	065451	065457	065464	065470	065476	065482	065489	065495	19	1 =
41	10. 065501	065507	065514	065520	065526	065532	065539	065545	065551	065557	065564	065570	18	2.
42	10. 065576	065582	065589	065595	065601	065607	065614	065620	065626	065632	065639	065645	17	3.
43	10. 065651	065657	065664	065670	065676	065682	065689	065695	065701	065707	065714	065720	16	4.
44	10. 065726	065732	065739	065745	065751	065758	065764	065770	065776	065783	065789	065795	15	1 =
45	10. 065801	065808	065814	065820	065826	065833	065839	065845	065851	065858	065864	065870	14	2.
46	10. 065877	065883	065889	065895	065902	065908	065914	065920	065927	065933	065939	065946	13	3.
47	10. 065952	065958	065964	065971	065977	065983	065989	065996	066002	066008	066015	066021	12	4.
48	10. 066027	066033	066040	066046	066052	066058	066065	066071	066077	066084	066090	066096	11	1 =
49	10. 066102	066109	066115	066121	066128	066134	066140	066146	066153	066159	066165	066171	10	2.
50	10. 066178	066184	066190	066197	066203	066209	066215	066222	066228	066234	066241	066247	9	3.
51	10. 066253	066260	066266	066272	066278	066285	066291	066297	066304	066310	066316	066322	8	4.
52	10. 066329	066335	066341	066348	066354	066360	066366	066373	066379	066385	066392	066398	7	1 =
53	10. 066404	066411	066417	066423	066429	066436	066442	066448	066455	066461	066467	066474	6	2.
54	10. 066480	066486	066492	066499	066505	066511	066518	066524	066530	066537	066543	066549	5	3.
55	10. 066555	066562	066568	066574	066581	066587	066593	066600	066606	066612	066619	066625	4	4.
56	10. 066631	066637	066644	066650	066656	066663	066669	066675	066682	066688	066694	066701	3	1 =
57	10. 066707	066713	066719	066726	066732	066738	066745	066751	066757	066764	066770	066776	2	2.
58	10. 066783	066789	066795	066802	066808	066814	066821	066827	066833	066840	066846	066852	1	3.
59	10. 066858	066865	066871	066877	066884	066890	066896	066903	066909	066915	066922	066928	0	4.
Minutes	60″	55″	50″	45″	40	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.

Co-secant of 59 degrees, or Secant of 149 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 31 degrees, or Co-secant of 121 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 066934	066941	066947	066953	066960	066966	066972	066979	066985	066991	066998	067004	59	1″ = 1
1	10. 067010	067017	067023	067029	067036	067042	067048	067055	067061	067067	067074	067080	58	2. 3
2	10. 067086	067093	067099	067105	067112	067118	067124	067131	067137	067143	067150	067156	57	3. 4
3	10. 067162	067169	067175	067181	067188	067194	067200	067207	067213	067219	067226	067232	56	4. 5
4	10. 067238	067245	067251	067257	067264	067270	067276	067283	067289	067295	067302	067308	55	1 = 1
5	10. 067315	067321	067327	067334	067340	067346	067353	067359	067365	067372	067378	067384	54	2. 3
6	10. 067391	067397	067403	067410	067416	067422	067429	067435	067442	067448	067454	067461	53	3. 4
7	10. 067467	067473	067480	067486	067492	067499	067505	067511	067518	067524	067530	067537	52	4. 5
8	10. 067543	067550	067556	067562	067569	067575	067581	067588	067594	067600	067607	067613	51	1 = 1
9	10. 067620	067626	067632	067639	067645	067651	067658	067664	067670	067677	067683	067690	50	2. 3
10	10. 067696	067702	067709	067715	067721	067728	067734	067741	067747	067753	067760	067766	49	3. 4
11	10. 067772	067779	067785	067791	067798	067804	067811	067817	067823	067830	067836	067842	48	4. 5
12	10. 067849	067855	067862	067868	067874	067881	067887	067893	067900	067906	067913	067919	47	1 = 1
13	10. 067925	067932	067938	067945	067951	067957	067964	067970	067976	067983	067989	067996	46	2. 3
14	10. 068002	068008	068015	068021	068028	068034	068040	068047	068053	068059	068066	068072	45	3. 4
15	10. 068079	068085	068091	068098	068104	068111	068117	068123	068130	068136	068143	068149	44	4. 5
16	10. 068155	068162	068168	068174	068181	068187	068194	068200	068206	068213	068219	068226	43	1 = 1
17	10. 068232	068238	068245	068251	068258	068264	068270	068277	068283	068290	068296	068302	42	2. 3
18	10. 068309	068315	068322	068328	068334	068341	068347	068354	068360	068366	068373	068379	41	3. 4
19	10. 068386	068392	068398	068405	068411	068418	068424	068430	068437	068443	068450	068456	40	4. 5
20	10. 068463	068469	068475	068482	068488	068495	068501	068507	068514	068520	068527	068533	39	1 = 1
21	10. 068539	068546	068552	068559	068565	068572	068578	068584	068591	068597	068604	068610	38	2. 3
22	10. 068616	068623	068629	068636	068642	068649	068655	068661	068668	068674	068681	068687	37	3. 4
23	10. 068693	068700	068706	068713	068719	068726	068732	068738	068745	068751	068758	068764	36	4. 5
24	10. 068771	068777	068783	068790	068796	068803	068809	068816	068822	068828	068835	068841	35	1 = 1
25	10. 068848	068854	068861	068867	068873	068880	068886	068893	068899	068906	068912	068918	34	2. 3
26	10. 068925	068931	068938	068944	068951	068957	068964	068970	068976	068983	068989	068996	33	3. 4
27	10. 069002	069009	069015	069021	069028	069034	069041	069047	069054	069060	069067	069073	32	4. 5
28	10. 069079	069086	069092	069099	069105	069112	069118	069125	069131	069137	069144	069150	31	1 = 1
29	10. 069157	069163	069170	069176	069183	069189	069195	069202	069208	069215	069221	069228	30	2. 3
30	10. 069234	069241	069247	069254	069260	069266	069273	069279	069286	069292	069299	069305	29	3. 4
31	10. 069312	069318	069325	069331	069337	069344	069350	069357	069363	069370	069376	069383	28	4. 5
32	10. 069389	069396	069402	069408	069415	069421	069428	069434	069441	069447	069454	069460	27	1 = 1
33	10. 069467	069473	069480	069486	069492	069499	069505	069512	069518	069525	069531	069538	26	2. 3
34	10. 069544	069551	069557	069564	069570	069577	069583	069590	069596	069602	069609	069615	25	3. 4
35	10. 069622	069628	069635	069641	069648	069654	069661	069667	069674	069680	069687	069693	24	4. 5
36	10. 069700	069706	069713	069719	069725	069732	069738	069745	069751	069758	069764	069771	23	1 = 1
37	10. 069777	069784	069790	069797	069803	069810	069816	069823	069829	069836	069842	069849	22	2. 3
38	10. 069855	069862	069868	069875	069881	069888	069894	069901	069907	069913	069920	069926	21	3. 4
39	10. 069933	069939	069946	069952	069959	069965	069972	069978	069985	069991	069998	070004	20	4. 5
40	10. 070011	070017	070024	070030	070037	070043	070050	070056	070063	070069	070076	070082	19	1 = 1
41	10. 070089	070095	070102	070108	070115	070121	070128	070134	070141	070147	070154	070160	18	2. 3
42	10. 070167	070173	070180	070186	070193	070199	070206	070212	070219	070225	070232	070238	17	3. 4
43	10. 070245	070251	070258	070264	070271	070277	070284	070290	070297	070303	070310	070316	16	4. 5
44	10. 070323	070329	070336	070342	070349	070356	070362	070369	070375	070382	070388	070395	15	1 = 1
45	10. 070401	070408	070414	070421	070427	070434	070440	070447	070453	070460	070466	070473	14	2. 3
46	10. 070479	070486	070492	070499	070505	070512	070518	070525	070531	070538	070545	070551	13	3. 4
47	10. 070558	070564	070571	070577	070584	070590	070597	070603	070610	070616	070623	070629	12	4. 5
48	10. 070636	070642	070649	070655	070662	070668	070675	070682	070688	070695	070701	070708	11	1 = 1
49	10. 070714	070721	070727	070734	070740	070747	070753	070760	070766	070773	070780	070786	10	2. 3
50	10. 070793	070799	070806	070812	070819	070825	070832	070838	070845	070851	070858	070865	9	3. 4
51	10. 070871	070878	070884	070891	070897	070904	070910	070917	070923	070930	070936	070943	8	4. 5
52	10. 070950	070956	070963	070969	070976	070982	070989	070995	071002	071008	071015	071022	7	1 = 1
53	10. 071028	071035	071041	071048	071054	071061	071067	071074	071081	071087	071094	071100	6	2. 3
54	10. 071107	071113	071120	071126	071133	071140	071146	071153	071159	071166	071172	071179	5	3. 4
55	10. 071185	071192	071199	071205	071212	071218	071225	071231	071238	071244	071251	071258	4	4. 5
56	10. 071264	071271	071277	071284	071290	071297	071303	071310	071317	071323	071330	071336	3	1 = 1
57	10. 071343	071349	071356	071363	071369	071376	071382	071389	071395	071402	071409	071415	2	2. 3
58	10. 071422	071428	071435	071441	071448	071455	071461	071468	071474	071481	071487	071494	1	3. 4
59	10. 071501	071507	071514	071520	071527	071533	071540	071547	071553	071560	071566	071573	0	4. 5
	60″	55	50″	45″	40″	35″	30″	25″	20	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 58 degrees, or Secant of 148 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 32 degrees, or Co-secant of 122 degrees.												Minutes	Proper parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.071579	071586	071593	071599	071606	071612	071619	071626	071632	071639	071645	071652	59	1″ =
1	10.071658	071665	071672	071678	071685	071691	071698	071705	071711	071718	071724	071731	58	2.
2	10.071737	071744	071751	071757	071764	071770	071777	071784	071790	071797	071803	071810	57	3.
3	10.071817	071823	071830	071836	071843	071849	071856	071863	071869	071876	071882	071889	56	4.
4	10.071896	071902	071909	071915	071922	071929	071935	071942	071948	071955	071962	071968	55	1 =
5	10.071975	071981	071988	071995	072001	072008	072014	072021	072028	072034	072041	072047	54	2.
6	10.072054	072061	072067	072074	072080	072087	072094	072100	072107	072113	072120	072127	53	3.
7	10.072133	072140	072147	072153	072160	072166	072173	072180	072186	072193	072199	072206	52	4.
8	10.072213	072219	072226	072232	072239	072246	072252	072259	072266	072272	072279	072285	51	1 =
9	10.072292	072299	072305	072312	072318	072325	072332	072338	072345	072352	072358	072365	50	2.
10	10.072371	072378	072385	072391	072398	072405	072411	072418	072424	072431	072438	072444	49	3.
11	10.072451	072458	072464	072471	072477	072484	072491	072497	072504	072511	072517	072524	48	4.
12	10.072530	072537	072544	072550	072557	072564	072570	072577	072583	072590	072597	072603	47	1 =
13	10.072610	072617	072623	072630	072637	072643	072650	072656	072663	072670	072676	072683	46	2.
14	10.072690	072696	072703	072710	072716	072723	072729	072736	072743	072749	072756	072763	45	3.
15	10.072769	072776	072783	072789	072796	072803	072809	072816	072822	072829	072836	072842	44	4.
16	10.072849	072856	072862	072869	072876	072882	072889	072896	072902	072909	072916	072922	43	1 =
17	10.072929	072936	072942	072949	072955	072962	072969	072975	072982	072989	072995	073002	42	2.
18	10.073009	073015	073022	073029	073035	073042	073049	073055	073062	073069	073075	073082	41	3.
19	10.073089	073095	073102	073109	073115	073122	073129	073135	073142	073149	073155	073162	40	4.
20	10.073169	073175	073182	073189	073195	073202	073209	073215	073222	073229	073235	073242	39	1 =
21	10.073249	073255	073262	073269	073275	073282	073289	073295	073302	073309	073315	073322	38	2.
22	10.073329	073335	073342	073349	073355	073362	073369	073375	073382	073389	073395	073402	37	3.
23	10.073409	073415	073422	073429	073435	073442	073449	073455	073462	073469	073475	073482	36	4.
24	10.073489	073495	073502	073509	073516	073522	073529	073536	073542	073549	073556	073562	35	1 =
25	10.073569	073576	073582	073589	073596	073602	073609	073616	073622	073629	073636	073643	34	2.
26	10.073649	073656	073663	073669	073676	073683	073689	073696	073703	073709	073716	073723	33	3.
27	10.073730	073736	073743	073750	073756	073763	073770	073776	073783	073790	073797	073803	32	4.
28	10.073810	073817	073823	073830	073837	073843	073850	073857	073863	073870	073877	073884	31	1 =
29	10.073890	073897	073904	073910	073917	073924	073931	073937	073944	073951	073957	073964	30	2.
30	10.073971	073977	073984	073991	073998	074004	074011	074018	074024	074031	074038	074045	29	3.
31	10.074051	074058	074065	074071	074078	074085	074092	074098	074105	074112	074118	074125	28	4.
32	10.074132	074139	074145	074152	074159	074165	074172	074179	074186	074192	074199	074206	27	1 =
33	10.074212	074219	074226	074233	074239	074246	074253	074259	074266	074273	074280	074286	26	2.
34	10.074293	074300	074307	074313	074320	074327	074333	074340	074347	074354	074360	074367	25	3.
35	10.074374	074381	074387	074394	074401	074407	074414	074421	074428	074434	074441	074448	24	4.
36	10.074455	074461	074468	074475	074482	074488	074495	074502	074508	074515	074522	074529	23	1 =
37	10.074535	074542	074549	074556	074562	074569	074576	074583	074589	074596	074603	074610	22	2.
38	10.074616	074623	074630	074636	074643	074650	074657	074663	074670	074677	074684	074690	21	3.
39	10.074697	074704	074711	074717	074724	074731	074738	074744	074751	074758	074765	074771	20	4.
40	10.074778	074785	074792	074798	074805	074812	074819	074825	074832	074839	074846	074852	19	1 =
41	10.074859	074866	074873	074879	074886	074893	074900	074906	074913	074920	074927	074934	18	2.
42	10.074940	074947	074954	074961	074967	074974	074981	074988	074994	075001	075008	075015	17	3.
43	10.075021	075028	075035	075042	075048	075055	075062	075069	075076	075082	075089	075096	16	4.
44	10.075103	075109	075116	075123	075130	075136	075143	075150	075157	075163	075170	075177	15	1 =
45	10.075184	075191	075197	075204	075211	075218	075224	075231	075238	075245	075252	075258	14	2.
46	10.075265	075272	075279	075285	075292	075299	075306	075313	075319	075326	075333	075340	13	3.
47	10.075346	075353	075360	075367	075374	075380	075387	075394	075401	075407	075414	075421	12	4.
48	10.075428	075435	075441	075448	075455	075462	075469	075475	075482	075489	075496	075502	11	1 =
49	10.075509	075516	075523	075530	075536	075543	075550	075557	075564	075570	075577	075584	10	2.
50	10.075591	075598	075604	075611	075618	075625	075632	075638	075645	075652	075659	075666	9	3.
51	10.075672	075679	075686	075693	075699	075706	075713	075720	075727	075733	075740	075747	8	4.
52	10.075754	075761	075767	075774	075781	075788	075795	075802	075808	075815	075822	075829	7	1 =
53	10.075836	075842	075849	075856	075863	075870	075876	075883	075890	075897	075904	075910	6	2.
54	10.075917	075924	075931	075938	075944	075951	075958	075965	075972	075979	075985	075992	5	3.
55	10.075999	076006	076013	076019	076026	076033	076040	076047	076054	076060	076067	076074	4	4.
56	10.076081	076088	076094	076101	076108	076115	076122	076129	076135	076142	076149	076156	3	1 =
57	10.076163	076169	076176	076183	076190	076197	076204	076210	076217	076224	076231	076238	2	2.
58	10.076245	076251	076258	076265	076272	076279	076286	076292	076299	076306	076313	076320	1	3.
59	10.076327	076333	076340	076347	076354	076361	076368	076374	076381	076388	076395	076402	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts
	Co-secant of 57 degrees, or Secant of 147 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 33 degrees, or Co-secant of 123 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55	Minutes	Propor. parts.
0	10.076409	076415	076422	076429	076436	076443	076450	076456	076463	076470	076477	076484	59	1″ = 1
1	10.076491	076497	076504	076511	076518	076525	076532	076539	076545	076552	076559	076566	58	2. 3
2	10.076573	076580	076586	076593	076600	076607	076614	076621	076628	076634	076641	076648	57	3. 4
3	10.076655	076662	076669	076675	076682	076689	076696	076703	076710	076717	076723	076730	56	4. 5
4	10.076737	076744	076751	076758	076765	076771	076778	076785	076792	076799	076806	076813	55	1 = 1
5	10.076819	076826	076833	076840	076847	076854	076861	076867	076874	076881	076888	076895	54	2. 3
6	10.076902	076909	076915	076922	076929	076936	076943	076950	076957	076964	076970	076977	53	3. 4
7	10.076984	076991	076998	077005	077012	077018	077025	077032	077039	077046	077053	077060	52	4. 5
8	10.077067	077073	077080	077087	077094	077101	077108	077115	077122	077128	077135	077142	51	1 = 1
9	10.077149	077156	077163	077170	077177	077183	077190	077197	077204	077211	077218	077225	50	2. 3
10	10.077232	077238	077245	077252	077259	077266	077273	077280	077287	077294	077300	077307	49	3. 4
11	10.077314	077321	077328	077335	077342	077349	077355	077362	077369	077376	077383	077390	48	4. 5
12	10.077397	077404	077411	077417	077424	077431	077438	077445	077452	077459	077466	077473	47	1 = 1
13	10.077479	077486	077493	077500	077507	077514	077521	077528	077535	077542	077548	077555	46	2. 3
14	10.077562	077569	077576	077583	077590	077597	077604	077611	077617	077624	077631	077638	45	3. 4
15	10.077645	077652	077659	077666	077673	077680	077686	077693	077700	077707	077714	077721	44	4. 6
16	10.077728	077735	077742	077749	077756	077762	077769	077776	077783	077790	077797	077804	43	1 = 1
17	10.077811	077818	077825	077832	077838	077845	077852	077859	077866	077873	077880	077887	42	2. 3
18	10.077894	077901	077908	077915	077921	077928	077935	077942	077949	077956	077963	077970	41	3. 4
19	10.077977	077984	077991	077998	078004	078011	078018	078025	078032	078039	078046	078053	40	4. 6
20	10.078060	078067	078074	078081	078088	078094	078101	078108	078115	078122	078129	078136	39	1 = 1
21	10.078143	078150	078157	078164	078171	078178	078185	078191	078198	078205	078212	078219	38	2. 3
22	10.078226	078233	078240	078247	078254	078261	078268	078275	078282	078289	078295	078302	37	3. 4
23	10.078309	078316	078323	078330	078337	078344	078351	078358	078365	078372	078379	078386	36	4. 6
24	10.078393	078400	078406	078413	078420	078427	078434	078441	078448	078455	078462	078469	35	1 = 1
25	10.078476	078483	078490	078497	078504	078511	078518	078525	078532	078538	078545	078552	34	2. 3
26	10.078559	078566	078573	078580	078587	078594	078601	078608	078615	078622	078629	078636	33	3. 4
27	10.078643	078650	078657	078664	078671	078678	078684	078691	078698	078705	078712	078719	32	4. 6
28	10.078726	078733	078740	078747	078754	078761	078768	078775	078782	078789	078796	078803	31	1 = 1
29	10.078810	078817	078824	078831	078838	078845	078852	078859	078865	078872	078879	078886	30	2. 3
30	10.078893	078900	078907	078914	078921	078928	078935	078942	078949	078956	078963	078970	29	3. 4
31	10.078977	078984	078991	078998	079005	079012	079019	079026	079033	079040	079047	079054	28	4. 6
32	10.079061	079068	079075	079082	079089	079096	079103	079110	079117	079124	079130	079137	27	1 = 1
33	10.079144	079151	079158	079165	079172	079179	079186	079193	079200	079207	079214	079221	26	2. 3
34	10.079228	079235	079242	079249	079256	079263	079270	079277	079284	079291	079298	079305	25	3. 4
35	10.079312	079319	079326	079333	079340	079347	079354	079361	079368	079375	079382	079389	24	4. 6
36	10.079396	079403	079410	079417	079424	079431	079438	079445	079452	079459	079466	079473	23	1 = 1
37	10.079480	079487	079494	079501	079508	079515	079522	079529	079536	079543	079550	079557	22	2. 3
38	10.079564	079571	079578	079585	079592	079599	079606	079613	079620	079627	079634	079641	21	3. 4
39	10.079648	079655	079662	079669	079676	079683	079690	079697	079704	079711	079718	079725	20	4. 6
40	10.079732	079739	079746	079753	079760	079767	079774	079781	079788	079795	079802	079809	19	1 = 1
41	10.079816	079823	079830	079837	079844	079851	079858	079865	079872	079880	079887	079894	18	2. 3
42	10.079901	079908	079915	079922	079929	079936	079943	079950	079957	079964	079971	079978	17	3. 4
43	10.079985	079992	079999	080006	080013	080020	080027	080034	080041	080048	080055	080062	16	4. 6
44	10.080069	080076	080083	080090	080097	080104	080111	080118	080125	080132	080140	080147	15	1 = 1
45	10.080154	080161	080168	080175	080182	080189	080196	080203	080210	080217	080224	080231	14	2. 3
46	10.080238	080245	080252	080259	080266	080273	080280	080287	080294	080301	080308	080315	13	3. 4
47	10.080322	080330	080337	080344	080351	080358	080365	080372	080379	080386	080393	080400	12	4. 6
48	10.080407	080414	080421	080428	080435	080442	080449	080456	080463	080470	080478	080485	11	1 = 1
49	10.080492	080499	080506	080513	080520	080527	080534	080541	080548	080555	080562	080569	10	2. 3
50	10.080576	080583	080590	080597	080605	080612	080619	080626	080633	080640	080647	080654	9	3. 4
51	10.080661	080668	080675	080682	080689	080696	080703	080710	080717	080725	080732	080739	8	4. 6
52	10.080746	080753	080760	080767	080774	080781	080788	080795	080802	080809	080816	080823	7	1 = 1
53	10.080831	080838	080845	080852	080859	080866	080873	080880	080887	080894	080901	080908	6	2. 3
54	10.080915	080923	080930	080937	080944	080951	080958	080965	080972	080979	080986	080993	5	3. 4
55	10.081000	081007	081015	081022	081029	081036	081043	081050	081057	081064	081071	081078	4	4. 6
56	10.081085	081092	081099	081107	081114	081121	081128	081135	081142	081149	081156	081163	3	1 = 1
57	10.081170	081177	081185	081192	081199	081206	081213	081220	081227	081234	081241	081248	2	2. 3
58	10.081255	081263	081270	081277	081284	081291	081298	081305	081312	081319	081326	081333	1	3. 4
59	10.081341	081348	081355	081362	081369	081376	081383	081390	081397	081404	081412	081419	0	4. 6
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 56 degrees, or Secant of 146 degrees.

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LOGARITHMIC SECANTS.

Secant of 34 degrees, or Co-secant of 124 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor.
0	10. 081426	081433	081440	081447	081454	081461	081468	081475	081483	081490	081497	081504	59	1″
1	10. 081511	081518	081525	081532	081539	081547	081554	081561	081568	081575	081582	081589	58	2.
2	10. 081596	081603	081610	081618	081625	081632	081639	081646	081653	081660	081667	081674	57	3.
3	10. 081682	081689	081696	081703	081710	081717	081724	081731	081739	081746	081753	081760	56	4.
4	10. 081767	081774	081781	081788	081795	081803	081810	081817	081824	081831	081838	081845	55	1
5	10. 081852	081860	081867	081874	081881	081888	081895	081902	081909	081917	081924	081931	54	2.
6	10. 081938	081945	081952	081959	081966	081974	081981	081988	081995	082002	082009	082016	53	3.
7	10. 082024	082031	082038	082045	082052	082059	082066	082073	082081	082088	082095	082102	52	4.
8	10. 082109	082116	082123	082131	082138	082145	082152	082159	082166	082173	082181	082188	51	1
9	10. 082195	082202	082209	082216	082223	082231	082238	082245	082252	082259	082266	082273	50	2.
10	10. 082281	082288	082295	082302	082309	082316	082323	082331	082338	082345	082352	082359	49	3.
11	10. 082366	082373	082381	082388	082395	082402	082409	082416	082424	082431	082438	082445	48	4.
12	10. 082452	082459	082466	082474	082481	082488	082495	082502	082509	082517	082524	082531	47	1
13	10. 082538	082545	082552	082559	082567	082574	082581	082588	082595	082602	082610	082617	46	2.
14	10. 082624	082631	082638	082645	082653	082660	082667	082674	082681	082688	082696	082703	45	3.
15	10. 082710	082717	082724	082731	082739	082746	082753	082760	082767	082774	082782	082789	44	4.
16	10. 082796	082803	082810	082817	082825	082832	082839	082846	082853	082861	082868	082875	43	1
17	10. 082882	082889	082896	082904	082911	082918	082925	082932	082940	082947	082954	082961	42	2.
18	10. 082968	082975	082983	082990	082997	083004	083011	083019	083026	083033	083040	083047	41	3.
19	10. 083054	083062	083069	083076	083083	083090	083098	083105	083112	083119	083126	083133	40	4.
20	10. 083141	083148	083155	083162	083169	083177	083184	083191	083198	083205	083213	083220	39	1
21	10. 083227	083234	083241	083249	083256	083263	083270	083277	083285	083292	083299	083306	38	2.
22	10. 083313	083321	083328	083335	083342	083349	083357	083364	083371	083378	083385	083393	37	3.
23	10. 083400	083407	083414	083421	083429	083436	083443	083450	083457	083465	083472	083479	36	4.
24	10. 083486	083493	083501	083508	083515	083522	083530	083537	083544	083551	083558	083566	35	1
25	10. 083573	083580	083587	083594	083602	083609	083616	083623	083631	083638	083645	083652	34	2.
26	10. 083659	083667	083674	083681	083688	083695	083703	083710	083717	083724	083732	083739	33	3.
27	10. 083746	083753	083760	083768	083775	083782	083789	083797	083804	083811	083818	083825	32	4.
28	10. 083833	083840	083847	083854	083862	083869	083876	083883	083891	083898	083905	083912	31	1
29	10. 083919	083927	083934	083941	083948	083956	083963	083970	083977	083985	083992	083999	30	2.
30	10. 084006	084013	084021	084028	084035	084042	084050	084057	084064	084071	084079	084086	29	3.
31	10. 084093	084100	084108	084115	084122	084129	084137	084144	084151	084158	084166	084173	28	4.
32	10. 084180	084187	084194	084202	084209	084216	084223	084231	084238	084245	084252	084260	27	1
33	10. 084267	084274	084281	084289	084296	084303	084310	084318	084325	084332	084339	084347	26	2.
34	10. 084354	084361	084368	084376	084383	084390	084397	084405	084412	084419	084427	084434	25	3.
35	10. 084441	084448	084456	084463	084470	084477	084485	084492	084499	084506	084514	084521	24	4.
36	10. 084528	084535	084543	084550	084557	084564	084572	084579	084586	084594	084601	084608	23	1
37	10. 084615	084623	084630	084637	084644	084652	084659	084666	084673	084681	084688	084695	22	2.
38	10. 084703	084710	084717	084724	084732	084739	084746	084753	084761	084768	084775	084783	21	3.
39	10. 084790	084797	084804	084812	084819	084826	084834	084841	084848	084855	084863	084870	20	4.
40	10. 084877	084884	084892	084899	084906	084914	084921	084928	084935	084943	084950	084957	19	1
41	10. 084965	084972	084979	084986	084994	085001	085008	085016	085023	085030	085037	085045	18	2.
42	10. 085052	085059	085067	085074	085081	085088	085096	085103	085110	085118	085125	085132	17	3.
43	10. 085140	085147	085154	085161	085169	085176	085183	085191	085198	085205	085213	085220	16	4.
44	10. 085227	085234	085242	085249	085256	085264	085271	085278	085285	085293	085300	085307	15	1
45	10. 085315	085322	085329	085337	085344	085351	085359	085366	085373	085380	085388	085395	14	2.
46	10. 085402	085410	085417	085424	085432	085439	085446	085454	085461	085468	085475	085483	13	3.
47	10. 085490	085497	085505	085512	085519	085527	085534	085541	085549	085556	085563	085571	12	4.
48	10. 085578	085585	085593	085600	085607	085614	085622	085629	085636	085644	085651	085658	11	1
49	10. 085666	085673	085680	085688	085695	085702	085710	085717	085724	085732	085739	085746	10	2.
50	10. 085754	085761	085768	085776	085783	085790	085798	085805	085812	085820	085827	085834	9	3.
51	10. 085842	085849	085856	085864	085871	085878	085886	085893	085900	085908	085915	085922	8	4.
52	10. 085930	085937	085944	085952	085959	085966	085974	085981	085988	085996	086003	086010	7	1
53	10. 086018	086025	086032	086040	086047	086054	086062	086069	086076	086084	086091	086098	6	2.
54	10. 086106	086113	086120	086128	086135	086142	086150	086157	086164	086172	086179	086186	5	3.
55	10. 086194	086201	086209	086216	086223	086231	086238	086245	086253	086260	086267	086275	4	4.
56	10. 086282	086289	086297	086304	086311	086319	086326	086334	086341	086348	086356	086363	3	1
57	10. 086370	086378	086385	086392	086400	086407	086414	086422	086429	086437	086444	086451	2	2.
58	10. 086459	086466	086473	086481	086488	086495	086503	086510	086518	086525	086532	086540	1	3.
59	10. 086547	086554	086562	086569	086576	086584	086591	086599	086606	086613	086621	086628	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor.

Co-secant of 55 degrees, or Secant of 145 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 35 degrees, or Co-secant of 125 degrees.												Minutes	Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	10. 086635	086643	086650	086658	086665	086672	086680	086687	086694	086702	086709	086717	59	1″ = 1
1	10. 086724	086731	086739	086746	086753	086761	086768	086776	086783	086790	086798	086805	58	2. 3
2	10. 086812	086820	086827	086835	086842	086849	086857	086864	086872	086879	086886	086894	57	3. 4
3	10. 086901	086908	086916	086923	086931	086938	086945	086953	086960	086968	086975	086982	56	4. 6
4	10. 086990	086997	087004	087012	087019	087027	087034	087041	087049	087056	087064	087071	55	1 = 1
5	10. 087078	087086	087093	087101	087108	087115	087123	087130	087138	087145	087152	087160	54	2. 3
6	10. 087167	087175	087182	087189	087197	087204	087212	087219	087226	087234	087241	087249	53	3. 4
7	10. 087256	087263	087271	087278	087286	087293	087300	087308	087315	087323	087330	087337	52	4. 6
8	10. 087345	087352	087360	087367	087374	087382	087389	087397	087404	087412	087419	087426	51	1 = 1
9	10. 087434	087441	087449	087456	087463	087471	087478	087486	087493	087501	087508	087515	50	2. 3
10	10. 087523	087530	087538	087545	087552	087560	087567	087575	087582	087590	087597	087604	49	3. 4
11	10. 087612	087619	087627	087634	087641	087649	087656	087664	087671	087679	087686	087693	48	4. 6
12	10. 087701	087708	087716	087723	087731	087738	087745	087753	087760	087768	087775	087783	47	1 = 1
13	10. 087790	087797	087805	087812	087820	087827	087835	087842	087849	087857	087864	087872	46	2. 3
14	10. 087879	087887	087894	087902	087909	087916	087924	087931	087939	087946	087954	087961	45	3. 4
15	10. 087968	087976	087983	087991	087998	088006	088013	088021	088028	088035	088043	088050	44	4. 6
16	10. 088058	088065	088073	088080	088088	088095	088102	088110	088117	088125	088132	088140	43	1 = 1
17	10. 088147	088155	088162	088169	088177	088184	088192	088199	088207	088214	088222	088229	42	2. 3
18	10. 088237	088244	088251	088259	088266	088274	088281	088289	088296	088304	088311	088319	41	3. 4
19	10. 088326	088334	088341	088348	088356	088363	088371	088378	088386	088393	088401	088408	40	4. 6
20	10. 088416	088423	088431	088438	088445	088453	088460	088468	088475	088483	088490	088498	39	1 = 2
21	10. 088505	088513	088520	088528	088535	088543	088550	088557	088565	088572	088580	088587	38	2. 3
22	10. 088595	088602	088610	088617	088625	088632	088640	088647	088655	088662	088670	088677	37	3. 5
23	10. 088684	088692	088699	088707	088714	088722	088729	088737	088744	088752	088759	088767	36	4. 6
24	10. 088774	088782	088789	088797	088804	088812	088819	088827	088834	088842	088849	088857	35	1 = 2
25	10. 088864	088872	088879	088887	088894	088901	088909	088916	088924	088931	088939	088946	34	2. 3
26	10. 088954	088961	088969	088976	088984	088991	088999	089006	089014	089021	089029	089036	33	3. 5
27	10. 089044	089051	089059	089066	089074	089081	089089	089096	089104	089111	089119	089126	32	4. 6
28	10. 089134	089141	089149	089156	089164	089171	089179	089186	089194	089201	089209	089216	31	1 = 2
29	10. 089224	089231	089239	089246	089254	089261	089269	089276	089284	089291	089299	089306	30	2. 3
30	10. 089314	089321	089329	089336	089344	089351	089359	089366	089374	089382	089389	089397	29	3. 5
31	10. 089404	089412	089419	089427	089434	089442	089449	089457	089464	089472	089479	089487	28	4. 6
32	10. 089494	089502	089509	089517	089524	089532	089539	089547	089554	089562	089569	089577	27	1 = 2
33	10. 089584	089592	089600	089607	089615	089622	089630	089637	089645	089652	089660	089667	26	2. 3
34	10. 089675	089682	089690	089697	089705	089712	089720	089728	089735	089743	089750	089758	25	3. 5
35	10. 089765	089773	089780	089788	089795	089803	089810	089818	089825	089833	089841	089848	24	4. 6
36	10. 089856	089863	089871	089878	089886	089893	089901	089908	089916	089923	089931	089939	23	1 = 2
37	10. 089946	089954	089961	089969	089976	089984	089991	089999	090006	090014	090021	090029	22	2. 3
38	10. 090037	090044	090052	090059	090067	090074	090082	090089	090097	090105	090112	090120	21	3. 5
39	10. 090127	090135	090142	090150	090157	090165	090172	090180	090188	090195	090203	090210	20	4. 6
40	10. 090218	090225	090233	090240	090248	090256	090263	090271	090278	090286	090293	090301	19	1 = 2
41	10. 090308	090316	090324	090331	090339	090346	090354	090361	090369	090377	090384	090392	18	2. 3
42	10. 090399	090407	090414	090422	090430	090437	090445	090452	090460	090467	090475	090482	17	3. 5
43	10. 090490	090498	090505	090513	090520	090528	090535	090543	090551	090558	090566	090573	16	4. 6
44	10. 090581	090588	090596	090604	090611	090619	090626	090634	090642	090649	090657	090664	15	1 = 2
45	10. 090672	090679	090687	090695	090702	090710	090717	090725	090732	090740	090748	090755	14	2. 3
46	10. 090763	090770	090778	090786	090793	090801	090808	090816	090823	090831	090839	090846	13	3. 5
47	10. 090854	090861	090869	090877	090884	090892	090899	090907	090915	090922	090930	090937	12	4. 6
48	10. 090945	090953	090960	090968	090975	090983	090990	090998	091006	091013	091021	091028	11	1 = 2
49	10. 091036	091044	091051	091059	091066	091074	091082	091089	091097	091104	091112	091120	10	2. 3
50	10. 091127	091135	091142	091150	091158	091165	091173	091180	091188	091196	091203	091211	9	3. 5
51	10. 091219	091226	091234	091241	091249	091257	091264	091272	091279	091287	091295	091302	8	4. 6
52	10. 091310	091317	091325	091333	091340	091348	091355	091363	091371	091378	091386	091394	7	1 = 2
53	10. 091401	091409	091416	091424	091432	091439	091447	091455	091462	091470	091477	091485	6	2. 3
54	10. 091493	091500	091508	091515	091523	091531	091538	091546	091554	091561	091569	091576	5	3. 5
55	10. 091584	091592	091599	091607	091615	091622	091630	091637	091645	091653	091660	091668	4	4. 6
56	10. 091676	091683	091691	091699	091706	091714	091721	091729	091737	091744	091752	091760	3	1 = 2
57	10. 091767	091775	091782	091790	091798	091805	091813	091821	091828	091836	091844	091851	2	2. 3
58	10. 091859	091866	091874	091882	091889	091897	091905	091912	091920	091928	091935	091943	1	3. 5
59	10. 091951	091958	091966	091973	091981	091989	091996	092004	092012	092019	092027	092035	0	4. 6
	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-secant of 54 degrees, or Secant of 144 degrees.													

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LOGARITHMIC SECANTS.

Secant of 36 degrees, or Co-secant of 126 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor.
0	10. 092042	092050	092058	092065	092073	092081	092088	092096	092104	092111	092119	092126	59	1″ =
1	10. 092134	092142	092149	092157	092165	092172	092180	092188	092195	092203	092211	092218	58	2.
2	10. 092226	092234	092241	092249	092257	092264	092272	092280	092287	092295	092303	092310	57	3.
3	10. 092318	092326	092333	092341	092349	092356	092364	092372	092379	092387	092395	092402	56	4.
4	10. 092410	092418	092425	092433	092441	092448	092456	092464	092471	092479	092487	092494	55	1 =
5	10. 092502	092510	092517	092525	092533	092540	092548	092556	092563	092571	092579	092586	54	2.
6	10. 092594	092602	092609	092617	092625	092632	092640	092648	092655	092663	092671	092678	53	3.
7	10. 092686	092694	092702	092709	092717	092725	092732	092740	092748	092755	092763	092771	52	4.
8	10. 092778	092786	092794	092801	092809	092817	092825	092832	092840	092848	092855	092863	51	1 =
9	10. 092871	092878	092886	092894	092901	092909	092917	092924	092932	092940	092948	092955	50	2.
10	10. 092963	092971	092978	092986	092994	093001	093009	093017	093025	093032	093040	093048	49	3.
11	10. 093055	093063	093071	093078	093086	093094	093102	093109	093117	093125	093132	093140	48	4.
12	10. 093148	093155	093163	093171	093178	093186	093194	093202	093209	093217	093225	093233	47	1 =
13	10. 093240	093248	093256	093263	093271	093279	093287	093294	093302	093310	093317	093325	46	2.
14	10. 093333	093341	093348	093356	093364	093371	093379	093387	093395	093402	093410	093418	45	3.
15	10. 093425	093433	093441	093449	093456	093464	093472	093479	093487	093495	093503	093510	44	4.
16	10. 093518	093526	093534	093541	093549	093557	093564	093572	093580	093588	093595	093603	43	1 =
17	10. 093611	093619	093626	093634	093642	093649	093657	093665	093673	093680	093688	093696	42	2.
18	10. 093704	093711	093719	093727	093734	093742	093750	093758	093765	093773	093781	093789	41	3.
19	10. 093796	093804	093812	093820	093827	093835	093843	093851	093858	093866	093874	093882	40	4.
20	10. 093889	093897	093905	093912	093920	093928	093936	093943	093951	093959	093967	093974	39	1 =
21	10. 093982	093990	093998	094005	094013	094021	094029	094036	094044	094052	094060	094067	38	2.
22	10. 094075	094083	094091	094098	094106	094114	094122	094129	094137	094145	094153	094161	37	3.
23	10. 094168	094176	094184	094192	094199	094207	094215	094223	094230	094238	094246	094254	36	4.
24	10. 094261	094269	094277	094285	094292	094300	094308	094316	094323	094331	094339	094347	35	1 =
25	10. 094355	094362	094370	094378	094386	094393	094401	094409	094417	094424	094432	094440	34	2.
26	10. 094448	094456	094463	094471	094479	094487	094494	094502	094510	094518	094525	094533	33	3.
27	10. 094541	094549	094557	094564	094572	094580	094588	094595	094603	094611	094619	094627	32	4.
28	10. 094634	094642	094650	094658	094666	094673	094681	094689	094697	094704	094712	094720	31	1 =
29	10. 094728	094736	094743	094751	094759	094767	094774	094782	094790	094798	094806	094813	30	2.
30	10. 094821	094829	094837	094845	094852	094860	094868	094876	094884	094891	094899	094907	29	3.
31	10. 094915	094923	094930	094938	094946	094954	094962	094969	094977	094985	094993	095001	28	4.
32	10. 095008	095016	095024	095032	095040	095047	095055	095063	095071	095079	095086	095094	27	1 =
33	10. 095102	095110	095118	095125	095133	095141	095149	095157	095164	095172	095180	095188	26	2.
34	10. 095196	095203	095211	095219	095227	095235	095242	095250	095258	095266	095274	095282	25	3.
35	10. 095289	095297	095305	095313	095321	095328	095336	095344	095352	095360	095367	095375	24	4.
36	10. 095383	095391	095399	095407	095414	095422	095430	095438	095446	095454	095461	095469	23	1 =
37	10. 095477	095485	095493	095500	095508	095516	095524	095532	095540	095547	095555	095563	22	2.
38	10. 095571	095579	095587	095594	095602	095610	095618	095626	095634	095641	095649	095657	21	3.
39	10. 095665	095673	095681	095688	095696	095704	095712	095720	095728	095735	095743	095751	20	4.
40	10. 095759	095767	095775	095782	095790	095798	095806	095814	095822	095829	095837	095845	19	1 =
41	10. 095853	095861	095869	095876	095884	095892	095900	095908	095916	095924	095931	095939	18	2.
42	10. 095947	095955	095963	095971	095978	095986	095994	096002	096010	096018	096026	096033	17	3.
43	10. 096041	096049	096057	096065	096073	096081	096088	096096	096104	096112	096120	096128	16	4.
44	10. 096136	096143	096151	096159	096167	096175	096183	096191	096198	096206	096214	096222	15	1 =
45	10. 096230	096238	096246	096253	096261	096269	096277	096285	096293	096301	096308	096316	14	2.
46	10. 096324	096332	096340	096348	096356	096364	096371	096379	096387	096395	096403	096411	13	3.
47	10. 096419	096426	096434	096442	096450	096458	096466	096474	096482	096489	096497	096505	12	4.
48	10. 096513	096521	096529	096537	096545	096552	096560	096568	096576	096584	096592	096600	11	1 =
49	10. 096608	096616	096623	096631	096639	096647	096655	096663	096671	096679	096686	096694	10	2.
50	10. 096702	096710	096718	096726	096734	096742	096750	096757	096765	096773	096781	096789	9	3.
51	10. 096797	096805	096813	096821	096828	096836	096844	096852	096860	096868	096876	096884	8	4.
52	10. 096892	096899	096907	096915	096923	096931	096939	096947	096955	096963	096971	096978	7	1 =
53	10. 096986	096994	097002	097010	097018	097026	097034	097042	097050	097057	097065	097073	6	2.
54	10. 097081	097089	097097	097105	097113	097121	097129	097137	097144	097152	097160	097168	5	3.
55	10. 097176	097184	097192	097200	097208	097216	097224	097231	097239	097247	097255	097263	4	4.
56	10. 097271	097279	097287	097295	097303	097311	097318	097326	097334	097342	097350	097358	3	1 =
57	10. 097366	097374	097382	097390	097398	097406	097414	097421	097429	097437	097445	097453	2	2.
58	10. 097461	097469	097477	097485	097493	097501	097509	097517	097524	097532	097540	097548	1	3.
59	10. 097556	097564	097572	097580	097588	097596	097604	097612	097620	097628	097635	097643	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor.

Co-secant of 53 degrees, or Secant of 143 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 37 degrees, or Co-secant of 127 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.097651	097659	097667	097675	097683	097691	097699	097707	097715	097723	097731	097739	59	1″ = 2
1	10.097747	097754	097762	097770	097778	097786	097794	097802	097810	097818	097826	097834	58	2. 3
2	10.097842	097850	097858	097866	097874	097882	097890	097897	097905	097913	097921	097929	57	3. 5
3	10.097937	097945	097953	097961	097969	097977	097985	097993	098001	098009	098017	098025	56	4. 6
4	10.098033	098041	098048	098056	098064	098072	098080	098088	098096	098104	098112	098120	55	1 = 2
5	10.098128	098136	098144	098152	098160	098168	098176	098184	098192	098200	098208	098216	54	2. 3
6	10.098224	098232	098239	098247	098255	098263	098271	098279	098287	098295	098303	098311	53	3. 5
7	10.098319	098327	098335	098343	098351	098359	098367	098375	098383	098391	098399	098407	52	4. 6
8	10.098415	098423	098431	098439	098447	098455	098463	098471	098479	098487	098494	098502	51	1 = 2
9	10.098510	098518	098526	098534	098542	098550	098558	098566	098574	098582	098590	098598	50	2. 3
10	10.098606	098614	098622	098630	098638	098646	098654	098662	098670	098678	098686	098694	49	3. 5
11	10.098702	098710	098718	098726	098734	098742	098750	098758	098766	098774	098782	098790	48	4. 6
12	10.098798	098806	098814	098822	098830	098838	098846	098854	098862	098870	098878	098886	47	1 = 2
13	10.098894	098902	098910	098918	098926	098934	098942	098950	098958	098966	098974	098982	46	2. 3
14	10.098990	098998	099006	099014	099022	099030	099038	099046	099054	099062	099070	099078	45	3. 5
15	10.099086	099094	099102	099110	099118	099126	099134	099142	099150	099158	099166	099174	44	4. 6
16	10.099182	099190	099198	099206	099214	099222	099230	099238	099246	099254	099262	099270	43	1 = 2
17	10.099278	099286	099294	099302	099310	099318	099326	099334	099342	099350	099358	099366	42	2. 3
18	10.099374	099382	099390	099398	099406	099414	099422	099430	099438	099446	099454	099462	41	3. 5
19	10.099471	099479	099487	099495	099503	099511	099519	099527	099535	099543	099551	099559	40	4. 6
20	10.099567	099575	099583	099591	099599	099607	099615	099623	099631	099639	099647	099655	39	1 2
21	10.099663	099671	099679	099687	099695	099703	099711	099719	099728	099736	099744	099752	38	2. 3
22	10.099760	099768	099776	099784	099792	099800	099808	099816	099824	099832	099840	099848	37	3. 5
23	10.099856	099864	099872	099880	099888	099896	099904	099912	099921	099929	099937	099945	36	4. 6
24	10.099953	099961	099969	099977	099985	099993	100001	100009	100017	100025	100033	100041	35	1 = 2
25	10.100049	100057	100065	100074	100082	100090	100098	100106	100114	100122	100130	100138	34	2. 3
26	10.100146	100154	100162	100170	100178	100186	100194	100202	100210	100219	100227	100235	33	3. 5
27	10.100243	100251	100259	100267	100275	100283	100291	100299	100307	100315	100323	100331	32	4. 6
28	10.100340	100348	100356	100364	100372	100380	100388	100396	100404	100412	100420	100428	31	1 = 2
29	10.100436	100444	100453	100461	100469	100477	100485	100493	100501	100509	100517	100525	30	2 3
30	10.100533	100541	100549	100558	100566	100574	100582	100590	100598	100606	100614	100622	29	3. 5
31	10.100630	100638	100646	100655	100663	100671	100679	100687	100695	100703	100711	100719	28	4. 6
32	10.100727	100735	100743	100752	100760	100768	100776	100784	100792	100800	100808	100816	27	1 = 2
33	10.100824	100832	100841	100849	100857	100865	100873	100881	100889	100897	100905	100913	26	2. 3
34	10.100922	100930	100938	100946	100954	100962	100970	100978	100986	100994	101003	101011	25	3. 5
35	10.101019	101027	101035	101043	101051	101059	101067	101075	101084	101092	101100	101108	24	4. 6
36	10.101116	101124	101132	101140	101148	101157	101165	101173	101181	101189	101197	101205	23	1 = 2
37	10.101213	101221	101230	101238	101246	101254	101262	101270	101278	101286	101294	101303	22	2. 3
38	10.101311	101319	101327	101335	101343	101351	101359	101367	101376	101384	101392	101400	21	3. 5
39	10.101408	101416	101424	101432	101441	101449	101457	101465	101473	101481	101489	101497	20	4. 7
40	10.101506	101514	101522	101530	101538	101546	101554	101563	101571	101579	101587	101595	19	1 = 2
41	10.101603	101611	101619	101628	101636	101644	101652	101660	101668	101676	101684	101693	18	2. 3
42	10.101701	101709	101717	101725	101733	101741	101750	101758	101766	101774	101782	101790	17	3. 5
43	10.101798	101807	101815	101823	101831	101839	101847	101855	101864	101872	101880	101888	16	4. 7
44	10.101896	101904	101912	101921	101929	101937	101945	101953	101961	101969	101978	101986	15	1 = 2
45	10.101994	102002	102010	102018	102027	102035	102043	102051	102059	102067	102075	102084	14	2. 3
46	10.102092	102100	102108	102116	102124	102133	102141	102149	102157	102165	102173	102182	13	3. 5
47	10.102190	102198	102206	102214	102222	102230	102239	102247	102255	102263	102271	102279	12	4. 7
48	10.102288	102296	102304	102312	102320	102328	102337	102345	102353	102361	102369	102378	11	1 = 2
49	10.102386	102394	102402	102410	102418	102427	102435	102443	102451	102459	102467	102476	10	2. 3
50	10.102484	102492	102500	102508	102516	102525	102533	102541	102549	102557	102566	102574	9	3. 5
51	10.102582	102590	102598	102606	102615	102623	102631	102639	102647	102656	102664	102672	8	4. 7
52	10.102680	102688	102696	102705	102713	102721	102729	102737	102746	102754	102762	102770	7	1 = 2
53	10.102778	102787	102795	102803	102811	102819	102828	102836	102844	102852	102860	102868	6	2. 3
54	10.102877	102885	102893	102901	102909	102918	102926	102934	102942	102950	102959	102967	5	3. 5
55	10.102975	102983	102991	103000	103008	103016	103024	103032	103041	103049	103057	103065	4	4. 7
56	10.103073	103082	103090	103098	103106	103115	103123	103131	103139	103147	103156	103164	3	1 = 2
57	10.103172	103180	103188	103197	103205	103213	103221	103229	103238	103246	103254	103262	2	2. 3
58	10.103271	103279	103287	103295	103303	103312	103320	103328	103336	103344	103353	103361	1	3. 5
59	10.103369	103377	103386	103394	103402	103410	103418	103427	103435	103443	103451	103460	0	4. 7
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 52 degrees, or Secant of 142 degrees.													

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LOGARITHMIC SECANTS.

Secant of 38 degrees, or Co-secant of 128 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 103468	103476	103484	103492	103501	103509	103517	103525	103534	103542	103550	103558	59	1″ =
1	10. 103567	103575	103583	103591	103599	103608	103616	103624	103632	103641	103649	103657	58	2.
2	10. 103665	103674	103682	103690	103698	103707	103715	103723	103731	103739	103748	103756	57	3.
3	10. 103764	103772	103781	103789	103797	103805	103814	103822	103830	103838	103847	103855	56	4.
4	10. 103863	103871	103880	103888	103896	103904	103913	103921	103929	103937	103946	103954	55	1 =
5	10. 103962	103970	103979	103987	103995	104003	104012	104020	104028	104036	104045	104053	54	2.
6	10. 104061	104069	104078	104086	104094	104102	104111	104119	104127	104135	104144	104152	53	3.
7	10. 104160	104168	104177	104185	104193	104201	104210	104218	104226	104235	104243	104251	52	4.
8	10. 104259	104268	104276	104284	104292	104301	104309	104317	104325	104334	104342	104350	51	1 =
9	10. 104359	104367	104375	104383	104392	104400	104408	104416	104425	104433	104441	104450	50	2.
10	10. 104458	104466	104474	104483	104491	104499	104507	104516	104524	104532	104541	104549	49	3.
11	10. 104557	104565	104574	104582	104590	104599	104607	104615	104623	104632	104640	104648	48	4.
12	10. 104656	104665	104673	104681	104690	104698	104706	104714	104723	104731	104739	104748	47	1 =
13	10. 104756	104764	104773	104781	104789	104797	104806	104814	104822	104831	104839	104847	46	2.
14	10. 104855	104864	104872	104880	104889	104897	104905	104913	104922	104930	104938	104947	45	3.
15	10. 104955	104963	104972	104980	104988	104996	105005	105013	105021	105030	105038	105046	44	4.
16	10. 105055	105063	105071	105080	105088	105096	105104	105113	105121	105129	105138	105146	43	1 =
17	10. 105154	105163	105171	105179	105188	105196	105204	105212	105221	105229	105237	105246	42	2.
18	10. 105254	105262	105271	105279	105287	105296	105304	105312	105321	105329	105337	105346	41	3.
19	10. 105354	105362	105370	105379	105387	105395	105404	105412	105420	105429	105437	105445	40	4.
20	10. 105454	105462	105470	105479	105487	105495	105504	105512	105520	105529	105537	105545	39	1 =
21	10. 105554	105562	105570	105579	105587	105595	105604	105612	105620	105629	105637	105645	38	2.
22	10. 105654	105662	105670	105679	105687	105695	105704	105712	105720	105729	105737	105745	37	3.
23	10. 105754	105762	105770	105779	105787	105795	105804	105812	105820	105829	105837	105845	36	4.
24	10. 105854	105862	105871	105879	105887	105895	105904	105912	105921	105929	105937	105946	35	1 =
25	10. 105954	105962	105971	105979	105987	105996	106004	106012	106021	106029	106037	106046	34	2.
26	10. 106054	106062	106071	106079	106088	106096	106104	106113	106121	106129	106138	106146	33	3.
27	10. 106154	106163	106171	106179	106188	106196	106205	106213	106221	106230	106238	106246	32	4.
28	10. 106255	106263	106271	106280	106288	106297	106305	106313	106321	106330	106338	106347	31	1 =
29	10. 106355	106363	106372	106380	106389	106397	106405	106414	106422	106430	106439	106447	30	2.
30	10. 106456	106464	106472	106481	106489	106497	106506	106514	106523	106531	106539	106548	29	3.
31	10. 106556	106564	106573	106581	106590	106598	106606	106615	106623	106632	106640	106648	28	4.
32	10. 106657	106665	106673	106682	106690	106699	106707	106715	106724	106732	106741	106749	27	1 =
33	10. 106757	106766	106774	106782	106791	106799	106808	106816	106824	106833	106841	106850	26	2.
34	10. 106858	106866	106875	106883	106892	106900	106908	106917	106925	106934	106942	106950	25	3.
35	10. 106959	106967	106976	106984	106992	107001	107009	107018	107026	107034	107043	107051	24	4.
36	10. 107060	107068	107076	107085	107093	107102	107110	107118	107127	107135	107144	107152	23	1 =
37	10. 107161	107169	107177	107186	107194	107203	107211	107219	107228	107236	107245	107253	22	2.
38	10. 107262	107270	107278	107287	107295	107303	107312	107320	107329	107337	107346	107354	21	3.
39	10. 107363	107371	107379	107388	107396	107405	107413	107421	107430	107438	107447	107455	20	4.
40	10. 107464	107472	107480	107489	107497	107506	107514	107522	107531	107539	107548	107556	19	1 =
41	10. 107565	107573	107581	107590	107598	107607	107615	107624	107632	107640	107649	107657	18	2.
42	10. 107666	107674	107683	107691	107700	107708	107716	107725	107733	107742	107750	107759	17	3.
43	10. 107767	107775	107784	107792	107801	107809	107818	107826	107835	107843	107851	107860	16	4.
44	10. 107868	107877	107885	107894	107902	107911	107919	107927	107936	107944	107953	107961	15	1 =
45	10. 107970	107978	107987	107995	108003	108012	108020	108029	108037	108046	108054	108063	14	2.
46	10. 108071	108080	108088	108096	108105	108113	108122	108130	108139	108147	108156	108164	13	3.
47	10. 108173	108181	108189	108198	108206	108215	108223	108232	108240	108249	108257	108266	12	4.
48	10. 108274	108283	108291	108300	108308	108316	108325	108333	108342	108350	108359	108367	11	1 =
49	10. 108376	108384	108393	108401	108410	108418	108427	108435	108443	108452	108460	108469	10	2.
50	10. 108477	108486	108494	108503	108511	108520	108528	108537	108545	108554	108562	108571	9	3.
51	10. 108579	108588	108596	108605	108613	108622	108630	108638	108647	108655	108664	108672	8	4.
52	10. 108681	108689	108698	108706	108715	108723	108732	108740	108749	108757	108766	108774	7	1 =
53	10. 108783	108791	108800	108808	108817	108825	108834	108842	108851	108859	108868	108876	6	2.
54	10. 108885	108893	108902	108910	108919	108927	108936	108944	108953	108961	108970	108978	5	3.
55	10. 108987	108995	109004	109012	109021	109029	109038	109046	109055	109063	109072	109080	4	4.
56	10. 109089	109097	109106	109114	109123	109131	109140	109148	109157	109165	109174	109182	3	1 =
57	10. 109191	109199	109208	109216	109225	109233	109242	109250	109259	109267	109276	109284	2	2.
58	10. 109293	109301	109310	109318	109327	109335	109344	109352	109361	109370	109378	109387	1	3.
59	10. 109395	109404	109412	109421	109429	109438	109446	109455	109463	109472	109480	109489	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 51 degrees, or Secant of 141 degrees.

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LOGARITHMIC SECANTS.

Secant of 39 degrees, or Co-secant of 129 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45	50	55	Minutes	Propor. parts
0	10. 109497	109506	109514	109523	109531	109540	109549	109557	109566	109574	109583	109591	59	1″ =
1	10. 109600	109608	109617	109625	109634	109642	109651	109659	109668	109676	109685	109694	58	2.
2	10. 109702	109711	109719	109728	109736	109745	109753	109762	109770	109779	109787	109796	57	3.
3	10. 109805	109813	109822	109830	109839	109847	109856	109864	109873	109881	109890	109899	56	4.
4	10. 109907	109916	109924	109933	109941	109950	109958	109967	109975	109984	109993	110001	55	1 =
5	10. 110010	110018	110027	110035	110044	110052	110061	110069	110078	110087	110095	110104	54	2.
6	10. 110112	110121	110129	110138	110146	110155	110164	110172	110181	110189	110198	110206	53	3.
7	10. 110215	110224	110232	110241	110249	110258	110266	110275	110283	110292	110301	110309	52	4.
8	10. 110318	110326	110335	110343	110352	110361	110369	110378	110386	110395	110403	110412	51	1 =
9	10. 110421	110429	110438	110446	110455	110463	110472	110481	110489	110498	110506	110515	50	2.
10	10. 110523	110532	110541	110549	110558	110566	110575	110583	110592	110601	110609	110618	49	3.
11	10. 110626	110635	110644	110652	110661	110669	110678	110686	110695	110704	110712	110721	48	4.
12	10. 110729	110738	110747	110755	110764	110772	110781	110789	110798	110807	110815	110824	47	1 =
13	10. 110832	110841	110850	110858	110867	110875	110884	110893	110901	110910	110918	110927	46	2.
14	10. 110936	110944	110953	110961	110970	110979	110987	110996	111004	111013	111022	111030	45	3.
15	10. 111039	111047	111056	111065	111073	111082	111090	111099	111108	111116	111125	111133	44	4.
16	10. 111142	111151	111159	111168	111176	111185	111194	111202	111211	111219	111228	111237	43	1 =
17	10. 111245	111254	111263	111271	111280	111288	111297	111306	111314	111323	111331	111340	42	2.
18	10. 111349	111357	111366	111375	111383	111392	111400	111409	111418	111426	111435	111443	41	3.
19	10. 111452	111461	111469	111478	111487	111495	111504	111512	111521	111530	111538	111547	40	4.
20	10. 111556	111564	111573	111581	111590	111599	111607	111616	111625	111633	111642	111651	39	1 =
21	10. 111659	111668	111676	111685	111694	111702	111711	111720	111728	111737	111745	111754	38	2.
22	10. 111763	111771	111780	111789	111797	111806	111815	111823	111832	111841	111849	111858	37	3.
23	10. 111866	111875	111884	111892	111901	111910	111918	111927	111936	111944	111953	111962	36	4.
24	10. 111970	111979	111987	111996	112005	112013	112022	112031	112039	112048	112057	112065	35	1 =
25	10. 112074	112083	112091	112100	112109	112117	112126	112135	112143	112152	112161	112169	34	2.
26	10. 112178	112186	112195	112204	112212	112221	112230	112238	112247	112256	112264	112273	33	3.
27	10. 112282	112290	112299	112308	112316	112325	112334	112342	112351	112360	112368	112377	32	4.
28	10. 112386	112394	112403	112412	112420	112429	112438	112446	112455	112464	112472	112481	31	1 =
29	10. 112490	112498	112507	112516	112524	112533	112542	112551	112559	112568	112577	112585	30	2.
30	10. 112594	112603	112611	112620	112629	112637	112646	112655	112663	112672	112681	112689	29	3.
31	10. 112698	112707	112715	112724	112733	112741	112750	112759	112768	112776	112785	112794	28	4.
32	10. 112802	112811	112820	112828	112837	112846	112854	112863	112872	112881	112889	112898	27	1 =
33	10. 112907	112915	112924	112933	112941	112950	112959	112967	112976	112985	112994	113002	26	2.
34	10. 113011	113020	113028	113037	113046	113054	113063	113072	113081	113089	113098	113107	25	3.
35	10. 113115	113124	113133	113141	113150	113159	113168	113176	113185	113194	113202	113211	24	4.
36	10. 113220	113229	113237	113246	113255	113263	113272	113281	113290	113298	113307	113316	23	1 =
37	10. 113324	113333	113342	113351	113359	113368	113377	113385	113394	113403	113412	113420	22	2.
38	10. 113429	113438	113446	113455	113464	113473	113481	113490	113499	113507	113516	113525	21	3.
39	10. 113534	113542	113551	113560	113569	113577	113586	113595	113603	113612	113621	113630	20	4.
40	10. 113638	113647	113656	113665	113673	113682	113691	113699	113708	113717	113726	113734	19	1 =
41	10. 113743	113752	113761	113769	113778	113787	113796	113804	113813	113822	113831	113839	18	2.
42	10. 113848	113857	113866	113874	113883	113892	113900	113909	113918	113927	113935	113944	17	3.
43	10. 113953	113962	113970	113979	113988	113997	114005	114014	114023	114032	114040	114049	16	4.
44	10. 114058	114067	114075	114084	114093	114102	114110	114119	114128	114137	114145	114154	15	1 =
45	10. 114163	114172	114180	114189	114198	114207	114215	114224	114233	114242	114251	114259	14	2.
46	10. 114268	114277	114286	114294	114303	114312	114321	114329	114338	114347	114356	114364	13	3.
47	10. 114373	114382	114391	114400	114408	114417	114426	114435	114443	114452	114461	114470	12	4.
48	10. 114478	114487	114496	114505	114514	114522	114531	114540	114549	114557	114566	114575	11	1 =
49	10. 114584	114592	114601	114610	114619	114628	114636	114645	114654	114663	114672	114680	10	2.
50	10. 114689	114698	114707	114715	114724	114733	114742	114751	114759	114768	114777	114786	9	3.
51	10. 114794	114803	114812	114821	114830	114838	114847	114856	114865	114874	114882	114891	8	4.
52	10. 114900	114909	114918	114926	114935	114944	114953	114962	114970	114979	114988	114997	7	1 =
53	10. 115005	115014	115023	115032	115041	115049	115058	115067	115076	115085	115093	115102	6	2.
54	10. 115111	115120	115129	115137	115146	115155	115164	115173	115182	115190	115199	115208	5	3.
55	10. 115217	115226	115234	115243	115252	115261	115270	115278	115287	115296	115305	115314	4	4.
56	10. 115322	115331	115340	115349	115358	115367	115375	115384	115393	115402	115411	115419	3	1 =
57	10. 115428	115437	115446	115455	115464	115472	115481	115490	115499	115508	115516	115525	2	2.
58	10. 115534	115543	115552	115561	115569	115578	115587	115596	115605	115614	115622	115631	1	3.
59	10. 115640	115649	115658	115666	115675	115684	115693	115702	115711	115719	115728	115737	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts

Co-secant of 50 degrees, or Secant of 140 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 40 degrees, or Co-secant of 130 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 115746	115755	115764	115772	115781	115790	115799	115808	115817	115826	115834	115843	59	1″ =
1	10. 115852	115861	115870	115879	115887	115896	115905	115914	115923	115932	115940	115949	58	2.
2	10. 115958	115967	115976	115985	115993	116002	116011	116020	116029	116038	116047	116055	57	3.
3	10. 116064	116073	116082	116091	116100	116109	116117	116126	116135	116144	116153	116162	56	4.
4	10. 116171	116179	116188	116197	116206	116215	116224	116232	116241	116250	116259	116268	55	1 =
5	10. 116277	116286	116295	116303	116312	116321	116330	116339	116348	116357	116365	116374	54	2.
6	10. 116383	116392	116401	116410	116419	116427	116436	116445	116454	116463	116472	116481	53	3.
7	10. 116490	116498	116507	116516	116525	116534	116543	116552	116561	116569	116578	116587	52	4.
8	10. 116596	116605	116614	116623	116632	116640	116649	116658	116667	116676	116685	116694	51	1 =
9	10. 116703	116711	116720	116729	116738	116747	116756	116765	116774	116783	116791	116800	50	2.
10	10. 116809	116818	116827	116836	116845	116854	116862	116871	116880	116889	116898	116907	49	3.
11	10. 116916	116925	116934	116943	116951	116960	116969	116978	116987	116996	117005	117014	48	4.
12	10. 117023	117031	117040	117049	117058	117067	117076	117085	117094	117103	117112	117120	47	1 =
13	10. 117129	117138	117147	117156	117165	117174	117183	117192	117201	117209	117218	117227	46	2.
14	10. 117236	117245	117254	117263	117272	117281	117290	117299	117307	117316	117325	117334	45	3.
15	10. 117343	117352	117361	117370	117379	117388	117397	117406	117414	117423	117432	117441	44	4.
16	10. 117450	117459	117468	117477	117486	117495	117504	117513	117521	117530	117539	117548	43	1 =
17	10. 117557	117566	117575	117584	117593	117602	117611	117620	117629	117637	117646	117655	42	2.
18	10. 117664	117673	117682	117691	117700	117709	117718	117727	117736	117745	117754	117762	41	3.
19	10. 117771	117780	117789	117798	117807	117816	117825	117834	117843	117852	117861	117870	40	4.
20	10. 117879	117888	117897	117905	117914	117923	117932	117941	117950	117959	117968	117977	39	1 =
21	10. 117986	117995	118004	118013	118022	118031	118040	118049	118057	118066	118075	118084	38	2.
22	10. 118093	118102	118111	118120	118129	118138	118147	118156	118165	118174	118183	118192	37	3.
23	10. 118201	118210	118219	118228	118237	118245	118254	118263	118272	118281	118290	118299	36	4.
24	10. 118308	118317	118326	118335	118344	118353	118362	118371	118380	118389	118398	118407	35	1 =
25	10. 118416	118425	118434	118443	118452	118461	118470	118479	118487	118496	118505	118514	34	2.
26	10. 118523	118532	118541	118550	118559	118568	118577	118586	118595	118604	118613	118622	33	3.
27	10. 118631	118640	118649	118658	118667	118676	118685	118694	118703	118712	118721	118730	32	4.
28	10. 118739	118748	118757	118766	118775	118784	118793	118802	118811	118820	118829	118838	31	1 =
29	10. 118847	118856	118865	118874	118883	118892	118900	118909	118918	118927	118936	118945	30	2.
30	10. 118954	118963	118972	118981	118990	118999	119008	119017	119026	119035	119044	119053	29	3.
31	10. 119062	119071	119080	119089	119098	119107	119116	119125	119134	119143	119152	119161	28	4.
32	10. 119170	119179	119188	119197	119206	119215	119224	119233	119242	119251	119260	119269	27	1 =
33	10. 119278	119287	119296	119305	119314	119323	119332	119341	119350	119359	119369	119378	26	2.
34	10. 119387	119396	119405	119414	119423	119432	119441	119450	119459	119468	119477	119486	25	3.
35	10. 119495	119504	119513	119522	119531	119540	119549	119558	119567	119576	119585	119594	24	4.
36	10. 119603	119612	119621	119630	119639	119648	119657	119666	119675	119684	119693	119702	23	1 =
37	10. 119711	119720	119729	119738	119747	119756	119765	119774	119784	119793	119802	119811	22	2.
38	10. 119820	119829	119838	119847	119856	119865	119874	119883	119892	119901	119910	119919	21	3.
39	10. 119928	119937	119946	119955	119964	119973	119982	119991	120000	120009	120018	120028	20	4.
40	10. 120037	120046	120055	120064	120073	120082	120091	120100	120109	120118	120127	120136	19	1 =
41	10. 120145	120154	120163	120172	120181	120190	120199	120209	120218	120227	120236	120245	18	2.
42	10. 120254	120263	120272	120281	120290	120299	120308	120317	120326	120335	120344	120353	17	3.
43	10. 120362	120372	120381	120390	120399	120408	120417	120426	120435	120444	120453	120462	16	4.
44	10. 120471	120480	120489	120498	120508	120517	120526	120535	120544	120553	120562	120571	15	1 =
45	10. 120580	120589	120598	120607	120616	120625	120634	120644	120653	120662	120671	120680	14	2.
46	10. 120689	120698	120707	120716	120725	120734	120743	120752	120762	120771	120780	120789	13	3.
47	10. 120798	120807	120816	120825	120834	120843	120852	120861	120871	120880	120889	120898	12	4.
48	10. 120907	120916	120925	120934	120943	120952	120961	120971	120980	120989	120998	121007	11	1 =
49	10. 121016	121025	121034	121043	121052	121061	121071	121080	121089	121098	121107	121116	10	2.
50	10. 121125	121134	121143	121152	121162	121171	121180	121189	121198	121207	121216	121225	9	3.
51	10. 121234	121243	121253	121262	121271	121280	121289	121298	121307	121316	121325	121334	8	4.
52	10. 121344	121353	121362	121371	121380	121389	121398	121407	121416	121426	121435	121444	7	1 =
53	10. 121453	121462	121471	121480	121489	121499	121508	121517	121526	121535	121544	121553	6	2.
54	10. 121562	121571	121581	121590	121599	121608	121617	121626	121635	121644	121654	121663	5	3.
55	10. 121672	121681	121690	121699	121708	121717	121727	121736	121745	121754	121763	121772	4	4.
56	10. 121781	121790	121800	121809	121818	121827	121836	121845	121854	121864	121873	121882	3	1 =
57	10. 121891	121900	121909	121918	121927	121937	121946	121955	121964	121973	121982	121991	2	2.
58	10. 122001	122010	122019	122028	122037	122046	122055	122065	122074	122083	122092	122101	1	3.
59	10. 122110	122119	122129	122138	122147	122156	122165	122174	122183	122193	122202	122211	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 49 degrees, or Secant of 139 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 41 degrees, or Co-secant of 131 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 122220	122229	122238	122248	122257	122266	122275	122284	122293	122302	122312	122321	59	1″ = 2
1	10. 122330	122339	122348	122357	122367	122376	122385	122394	122403	122412	122422	122431	58	2. 4
2	10. 122440	122449	122458	122467	122477	122486	122495	122504	122513	122522	122532	122541	57	3. 5
3	10. 122550	122559	122568	122577	122587	122596	122605	122614	122623	122632	122642	122651	56	4. 7
4	10. 122660	122669	122678	122687	122697	122706	122715	122724	122733	122742	122752	122761	55	1 = 2
5	10. 122770	122779	122788	122798	122807	122816	122825	122834	122843	122853	122862	122871	54	2. 4
6	10. 122880	122889	122899	122908	122917	122926	122935	122944	122954	122963	122972	122981	53	3. 6
7	10. 122990	123000	123009	123018	123027	123036	123046	123055	123064	123073	123082	123092	52	4. 7
8	10. 123101	123110	123119	123128	123137	123147	123156	123165	123174	123183	123193	123202	51	1 = 2
9	10. 123211	123220	123229	123239	123248	123257	123266	123275	123285	123294	123303	123312	50	2. 4
10	10. 123321	123331	123340	123349	123358	123368	123377	123386	123395	123404	123414	123423	49	3. 6
11	10. 123432	123441	123450	123460	123469	123478	123487	123496	123506	123515	123524	123533	48	4. 7
12	10. 123543	123552	123561	123570	123579	123589	123598	123607	123616	123626	123635	123644	47	1 = 2
13	10. 123653	123662	123672	123681	123690	123699	123709	123718	123727	123736	123745	123755	46	2. 4
14	10. 123764	123773	123782	123792	123801	123810	123819	123828	123838	123847	123856	123865	45	3. 6
15	10. 123875	123884	123893	123902	123912	123921	123930	123939	123949	123958	123967	123976	44	4. 7
16	10. 123985	123995	124004	124013	124022	124032	124041	124050	124059	124069	124078	124087	43	1 = 2
17	10. 124096	124106	124115	124124	124133	124143	124152	124161	124170	124180	124189	124198	42	2. 4
18	10. 124207	124217	124226	124235	124244	124254	124263	124272	124281	124291	124300	124309	41	3. 6
19	10. 124318	124328	124337	124346	124355	124365	124374	124383	124392	124402	124411	124420	40	4. 7
10	10. 124429	124439	124448	124457	124466	124476	124485	124494	124503	124513	124522	124531	39	1 = 2
11	10. 124541	124550	124559	124568	124578	124587	124596	124605	124615	124624	124633	124642	38	2. 4
12	10. 124652	124661	124670	124680	124689	124698	124707	124717	124726	124735	124744	124754	37	3. 6
13	10. 124763	124772	124782	124791	124800	124809	124819	124828	124837	124847	124856	124865	36	4. 7
14	10. 124874	124884	124893	124902	124912	124921	124930	124939	124949	124958	124967	124976	35	1 = 2
15	10. 124986	124995	125004	125014	125023	125032	125042	125051	125060	125069	125079	125088	34	2. 4
16	10. 125097	125107	125116	125125	125134	125144	125153	125162	125172	125181	125190	125199	33	3. 6
17	10. 125209	125218	125227	125237	125246	125255	125265	125274	125283	125292	125302	125311	32	4. 7
18	10. 125320	125330	125339	125348	125358	125367	125376	125386	125395	125404	125413	125423	31	1 = 2
19	10. 125432	125441	125451	125460	125469	125479	125488	125497	125507	125516	125525	125534	30	2. 4
10	10. 125544	125553	125562	125572	125581	125590	125600	125609	125618	125628	125637	125646	29	3. 6
11	10. 125656	125665	125674	125684	125693	125702	125712	125721	125730	125740	125749	125758	28	4. 7
12	10. 125767	125777	125786	125795	125805	125814	125823	125833	125842	125851	125861	125870	27	1 = 2
13	10. 125879	125889	125898	125907	125917	125926	125935	125945	125954	125963	125973	125982	26	2. 4
14	10. 125991	126001	126010	126019	126029	126038	126047	126057	126066	126075	126085	126094	25	3. 6
15	10. 126103	126113	126122	126131	126141	126150	126160	126169	126178	126188	126197	126206	24	4. 7
16	10. 126216	126225	126234	126244	126253	126262	126272	126281	126290	126300	126309	126318	23	1 = 2
17	10. 126328	126337	126346	126356	126365	126375	126384	126393	126403	126412	126421	126431	22	2. 4
18	10. 126440	126449	126459	126468	126477	126487	126496	126506	126515	126524	126534	126543	21	3. 6
19	10. 126552	126562	126571	126580	126590	126599	126609	126618	126627	126637	126646	126655	20	4. 7
0	10. 126665	126674	126684	126693	126702	126712	126721	126730	126740	126749	126758	126768	19	1 = 2
1	10. 126777	126787	126796	126805	126815	126824	126833	126843	126852	126862	126871	126880	18	2. 4
2	10. 126890	126899	126909	126918	126927	126937	126946	126955	126965	126974	126984	126993	17	3. 6
3	10. 127002	127012	127021	127031	127040	127049	127059	127068	127077	127087	127096	127106	16	4. 8
4	10. 127115	127124	127134	127143	127153	127162	127171	127181	127190	127200	127209	127218	15	1 = 2
5	10. 127228	127237	127247	127256	127265	127275	127284	127294	127303	127312	127322	127331	14	2. 4
6	10. 127341	127350	127359	127369	127378	127388	127397	127406	127416	127425	127435	127444	13	3. 6
7	10. 127453	127463	127472	127482	127491	127500	127510	127519	127529	127538	127547	127557	12	4. 8
8	10. 127566	127576	127585	127595	127604	127613	127623	127632	127642	127651	127660	127670	11	1 = 2
9	10. 127679	127689	127698	127708	127717	127726	127736	127745	127755	127764	127773	127783	10	2. 4
0	10. 127792	127802	127811	127821	127830	127839	127849	127858	127868	127877	127887	127896	9	3. 6
1	10. 127905	127915	127924	127934	127943	127953	127962	127971	127981	127990	128000	128009	8	4. 8
2	10. 128019	128028	128037	128047	128056	128066	128075	128085	128094	128104	128113	128122	7	1 = 2
3	10. 128132	128141	128151	128160	128170	128179	128189	128198	128207	128217	128226	128236	6	2. 4
4	10. 128245	128255	128264	128274	128283	128292	128302	128311	128321	128330	128340	128349	5	3. 6
5	10. 128359	128368	128377	128387	128396	128406	128415	128425	128434	128444	128453	128463	4	4. 8
6	10. 128472	128481	128491	128500	128510	128519	128529	128538	128548	128557	128567	128576	3	1 = 2
7	10. 128586	128595	128604	128614	128623	128633	128642	128652	128661	128671	128680	128690	2	2. 4
8	10. 128699	128709	128718	128728	128737	128746	128756	128765	128775	128784	128794	128803	1	3. 6
9	10. 128813	128822	128832	128841	128851	128860	128870	128879	128889	128898	128908	128917	0	4. 8
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 48 degrees, or Secant of 138 degrees.													

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LOGARITHMIC SECANTS.

Secant of 42 degrees, or Co-secant of 132 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 128926	128936	128945	128955	128964	128974	128983	128993	129002	129012	129021	129031	59	1″ =
1	10. 129040	129050	129059	129069	129078	129088	129097	129107	129116	129126	129135	129145	58	2.
2	10. 129154	129164	129173	129183	129192	129202	129211	129221	129230	129240	129249	129259	57	3.
3	10. 129268	129278	129287	129297	129306	129316	129325	129335	129344	129354	129363	129373	56	4.
4	10. 129382	129392	129401	129411	129420	129430	129439	129449	129458	129468	129477	129487	55	1 =
5	10. 129496	129506	129515	129525	129534	129544	129553	129563	129572	129582	129591	129601	54	2.
6	10. 129610	129620	129629	129639	129648	129658	129667	129677	129686	129696	129705	129715	53	3.
7	10. 129724	129734	129743	129753	129762	129772	129781	129791	129801	129810	129820	129829	52	4.
8	10. 129839	129848	129858	129867	129877	129886	129896	129905	129915	129924	129934	129943	51	1 =
9	10. 129953	129962	129972	129982	129991	130001	130010	130020	130029	130039	130048	130058	50	2.
10	10. 130067	130077	130086	130096	130105	130115	130125	130134	130144	130153	130163	130172	49	3.
11	10. 130182	130191	130201	130210	130220	130229	130239	130249	130258	130268	130277	130287	48	4.
12	10. 130296	130306	130315	130325	130334	130344	130354	130363	130373	130382	130392	130401	47	1 =
13	10. 130411	130420	130430	130440	130449	130459	130468	130478	130487	130497	130506	130516	46	2.
14	10. 130526	130535	130545	130554	130564	130573	130583	130592	130602	130612	130621	130631	45	3.
15	10. 130640	130650	130659	130669	130678	130688	130698	130707	130717	130726	130736	130745	44	4.
16	10. 130755	130765	130774	130784	130793	130803	130812	130822	130832	130841	130851	130860	43	1 =
17	10. 130870	130879	130889	130899	130908	130918	130927	130937	130946	130956	130966	130975	42	2.
18	10. 130985	130994	131004	131014	131023	131033	131042	131052	131061	131071	131081	131090	41	3.
19	10. 131100	131109	131119	131129	131138	131148	131157	131167	131176	131186	131196	131205	40	4.
20	10. 131215	131224	131234	131244	131253	131263	131272	131282	131292	131301	131311	131320	39	1 =
21	10. 131330	131340	131349	131359	131368	131378	131388	131397	131407	131416	131426	131436	38	2.
22	10. 131445	131455	131464	131474	131484	131493	131503	131512	131522	131532	131541	131551	37	3.
23	10. 131560	131570	131580	131589	131599	131608	131618	131628	131637	131647	131656	131666	36	4.
24	10. 131676	131685	131695	131705	131714	131724	131733	131743	131753	131762	131772	131781	35	1 =
25	10. 131791	131801	131810	131820	131830	131839	131849	131858	131868	131878	131887	131897	34	2.
26	10. 131907	131916	131926	131935	131945	131955	131964	131974	131984	131993	132003	132012	33	3.
27	10. 132022	132032	132041	132051	132061	132070	132080	132090	132099	132109	132118	132128	32	4.
28	10. 132138	132147	132157	132167	132176	132186	132195	132205	132215	132224	132234	132244	31	1 =
29	10. 132253	132263	132273	132282	132292	132302	132311	132321	132330	132340	132350	132359	30	2.
30	10. 132369	132379	132388	132398	132408	132417	132427	132437	132446	132456	132466	132475	29	3.
31	10. 132485	132495	132504	132514	132523	132533	132543	132552	132562	132572	132581	132591	28	4.
32	10. 132601	132610	132620	132630	132639	132649	132659	132668	132678	132688	132697	132707	27	1 =
33	10. 132717	132726	132736	132746	132755	132765	132775	132784	132794	132804	132813	132823	26	2.
34	10. 132833	132842	132852	132862	132871	132881	132891	132900	132910	132920	132929	132939	25	3.
35	10. 132949	132958	132968	132978	132987	132997	133007	133016	133026	133036	133045	133055	24	4.
36	10. 133065	133075	133084	133094	133104	133113	133123	133133	133142	133152	133162	133171	23	1 =
37	10. 133181	133191	133200	133210	133220	133230	133239	133249	133259	133268	133278	133288	22	2.
38	10. 133297	133307	133317	133326	133336	133346	133355	133365	133375	133385	133394	133404	21	3.
39	10. 133414	133423	133433	133443	133452	133462	133472	133482	133491	133501	133511	133520	20	4.
40	10. 133530	133540	133549	133559	133569	133579	133588	133598	133608	133617	133627	133637	19	1 =
41	10. 133647	133656	133666	133676	133685	133695	133705	133715	133724	133734	133744	133753	18	2.
42	10. 133763	133773	133783	133792	133802	133812	133821	133831	133841	133851	133860	133870	17	3.
43	10. 133880	133889	133899	133909	133919	133928	133938	133948	133957	133967	133977	133987	16	4.
44	10. 133996	134006	134016	134026	134035	134045	134055	134064	134074	134084	134094	134103	15	1 =
45	10. 134113	134123	134133	134142	134152	134162	134172	134181	134191	134201	134210	134220	14	2.
46	10. 134230	134240	134249	134259	134269	134279	134288	134298	134308	134318	134327	134337	13	3.
47	10. 134347	134357	134366	134376	134386	134396	134405	134415	134425	134435	134444	134454	12	4.
48	10. 134464	134474	134483	134493	134503	134513	134522	134532	134542	134552	134561	134571	11	1 =
49	10. 134581	134591	134600	134610	134620	134630	134639	134649	134659	134669	134678	134688	10	2.
50	10. 134698	134708	134717	134727	134737	134747	134756	134766	134776	134786	134795	134805	9	3.
51	10. 134815	134825	134835	134844	134854	134864	134874	134883	134893	134903	134913	134922	8	4.
52	10. 134932	134942	134952	134962	134971	134981	134991	135001	135010	135020	135030	135040	7	1 =
53	10. 135050	135059	135069	135079	135089	135098	135108	135118	135128	135138	135147	135157	6	2.
54	10. 135167	135177	135186	135196	135206	135216	135226	135235	135245	135255	135265	135275	5	3.
55	10. 135284	135294	135304	135314	135323	135333	135343	135353	135363	135372	135382	135392	4	4.
56	10. 135402	135412	135421	135431	135441	135451	135461	135470	135480	135490	135500	135510	3	1 =
57	10. 135519	135529	135539	135549	135559	135568	135578	135588	135598	135608	135617	135627	2	2.
58	10. 135637	135647	135657	135666	135676	135686	135696	135706	135715	135725	135735	135745	1	3.
59	10. 135755	135765	135774	135784	135794	135804	135814	135823	135833	135843	135853	135863	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 47 degrees, or Secant of 137 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 43 degrees, or Co-secant of 133 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 135872	135882	135892	135902	135912	135922	135931	135941	135951	135961	135971	135981	59	1″ = 2
1	10. 135990	136000	136010	136020	136030	136039	136049	136059	136069	136079	136089	136098	58	2. 4
2	10. 136108	136118	136128	136138	136148	136157	136167	136177	136187	136197	136207	136216	57	3. 6
3	10. 136226	136236	136246	136256	136266	136275	136285	136295	136305	136315	136325	136334	56	4. 8
4	10. 136344	136354	136364	136374	136384	136393	136403	136413	136423	136433	136443	136453	55	1 = 2
5	10. 136462	136472	136482	136492	136502	136512	136521	136531	136541	136551	136561	136571	54	2. 4
6	10. 136581	136590	136600	136610	136620	136630	136640	136650	136659	136669	136679	136689	53	3. 6
7	10. 136699	136709	136719	136728	136738	136748	136758	136768	136778	136788	136797	136807	52	4. 8
8	10. 136817	136827	136837	136847	136857	136866	136876	136886	136896	136906	136916	136926	51	1 = 2
9	10. 136936	136945	136955	136965	136975	136985	136995	137005	137014	137024	137034	137044	50	2. 4
10	10. 137054	137064	137074	137084	137093	137103	137113	137123	137133	137143	137153	137163	49	3. 6
11	10. 137173	137182	137192	137202	137212	137222	137232	137242	137252	137261	137271	137281	48	4. 8
12	10. 137291	137301	137311	137321	137331	137341	137350	137360	137370	137380	137390	137400	47	1 = 2
13	10. 137410	137420	137430	137439	137449	137459	137469	137479	137489	137499	137509	137519	46	2. 4
14	10. 137529	137538	137548	137558	137568	137578	137588	137598	137608	137618	137628	137637	45	3. 6
15	10. 137647	137657	137667	137677	137687	137697	137707	137717	137727	137736	137746	137756	44	4. 8
16	10. 137766	137776	137786	137796	137806	137816	137826	137836	137845	137855	137865	137875	43	1 = 2
17	10. 137885	137895	137905	137915	137925	137935	137945	137955	137964	137974	137984	137994	42	2. 4
18	10. 138004	138014	138024	138034	138044	138054	138064	138074	138084	138093	138103	138113	41	3. 6
19	10. 138123	138133	138143	138153	138163	138173	138183	138193	138203	138213	138223	138232	40	4. 8
20	10. 138242	138252	138262	138272	138282	138292	138302	138312	138322	138332	138342	138352	39	1 2
21	10. 138362	138372	138381	138391	138401	138411	138421	138431	138441	138451	138461	138471	38	2. 4
22	10. 138481	138491	138501	138511	138521	138531	138541	138551	138560	138570	138580	138590	37	3. 6
23	10. 138600	138610	138620	138630	138640	138650	138660	138670	138680	138690	138700	138710	36	4. 8
24	10. 138720	138730	138740	138750	138760	138769	138779	138789	138799	138809	138819	138829	35	1 = 2
25	10. 138839	138849	138859	138869	138879	138889	138899	138909	138919	138929	138939	138949	34	2. 4
26	10. 138959	138969	138979	138989	138999	139009	139019	139029	139039	139048	139058	139068	33	3. 6
27	10. 139078	139088	139098	139108	139118	139128	139138	139148	139158	139168	139178	139188	32	4. 8
28	10. 139198	139208	139218	139228	139238	139248	139258	139268	139278	139288	139298	139308	31	1 = 2
29	10. 139318	139328	139338	139348	139358	139368	139378	139388	139398	139408	139418	139428	30	2 4
30	10. 139438	139448	139458	139468	139478	139488	139498	139508	139518	139528	139538	139548	29	3. 6
31	10. 139558	139568	139578	139588	139598	139608	139618	139628	139638	139648	139658	139668	28	4. 8
32	10. 139678	139688	139698	139708	139718	139728	139738	139748	139758	139768	139778	139788	27	1 = 2
33	10. 139798	139808	139818	139828	139838	139848	139858	139868	139878	139888	139898	139908	26	2. 4
34	10. 139918	139928	139938	139948	139958	139968	139978	139988	139998	140008	140018	140028	25	3. 6
35	10. 140038	140048	140058	140068	140078	140088	140098	140108	140118	140128	140138	140148	24	4. 8
36	10. 140158	140168	140178	140188	140198	140208	140218	140228	140239	140249	140259	140269	23	1 = 2
37	10. 140279	140289	140299	140309	140319	140329	140339	140349	140359	140369	140379	140389	22	2. 4
38	10. 140399	140409	140419	140429	140439	140449	140459	140469	140479	140489	140499	140509	21	3. 6
39	10. 140520	140530	140540	140550	140560	140570	140580	140590	140600	140610	140620	140630	20	4. 8
40	10. 140640	140650	140660	140670	140680	140690	140700	140710	140720	140731	140741	140751	19	1 = 2
41	10. 140761	140771	140781	140791	140801	140811	140821	140831	140841	140851	140861	140871	18	2. 4
42	10. 140881	140891	140902	140912	140922	140932	140942	140952	140962	140972	140982	140992	17	3. 6
43	10. 141002	141012	141022	141032	141042	141052	141063	141073	141083	141093	141103	141113	16	4. 8
44	10. 141123	141133	141143	141153	141163	141173	141183	141193	141204	141214	141224	141234	15	1 = 2
45	10. 141244	141254	141264	141274	141284	141294	141304	141314	141325	141335	141345	141355	14	2. 4
46	10. 141365	141375	141385	141395	141405	141415	141425	141435	141446	141456	141466	141476	13	3. 6
47	10. 141486	141496	141506	141516	141526	141536	141546	141557	141567	141577	141587	141597	12	4. 8
48	10. 141607	141617	141627	141637	141647	141657	141668	141678	141688	141698	141708	141718	11	1 = 2
49	10. 141728	141738	141748	141758	141769	141779	141789	141799	141809	141819	141829	141839	10	2. 4
50	10. 141849	141860	141870	141880	141890	141900	141910	141920	141930	141940	141951	141961	9	3. 6
51	10. 141971	141981	141991	142001	142011	142021	142031	142042	142052	142062	142072	142082	8	4. 8
52	10. 142092	142102	142112	142123	142133	142143	142153	142163	142173	142183	142193	142203	7	1 = 2
53	10. 142214	142224	142234	142244	142254	142264	142274	142285	142295	142305	142315	142325	6	2. 4
54	10. 142335	142345	142355	142366	142376	142386	142396	142406	142416	142426	142436	142447	5	3. 6
55	10. 142457	142467	142477	142487	142497	142507	142518	142528	142538	142548	142558	142568	4	4. 8
56	10. 142578	142589	142599	142609	142619	142629	142639	142649	142660	142670	142680	142690	3	1 = 2
57	10. 142700	142710	142720	142731	142741	142751	142761	142771	142781	142792	142802	142812	2	2. 4
58	10. 142822	142832	142842	142852	142863	142873	142883	142893	142903	142913	142924	142934	1	3. 6
59	10. 142944	142954	142964	142974	142985	142995	143005	143015	143025	143035	143046	143056	0	4. 8
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 46 degrees, or Secant of 136 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 44 degrees, or Co-secant of 134 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 143066	143076	143086	143096	143107	143117	143127	143137	143147	143157	143168	143178	59	1″ =
1	10. 143188	143198	143208	143218	143229	143239	143249	143259	143269	143279	143290	143300	58	2.
2	10. 143310	143320	143330	143341	143351	143361	143371	143381	143391	143402	143412	143422	57	3.
3	10. 143432	143442	143453	143463	143473	143483	143493	143503	143514	143524	143534	143544	56	4.
4	10. 143554	143565	143575	143585	143595	143605	143616	143626	143636	143646	143656	143667	55	1 =
5	10. 143677	143687	143697	143707	143718	143728	143738	143748	143758	143769	143779	143789	54	2.
6	10. 143799	143809	143820	143830	143840	143850	143860	143871	143881	143891	143901	143911	53	3.
7	10. 143922	143932	143942	143952	143962	143973	143983	143993	144003	144013	144024	144034	52	4.
8	10. 144044	144054	144065	144075	144085	144095	144105	144116	144126	144136	144146	144156	51	1 =
9	10. 144167	144177	144187	144197	144208	144218	144228	144238	144248	144259	144269	144279	50	2.
10	10. 144289	144300	144310	144320	144330	144341	144351	144361	144371	144381	144392	144402	49	3.
11	10. 144412	144422	144433	144443	144453	144463	144474	144484	144494	144504	144514	144525	48	4.
12	10. 144535	144545	144555	144566	144576	144586	144596	144607	144617	144627	144637	144648	47	1 =
13	10. 144658	144668	144678	144689	144699	144709	144719	144730	144740	144750	144760	144771	46	2.
14	10. 144781	144791	144801	144812	144822	144832	144842	144853	144863	144873	144883	144894	45	3.
15	10. 144904	144914	144924	144935	144945	144955	144965	144976	144986	144996	145006	145017	44	4.
16	10. 145027	145037	145047	145058	145068	145078	145089	145099	145109	145119	145130	145140	43	1 =
17	10. 145150	145160	145171	145181	145191	145201	145212	145222	145232	145243	145253	145263	42	2.
18	10. 145273	145284	145294	145304	145314	145325	145335	145345	145356	145366	145376	145386	41	3.
19	10. 145397	145407	145417	145427	145438	145448	145458	145469	145479	145489	145499	145510	40	4.
20	10. 145520	145530	145541	145551	145561	145571	145582	145592	145602	145613	145623	145633	39	1 =
21	10. 145644	145654	145664	145674	145685	145695	145705	145716	145726	145736	145746	145757	38	2.
22	10. 145767	145777	145788	145798	145808	145819	145829	145839	145849	145860	145870	145880	37	3.
23	10. 145891	145901	145911	145922	145932	145942	145952	145963	145973	145983	145994	146004	36	4.
24	10. 146014	146025	146035	146045	146056	146066	146076	146087	146097	146107	146117	146128	35	1 =
25	10. 146138	146148	146159	146169	146179	146190	146200	146210	146221	146231	146241	146252	34	2.
26	10. 146262	146272	146283	146293	146303	146314	146324	146334	146344	146355	146365	146375	33	3.
27	10. 146386	146396	146406	146417	146427	146437	146448	146458	146468	146479	146489	146499	32	4.
28	10. 146510	146520	146530	146541	146551	146561	146572	146582	146592	146603	146613	146623	31	1 =
29	10. 146634	146644	146654	146665	146675	146685	146696	146706	146717	146727	146737	146748	30	2.
30	10. 146758	146768	146779	146789	146799	146810	146820	146830	146841	146851	146861	146872	29	3.
31	10. 146882	146892	146903	146913	146923	146934	146944	146955	146965	146975	146986	146996	28	4.
32	10. 147006	147017	147027	147037	147048	147058	147068	147079	147089	147100	147110	147120	27	1 =
33	10. 147131	147141	147151	147162	147172	147182	147193	147203	147214	147224	147234	147245	26	2.
34	10. 147255	147265	147276	147286	147297	147307	147317	147328	147338	147348	147359	147369	25	3.
35	10. 147380	147390	147400	147411	147421	147431	147442	147452	147463	147473	147483	147494	24	4.
36	10. 147504	147514	147525	147535	147546	147556	147566	147577	147587	147598	147608	147618	23	1 =
37	10. 147629	147639	147649	147660	147670	147681	147691	147701	147712	147722	147733	147743	22	2.
38	10. 147753	147764	147774	147785	147795	147805	147816	147826	147837	147847	147857	147868	21	3.
39	10. 147878	147889	147899	147909	147920	147930	147941	147951	147961	147972	147982	147993	20	4.
40	10. 148003	148013	148024	148034	148045	148055	148065	148076	148086	148097	148107	148117	19	1 =
41	10. 148128	148138	148149	148159	148170	148180	148190	148201	148211	148222	148232	148242	18	2.
42	10. 148253	148263	148274	148284	148295	148305	148315	148326	148336	148347	148357	148367	17	3.
43	10. 148378	148388	148399	148409	148420	148430	148440	148451	148461	148472	148482	148493	16	4.
44	10. 148503	148513	148524	148534	148545	148555	148566	148576	148586	148597	148607	148618	15	1 =
45	10. 148628	148639	148649	148660	148670	148680	148691	148701	148712	148722	148733	148743	14	2.
46	10. 148753	148764	148774	148785	148795	148806	148816	148827	148837	148847	148858	148868	13	3.
47	10. 148879	148889	148900	148910	148921	148931	148942	148952	148962	148973	148983	148994	12	4.
48	10. 149004	149015	149025	149036	149046	149057	149067	149077	149088	149098	149109	149119	11	1 =
49	10. 149130	149140	149151	149161	149172	149182	149193	149203	149213	149224	149234	149245	10	2.
50	10. 149255	149266	149276	149287	149297	149308	149318	149329	149339	149350	149360	149370	9	3.
51	10. 149381	149391	149402	149412	149423	149433	149444	149454	149465	149475	149486	149496	8	4.
52	10. 149507	149517	149528	149538	149549	149559	149570	149580	149590	149601	149611	149622	7	1 =
53	10. 149632	149643	149653	149664	149674	149685	149695	149706	149716	149727	149737	149748	6	2.
54	10. 149758	149769	149779	149790	149800	149811	149821	149832	149842	149853	149863	149874	5	3.
55	10. 149884	149895	149905	149916	149926	149937	149947	149958	149968	149979	149989	150000	4	4.
56	10. 150010	150021	150031	150042	150052	150063	150073	150084	150094	150105	150115	150126	3	1 =
57	10. 150136	150147	150157	150168	150178	150189	150199	150210	150220	150231	150241	150252	2	2.
58	10. 150262	150273	150283	150294	150304	150315	150326	150336	150347	150357	150368	150378	1	3.
59	10. 150389	150399	150410	150420	150431	150441	150452	150462	150473	150483	150494	150504	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 45 degrees, or Secant of 135 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 45 degrees, or Co-secant of 135 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 150515	150525	150536	150547	150557	150568	150578	150589	150599	150610	150620	150631	59	1″ = 2
1	10. 150641	150652	150662	150673	150683	150694	150705	150715	150726	150736	150747	150757	58	2. 4
2	10. 150768	150778	150789	150799	150810	150820	150831	150842	150852	150863	150873	150884	57	3. 6
3	10. 150894	150905	150915	150926	150936	150947	150958	150968	150979	150989	151000	151010	56	4. 8
4	10. 151021	151031	151042	151053	151063	151074	151084	151095	151105	151116	151126	151137	55	1 = 2
5	10. 151148	151158	151169	151179	151190	151200	151211	151221	151232	151243	151253	151264	54	2. 4
6	10. 151274	151285	151295	151306	151317	151327	151338	151348	151359	151369	151380	151390	53	3. 6
7	10. 151401	151412	151422	151433	151443	151454	151465	151475	151486	151496	151507	151517	52	4. 8
8	10. 151528	151539	151549	151560	151570	151581	151591	151602	151613	151623	151634	151644	51	1 = 2
9	10. 151655	151665	151676	151687	151697	151708	151718	151729	151740	151750	151761	151771	50	2. 4
10	10. 151782	151793	151803	151814	151824	151835	151845	151856	151867	151877	151888	151898	49	3. 6
11	10. 151909	151920	151930	151941	151951	151962	151973	151983	151994	152004	152015	152026	48	4. 8
12	10. 152036	152047	152057	152068	152079	152089	152100	152110	152121	152132	152142	152153	47	1 = 2
13	10. 152163	152174	152185	152195	152206	152217	152227	152238	152248	152259	152270	152280	46	2. 4
14	10. 152291	152301	152312	152323	152333	152344	152354	152365	152376	152386	152397	152408	45	3. 6
15	10. 152418	152429	152439	152450	152461	152471	152482	152493	152503	152514	152524	152535	44	4. 9
16	10. 152546	152556	152567	152578	152588	152599	152609	152620	152631	152641	152652	152663	43	1 = 2
17	10. 152673	152684	152694	152705	152716	152726	152737	152748	152758	152769	152780	152790	42	2. 4
18	10. 152801	152811	152822	152833	152843	152854	152865	152875	152886	152897	152907	152918	41	3. 6
19	10. 152929	152939	152950	152960	152971	152982	152992	153003	153014	153024	153035	153046	40	4. 9
20	10. 153056	153067	153078	153088	153099	153110	153120	153131	153142	153152	153163	153174	39	1 = 2
21	10. 153184	153195	153205	153216	153227	153237	153248	153259	153269	153280	153291	153301	38	2. 4
22	10. 153312	153323	153333	153344	153355	153365	153376	153387	153397	153408	153419	153429	37	3. 6
23	10. 153440	153451	153461	153472	153483	153493	153504	153515	153525	153536	153547	153557	36	4. 9
24	10. 153568	153579	153590	153600	153611	153622	153632	153643	153654	153664	153675	153686	35	1 = 2
25	10. 153696	153707	153718	153728	153739	153750	153760	153771	153782	153792	153803	153814	34	2. 4
26	10. 153825	153835	153846	153857	153867	153878	153889	153899	153910	153921	153931	153942	33	3. 6
27	10. 153953	153964	153974	153985	153996	154006	154017	154028	154038	154049	154060	154070	32	4. 9
28	10. 154081	154092	154103	154113	154124	154135	154145	154156	154167	154178	154188	154199	31	1 = 2
29	10. 154210	154220	154231	154242	154252	154263	154274	154285	154295	154306	154317	154327	30	2. 4
30	10. 154338	154349	154360	154370	154381	154392	154402	154413	154424	154435	154445	154456	29	3. 6
31	10. 154467	154477	154488	154499	154510	154520	154531	154542	154553	154563	154574	154585	28	4. 9
32	10. 154595	154606	154617	154628	154638	154649	154660	154671	154681	154692	154703	154713	27	1 = 2
33	10. 154724	154735	154746	154756	154767	154778	154789	154799	154810	154821	154831	154842	26	2. 4
34	10. 154853	154864	154874	154885	154896	154907	154917	154928	154939	154950	154960	154971	25	3. 6
35	10. 154982	154993	155003	155014	155025	155036	155046	155057	155068	155079	155089	155100	24	4. 9
36	10. 155111	155122	155132	155143	155154	155165	155175	155186	155197	155208	155218	155229	23	1 = 2
37	10. 155240	155251	155261	155272	155283	155294	155304	155315	155326	155337	155347	155358	22	2. 4
38	10. 155369	155380	155391	155401	155412	155423	155434	155444	155455	155466	155477	155487	21	3. 6
39	10. 155498	155509	155520	155530	155541	155552	155563	155574	155584	155595	155606	155617	20	4. 9
40	10. 155627	155638	155649	155660	155671	155681	155692	155703	155714	155724	155735	155746	19	1 = 2
41	10. 155757	155768	155778	155789	155800	155811	155821	155832	155843	155854	155865	155875	18	2. 4
42	10. 155886	155897	155908	155919	155929	155940	155951	155962	155973	155983	155994	156005	17	3. 6
43	10. 156016	156027	156037	156048	156059	156070	156080	156091	156102	156113	156124	156134	16	4. 9
44	10. 156145	156156	156167	156178	156188	156199	156210	156221	156232	156243	156253	156264	15	1 = 2
45	10. 156275	156286	156297	156307	156318	156329	156340	156351	156361	156372	156383	156394	14	2. 4
46	10. 156405	156415	156426	156437	156448	156459	156470	156480	156491	156502	156513	156524	13	3. 6
47	10. 156534	156545	156556	156567	156578	156589	156599	156610	156621	156632	156643	156653	12	4. 9
48	10. 156664	156675	156686	156697	156708	156718	156729	156740	156751	156762	156773	156783	11	1 = 2
49	10. 156794	156805	156816	156827	156838	156848	156859	156870	156881	156892	156903	156913	10	2. 4
50	10. 156924	156935	156946	156957	156968	156978	156989	157000	157011	157022	157033	157044	9	3. 7
51	10. 157054	157065	157076	157087	157098	157109	157119	157130	157141	157152	157163	157174	8	4. 9
52	10. 157185	157195	157206	157217	157228	157239	157250	157261	157271	157282	157293	157304	7	1 = 2
53	10. 157315	157326	157337	157347	157358	157369	157380	157391	157402	157413	157423	157434	6	2. 4
54	10. 157445	157456	157467	157478	157489	157499	157510	157521	157532	157543	157554	157565	5	3. 7
55	10. 157576	157586	157597	157608	157619	157630	157641	157652	157663	157673	157684	157695	4	4. 9
56	10. 157706	157717	157728	157739	157750	157760	157771	157782	157793	157804	157815	157826	3	1 = 2
57	10. 157837	157847	157858	157869	157880	157891	157902	157913	157924	157935	157945	157956	2	2. 4
58	10. 157967	157978	157989	158000	158011	158022	158033	158043	158054	158065	158076	158087	1	3. 7
59	10. 158098	158109	158120	158131	158141	158152	158163	158174	158185	158196	158207	158218	0	4. 9
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-secant of 44 degrees, or Secant of 134 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 46 degrees, or Co-secant of 136 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 158229	158240	158250	158261	158272	158283	158294	158305	158316	158327	158338	158349	59	1″ =
1	10. 158360	158370	158381	158392	158403	158414	158425	158436	158447	158458	158469	158480	58	2.
2	10. 158490	158501	158512	158523	158534	158545	158556	158567	158578	158589	158600	158611	57	3.
3	10. 158621	158632	158643	158654	158665	158676	158687	158698	158709	158720	158731	158742	56	4.
4	10. 158753	158763	158774	158785	158796	158807	158818	158829	158840	158851	158862	158873	55	1 =
5	10. 158884	158895	158906	158917	158927	158938	158949	158960	158971	158982	158993	159004	54	2.
6	10. 159015	159026	159037	159048	159059	159070	159081	159092	159103	159113	159124	159135	53	3.
7	10. 159146	159157	159168	159179	159190	159201	159212	159223	159234	159245	159256	159267	52	4.
8	10. 159278	159289	159300	159311	159321	159332	159343	159354	159365	159376	159387	159398	51	1 =
9	10. 159409	159420	159431	159442	159453	159464	159475	159486	159497	159508	159519	159530	50	2.
10	10. 159541	159552	159563	159574	159585	159596	159606	159617	159628	159639	159650	159661	49	3.
11	10. 159672	159683	159694	159705	159716	159727	159738	159749	159760	159771	159782	159793	48	4.
12	10. 159804	159815	159826	159837	159848	159859	159870	159881	159892	159903	159914	159925	47	1 =
13	10. 159936	159947	159958	159969	159980	159991	160002	160013	160024	160035	160046	160057	46	2.
14	10. 160068	160079	160090	160101	160112	160123	160134	160145	160156	160167	160178	160189	45	3.
15	10. 160200	160211	160222	160233	160244	160255	160266	160277	160288	160299	160310	160321	44	4.
16	10. 160332	160343	160354	160365	160376	160387	160398	160409	160420	160431	160442	160453	43	1 =
17	10. 160464	160475	160486	160497	160508	160519	160530	160541	160552	160563	160574	160585	42	2.
18	10. 160596	160607	160618	160629	160640	160651	160662	160673	160684	160695	160706	160717	41	3.
19	10. 160728	160739	160750	160761	160772	160783	160794	160805	160816	160827	160838	160849	40	4.
20	10. 160860	160871	160882	160893	160904	160916	160927	160938	160949	160960	160971	160982	39	1 =
21	10. 160993	161004	161015	161026	161037	161048	161059	161070	161081	161092	161103	161114	38	2.
22	10. 161125	161136	161147	161158	161169	161180	161191	161203	161214	161225	161236	161247	37	3.
23	10. 161258	161269	161280	161291	161302	161313	161324	161335	161346	161357	161368	161379	36	4.
24	10. 161390	161401	161413	161424	161435	161446	161457	161468	161479	161490	161501	161512	35	1 =
25	10. 161523	161534	161545	161556	161567	161578	161589	161601	161612	161623	161634	161645	34	2.
26	10. 161656	161667	161678	161689	161700	161711	161722	161733	161744	161755	161767	161778	33	3.
27	10. 161789	161800	161811	161822	161833	161844	161855	161866	161877	161888	161899	161911	32	4.
28	10. 161922	161933	161944	161955	161966	161977	161988	161999	162010	162021	162032	162044	31	1 =
29	10. 162055	162066	162077	162088	162099	162110	162121	162132	162143	162154	162166	162177	30	2.
30	10. 162188	162199	162210	162221	162232	162243	162254	162265	162277	162288	162299	162310	29	3.
31	10. 162321	162332	162343	162354	162365	162376	162388	162399	162410	162421	162432	162443	28	4.
32	10. 162454	162465	162476	162487	162499	162510	162521	162532	162543	162554	162565	162576	27	1 =
33	10. 162587	162599	162610	162621	162632	162643	162654	162665	162676	162688	162699	162710	26	2.
34	10. 162721	162732	162743	162754	162765	162776	162788	162799	162810	162821	162832	162843	25	3.
35	10. 162854	162865	162877	162888	162899	162910	162921	162932	162943	162955	162966	162977	24	4.
36	10. 162988	162999	163010	163021	163032	163044	163055	163066	163077	163088	163099	163110	23	1 =
37	10. 163122	163133	163144	163155	163166	163177	163188	163200	163211	163222	163233	163244	22	2.
38	10. 163255	163266	163278	163289	163300	163311	163322	163333	163344	163356	163367	163378	21	3.
39	10. 163389	163400	163411	163422	163434	163445	163456	163467	163478	163489	163501	163512	20	4.
40	10. 163523	163534	163545	163556	163568	163579	163590	163601	163612	163623	163634	163646	19	1 =
41	10. 163657	163668	163679	163690	163701	163713	163724	163735	163746	163757	163769	163780	18	2.
42	10. 163791	163802	163813	163824	163836	163847	163858	163869	163880	163891	163903	163914	17	3.
43	10. 163925	163936	163947	163958	163970	163981	163992	164003	164014	164026	164037	164048	16	4.
44	10. 164059	164070	164081	164093	164104	164115	164126	164137	164149	164160	164171	164182	15	1 =
45	10. 164193	164205	164216	164227	164238	164249	164261	164272	164283	164294	164305	164317	14	2.
46	10. 164328	164339	164350	164361	164373	164384	164395	164406	164417	164429	164440	164451	13	3.
47	10. 164462	164473	164485	164496	164507	164518	164529	164541	164552	164563	164574	164585	12	4.
48	10. 164597	164608	164619	164630	164641	164653	164664	164675	164686	164698	164709	164720	11	1 =
49	10. 164731	164742	164754	164765	164776	164787	164798	164810	164821	164832	164843	164855	10	2.
50	10. 164866	164877	164888	164900	164911	164922	164933	164944	164956	164967	164978	164989	9	3.
51	10. 165001	165012	165023	165034	165045	165057	165068	165079	165090	165102	165113	165124	8	4.
52	10. 165135	165147	165158	165169	165180	165192	165203	165214	165225	165237	165248	165259	7	1 =
53	10. 165270	165281	165293	165304	165315	165326	165338	165349	165360	165371	165383	165394	6	2.
54	10. 165405	165416	165428	165439	165450	165461	165473	165484	165495	165506	165518	165529	5	3.
55	10. 165540	165551	165563	165574	165585	165597	165608	165619	165630	165642	165653	165664	4	4.
56	10. 165675	165687	165698	165709	165720	165732	165743	165754	165765	165777	165788	165799	3	1 =
57	10. 165811	165822	165833	165844	165856	165867	165878	165889	165901	165912	165923	165935	2	2.
58	10. 165946	165957	165968	165980	165991	166002	166013	166025	166036	166047	166059	166070	1	3.
59	10. 166081	166092	166104	166115	166126	166138	166149	166160	166171	166183	166194	166205	0	4.
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-secant of 43 degrees, or Secant of 133 degrees.													

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LOGARITHMIC SECANTS.

Secant of 47 degrees, or Co-secant of 137 degrees.												Minutes	Propor. parts.
0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
10. 166217	166228	166239	166250	166262	166273	166284	166296	166307	166318	166330	166341	59	1″ = 2
10. 166352	166363	166375	166386	166397	166409	166420	166431	166443	166454	166465	166476	58	2. 5
10. 166488	166499	166510	166522	166533	166544	166556	166567	166578	166589	166601	166612	57	3. 7
10. 166623	166635	166646	166657	166669	166680	166691	166703	166714	166725	166737	166748	56	4. 9
10. 166759	166770	166782	166793	166804	166816	166827	166838	166850	166861	166872	166884	55	1 = 2
10. 166895	166906	166918	166929	166940	166952	166963	166974	166986	166997	167008	167020	54	2. 5
10. 167031	167042	167054	167065	167076	167088	167099	167110	167122	167133	167144	167156	53	3. 7
10. 167167	167178	167190	167201	167212	167224	167235	167246	167258	167269	167280	167292	52	4. 9
10. 167303	167314	167326	167337	167348	167360	167371	167382	167394	167405	167416	167428	51	1 = 2
10. 167439	167450	167462	167473	167484	167496	167507	167519	167530	167541	167553	167564	50	2. 5
10. 167575	167587	167598	167609	167621	167632	167643	167655	167666	167678	167689	167700	49	3. 7
10. 167712	167723	167734	167746	167757	167768	167780	167791	167803	167814	167825	167837	48	4. 9
10. 167848	167859	167871	167882	167893	167905	167916	167928	167939	167950	167962	167973	47	1 = 2
10. 167984	167996	168007	168019	168030	168041	168053	168064	168075	168087	168098	168110	46	2. 5
10. 168121	168132	168144	168155	168167	168178	168189	168201	168212	168223	168235	168246	45	3. 7
10. 168258	168269	168280	168292	168303	168315	168326	168337	168349	168360	168372	168383	44	4. 9
10. 168394	168406	168417	168429	168440	168451	168463	168474	168486	168497	168508	168520	43	1 = 2
10. 168531	168543	168554	168565	168577	168588	168600	168611	168622	168634	168645	168657	42	2. 5
10. 168668	168679	168691	168702	168714	168725	168736	168748	168759	168771	168782	168794	41	3. 7
10. 168805	168816	168828	168839	168851	168862	168873	168885	168896	168908	168919	168931	40	4. 9
10. 168942	168953	168965	168976	168988	168999	169011	169022	169033	169045	169056	169068	39	1 = 2
10. 169079	169090	169102	169113	169125	169136	169148	169159	169171	169182	169193	169205	38	2. 5
10. 169216	169228	169239	169251	169262	169273	169285	169296	169308	169319	169331	169342	37	3. 7
10. 169354	169365	169376	169388	169399	169411	169422	169434	169445	169457	169468	169479	36	4. 9
10. 169491	169502	169514	169525	169537	169548	169560	169571	169582	169594	169605	169617	35	1 = 2
10. 169628	169640	169651	169663	169674	169686	169697	169708	169720	169731	169743	169754	34	2. 5
10. 169766	169777	169789	169800	169812	169823	169835	169846	169857	169869	169880	169892	33	3. 7
10. 169903	169915	169926	169938	169949	169961	169972	169984	169995	170007	170018	170030	32	4. 9
10. 170041	170053	170064	170075	170087	170098	170110	170121	170133	170144	170156	170167	31	1 = 2
10. 170179	170190	170202	170213	170225	170236	170248	170259	170271	170282	170294	170305	30	2. 5
10. 170317	170328	170340	170351	170363	170374	170386	170397	170409	170420	170432	170443	29	3. 7
10. 170455	170466	170478	170489	170500	170512	170523	170535	170546	170558	170569	170581	28	4. 9
10. 170592	170604	170616	170627	170639	170650	170662	170673	170685	170696	170708	170719	27	1 = 2
10. 170731	170742	170754	170765	170777	170788	170800	170811	170823	170834	170846	170857	26	2. 5
10. 170869	170880	170892	170903	170915	170926	170938	170949	170961	170972	170984	170995	25	3. 7
10. 171007	171018	171030	171042	171053	171065	171076	171088	171099	171111	171122	171134	24	4. 9
10. 171145	171157	171168	171180	171191	171203	171214	171226	171238	171249	171261	171272	23	1 = 2
10. 171284	171295	171307	171318	171330	171341	171353	171364	171376	171387	171399	171411	22	2. 5
10. 171422	171434	171445	171457	171468	171480	171491	171503	171514	171526	171538	171549	21	3. 7
10. 171561	171572	171584	171595	171607	171618	171630	171642	171653	171665	171676	171688	20	4. 9
10. 171699	171711	171722	171734	171746	171757	171769	171780	171792	171803	171815	171826	19	1 = 2
10. 171838	171850	171861	171873	171884	171896	171907	171919	171931	171942	171954	171965	18	2. 5
10. 171977	171988	172000	172012	172023	172035	172046	172058	172069	172081	172093	172104	17	3. 7
10. 172116	172127	172139	172150	172162	172174	172185	172197	172208	172220	172231	172243	16	4. 9
10. 172255	172266	172278	172289	172301	172313	172324	172336	172347	172359	172371	172382	15	1 = 2
10. 172394	172405	172417	172428	172440	172452	172463	172475	172486	172498	172510	172521	14	2. 5
10. 172533	172544	172556	172568	172579	172591	172602	172614	172626	172637	172649	172660	13	3. 7
10. 172672	172684	172695	172707	172718	172730	172742	172753	172765	172776	172788	172800	12	4. 9
10. 172811	172823	172835	172846	172858	172869	172881	172893	172904	172916	172927	172939	11	1 = 2
10. 172951	172962	172974	172986	172997	173009	173020	173032	173044	173055	173067	173078	10	2. 5
10. 173090	173102	173113	173125	173137	173148	173160	173171	173183	173195	173206	173218	9	3. 7
10. 173230	173241	173253	173265	173276	173288	173299	173311	173323	173334	173346	173358	8	4. 9
10. 173369	173381	173393	173404	173416	173427	173439	173451	173462	173474	173486	173497	7	1 = 2
10. 173509	173521	173532	173544	173556	173567	173579	173590	173602	173614	173625	173637	6	2. 5
10. 173649	173660	173672	173684	173695	173707	173719	173730	173742	173754	173765	173777	5	3. 7
10. 173789	173800	173812	173824	173835	173847	173859	173870	173882	173893	173905	173917	4	4. 9
10. 173928	173940	173952	173963	173975	173987	173999	174010	174022	174033	174045	174057	3	1 = 2
10. 174069	174080	174092	174104	174115	174127	174139	174150	174162	174174	174185	174197	2	2. 5
10. 174209	174220	174232	174244	174255	174267	174279	174290	174302	174314	174325	174337	1	3. 7
10. 174349	174360	174372	174384	174396	174407	174419	174431	174442	174454	174466	174477	0	4. 9
60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
Co-secant of 42 degrees, or Secant of 132 degrees.													

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LOGARITHMIC SECANTS.

Secant of 48 degrees, or Co-secant of 138 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 174489	174501	174512	174524	174536	174548	174559	174571	174583	174594	174606	174618	59	1″ =
1	10. 174629	174641	174653	174665	174676	174688	174700	174711	174723	174735	174746	174758	58	2.
2	10. 174770	174782	174793	174805	174817	174828	174840	174852	174863	174875	174887	174899	57	3.
3	10. 174910	174922	174934	174945	174957	174969	174981	174992	175004	175016	175027	175039	56	4.
4	10. 175051	175063	175074	175086	175098	175110	175121	175133	175145	175156	175168	175180	55	1 =
5	10. 175192	175203	175215	175227	175239	175250	175262	175274	175285	175297	175309	175321	54	2.
6	10. 175332	175344	175356	175368	175379	175391	175403	175415	175426	175438	175450	175461	53	3.
7	10. 175473	175485	175497	175508	175520	175532	175544	175555	175567	175579	175591	175602	52	4.
8	10. 175614	175626	175638	175649	175661	175673	175685	175696	175708	175720	175732	175743	51	1 =
9	10. 175755	175767	175779	175790	175802	175814	175826	175837	175849	175861	175873	175884	50	2.
10	10. 175896	175908	175920	175932	175943	175955	175967	175979	175990	176002	176014	176026	49	3.
11	10. 176037	176049	176061	176073	176084	176096	176108	176120	176132	176143	176155	176167	48	4.
12	10. 176179	176190	176202	176214	176226	176238	176249	176261	176273	176285	176296	176308	47	1 =
13	10. 176320	176332	176344	176355	176367	176379	176391	176402	176414	176426	176438	176450	46	2.
14	10. 176461	176473	176485	176497	176509	176520	176532	176544	176556	176568	176579	176591	45	3.
15	10. 176603	176615	176626	176638	176650	176662	176674	176685	176697	176709	176721	176733	44	4.
16	10. 176744	176756	176768	176780	176792	176803	176815	176827	176839	176851	176863	176874	43	1 =
17	10. 176886	176898	176910	176922	176933	176945	176957	176969	176981	176992	177004	177016	42	2.
18	10. 177028	177040	177052	177063	177075	177087	177099	177111	177122	177134	177146	177158	41	3.
19	10. 177170	177182	177193	177205	177217	177229	177241	177252	177264	177276	177288	177300	40	4.
20	10. 177312	177323	177335	177347	177359	177371	177383	177394	177406	177418	177430	177442	39	1 =
21	10. 177454	177465	177477	177489	177501	177513	177525	177537	177548	177560	177572	177584	38	2.
22	10. 177596	177608	177619	177631	177643	177655	177667	177679	177690	177702	177714	177726	37	3.
23	10. 177738	177750	177762	177773	177785	177797	177809	177821	177833	177845	177856	177868	36	4.
24	10. 177880	177892	177904	177916	177928	177939	177951	177963	177975	177987	177999	178011	35	1 =
25	10. 178022	178034	178046	178058	178070	178082	178094	178106	178117	178129	178141	178153	34	2.
26	10. 178165	178177	178189	178200	178212	178224	178236	178248	178260	178272	178284	178296	33	3.
27	10. 178307	178319	178331	178343	178355	178367	178379	178391	178402	178414	178426	178438	32	4.
28	10. 178450	178462	178474	178486	178498	178509	178521	178533	178545	178557	178569	178581	31	1 =
29	10. 178593	178605	178616	178628	178640	178652	178664	178676	178688	178700	178712	178723	30	2.
30	10. 178735	178747	178759	178771	178783	178795	178807	178819	178831	178842	178854	178866	29	3
31	10. 178878	178890	178902	178914	178926	178938	178950	178962	178973	178985	178997	179009	28	4.
32	10. 179021	179033	179045	179057	179069	179081	179093	179105	179116	179128	179140	179152	27	1 =
33	10. 179164	179176	179188	179200	179212	179224	179236	179248	179260	179271	179283	179295	26	2.
34	10. 179307	179319	179331	179343	179355	179367	179379	179391	179403	179415	179427	179438	25	3.
35	10. 179450	179462	179474	179486	179498	179510	179522	179534	179546	179558	179570	179582	24	4.
36	10. 179594	179606	179618	179629	179641	179653	179665	179677	179689	179701	179713	179725	23	1 =
37	10. 179737	179749	179761	179773	179785	179797	179809	179821	179833	179845	179856	179868	22	2.
38	10. 179880	179892	179904	179916	179928	179940	179952	179964	179976	179988	180000	180012	21	3.
39	10. 180024	180036	180048	180060	180072	180084	180096	180108	180120	180132	180144	180156	20	4.
40	10. 180167	180179	180191	180203	180215	180227	180239	180251	180263	180275	180287	180299	19	1 =
41	10. 180311	180323	180335	180347	180359	180371	180383	180395	180407	180419	180431	180443	18	2.
42	10. 180455	180467	180479	180491	180503	180515	180527	180539	180551	180563	180575	180587	17	3.
43	10. 180599	180611	180623	180635	180647	180659	180671	180683	180695	180707	180719	180731	16	4.
44	10. 180743	180755	180767	180779	180791	180803	180815	180827	180839	180851	180863	180875	15	1 =
45	10. 180887	180899	180911	180923	180935	180947	180959	180971	180983	180995	181007	181019	14	2.
46	10. 181031	181043	181055	181067	181079	181091	181103	181115	181127	181139	181151	181163	13	3.
47	10. 181175	181187	181199	181211	181223	181235	181247	181259	181271	181283	181295	181307	12	4.
48	10. 181319	181331	181343	181355	181367	181379	181391	181403	181415	181427	181440	181452	11	1 =
49	10. 181464	181476	181488	181500	181512	181524	181536	181548	181560	181572	181584	181596	10	2.
50	10. 181608	181620	181632	181644	181656	181668	181680	181692	181704	181716	181728	181740	9	3.
51	10. 181753	181765	181777	181789	181801	181813	181825	181837	181849	181861	181873	181885	8	4.
52	10. 181897	181909	181921	181933	181945	181957	181969	181982	181994	182006	182018	182030	7	1 =
53	10. 182042	182054	182066	182078	182090	182102	182114	182126	182138	182150	182162	182175	6	2.
54	10. 182187	182199	182211	182223	182235	182247	182259	182271	182283	182295	182307	182319	5	3.
55	10. 182331	182344	182356	182368	182380	182392	182404	182416	182428	182440	182452	182464	4	4.
56	10. 182476	182488	182501	182513	182525	182537	182549	182561	182573	182585	182597	182609	3	1 =
57	10. 182621	182634	182646	182658	182670	182682	182694	182706	182718	182730	182742	182754	2	2.
58	10. 182767	182779	182791	182803	182815	182827	182839	182851	182863	182875	182888	182900	1	3.
59	10. 182912	182924	182936	182948	182960	182972	182984	182996	183009	183021	183033	183045	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.

Co-secant of 41 degrees, or Secant of 131 degrees.

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LOGARITHMIC SECANTS.

Secant of 49 degrees, or Co-secant of 139 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 183057	183069	183081	183093	183105	183118	183130	183142	183154	183166	183178	183190	59	1″ = 2
1	10. 183202	183215	183227	183239	183251	183263	183275	183287	183299	183311	183324	183336	58	2. 5
2	10. 183348	183360	183372	183384	183396	183408	183421	183433	183445	183457	183469	183481	57	3. 7
3	10. 183493	183506	183518	183530	183542	183554	183566	183578	183590	183603	183615	183627	56	4. 10
4	10. 183639	183651	183663	183675	183688	183700	183712	183724	183736	183748	183760	183773	55	1 = 2
5	10. 183785	183797	183809	183821	183833	183845	183858	183870	183882	183894	183906	183918	54	2. 5
6	10. 183931	183943	183955	183967	183979	183991	184003	184016	184028	184040	184052	184064	53	3. 7
7	10. 184076	184089	184101	184113	184125	184137	184149	184162	184174	184186	184198	184210	52	4. 10
8	10. 184222	184235	184247	184259	184271	184283	184295	184308	184320	184332	184344	184356	51	1 = 2
9	10. 184368	184381	184393	184405	184417	184429	184442	184454	184466	184478	184490	184502	50	2. 5
10	10. 184515	184527	184539	184551	184563	184576	184588	184600	184612	184624	184636	184649	49	3. 7
11	10. 184661	184673	184685	184697	184710	184722	184734	184746	184758	184771	184783	184795	48	4. 10
12	10. 184807	184819	184832	184844	184856	184868	184880	184893	184905	184917	184929	184941	47	1 = 2
13	10. 184954	184966	184978	184990	185002	185015	185027	185039	185051	185063	185076	185088	46	2. 5
14	10. 185100	185112	185124	185137	185149	185161	185173	185185	185198	185210	185222	185234	45	3. 7
15	10. 185247	185259	185271	185283	185295	185308	185320	185332	185344	185357	185369	185381	44	4. 10
16	10. 185393	185405	185418	185430	185442	185454	185467	185479	185491	185503	185516	185528	43	1 = 2
17	10. 185540	185552	185564	185577	185589	185601	185613	185626	185638	185650	185662	185675	42	2. 5
18	10. 185687	185699	185711	185724	185736	185748	185760	185773	185785	185797	185809	185821	41	3. 7
19	10. 185834	185846	185858	185870	185883	185895	185907	185919	185932	185944	185956	185968	40	4. 10
20	10. 185981	185993	186005	186017	186030	186042	186054	186067	186079	186091	186103	186116	39	1 = 2
21	10. 186128	186140	186152	186165	186177	186189	186201	186214	186226	186238	186250	186263	38	2. 5
22	10. 186275	186287	186300	186312	186324	186336	186349	186361	186373	186385	186398	186410	37	3. 7
23	10. 186422	186435	186447	186459	186471	186484	186496	186508	186520	186533	186545	186557	36	4. 10
24	10. 186570	186582	186594	186606	186619	186631	186643	186656	186668	186680	186692	186705	35	1 = 2
25	10. 186717	186729	186742	186754	186766	186779	186791	186803	186815	186828	186840	186852	34	2. 5
26	10. 186865	186877	186889	186901	186914	186926	186938	186951	186963	186975	186988	187000	33	3. 7
27	10. 187012	187024	187037	187049	187061	187074	187086	187098	187111	187123	187135	187148	32	4. 10
28	10. 187160	187172	187185	187197	187209	187221	187234	187246	187258	187271	187283	187295	31	1 = 2
29	10. 187308	187320	187332	187345	187357	187369	187382	187394	187406	187419	187431	187443	30	2. 5
30	10. 187456	187468	187480	187493	187505	187517	187530	187542	187554	187566	187579	187591	29	3 7
31	10. 187603	187616	187628	187640	187653	187665	187678	187690	187702	187715	187727	187739	28	4. 10
32	10. 187752	187764	187776	187789	187801	187813	187826	187838	187850	187863	187875	187887	27	1 = 2
33	10. 187900	187912	187924	187937	187949	187961	187974	187986	187998	188011	188023	188036	26	2. 5
34	10. 188048	188060	188073	188085	188097	188110	188122	188134	188147	188159	188171	188184	25	3. 7
35	10. 188196	188209	188221	188233	188246	188258	188270	188283	188295	188307	188320	188332	24	4. 10
36	10. 188345	188357	188369	188382	188394	188406	188419	188431	188444	188456	188468	188481	23	1 = 2
37	10. 188493	188505	188518	188530	188543	188555	188567	188580	188592	188604	188617	188629	22	2. 5
38	10. 188642	188654	188666	188679	188691	188704	188716	188728	188741	188753	188766	188778	21	3. 7
39	10. 188790	188803	188815	188827	188840	188852	188865	188877	188889	188902	188914	188927	20	4. 10
40	10. 188939	188951	188964	188976	188989	189001	189013	189026	189038	189051	189063	189075	19	1 = 2
41	10. 189088	189100	189113	189125	189138	189150	189162	189175	189187	189200	189212	189224	18	2. 5
42	10. 189237	189249	189262	189274	189286	189299	189311	189324	189336	189349	189361	189373	17	3. 7
43	10. 189386	189398	189411	189423	189435	189448	189460	189473	189485	189498	189510	189522	16	4. 10
44	10. 189535	189547	189560	189572	189585	189597	189609	189622	189634	189647	189659	189672	15	1 = 2
45	10. 189684	189697	189709	189721	189734	189746	189759	189771	189784	189796	189808	189821	14	2. 5
46	10. 189833	189846	189858	189871	189883	189896	189908	189920	189933	189945	189958	189970	13	3. 7
47	10. 189983	189995	190008	190020	190033	190045	190057	190070	190082	190095	190107	190120	12	4. 10
48	10. 190132	190145	190157	190170	190182	190194	190207	190219	190232	190244	190257	190269	11	1 = 3
49	10. 190282	190294	190307	190319	190332	190344	190357	190369	190381	190394	190406	190419	10	2. 5
50	10. 190431	190444	190456	190469	190481	190494	190506	190519	190531	190544	190556	190569	9	3. 8
51	10. 190581	190594	190606	190618	190631	190643	190656	190668	190681	190693	190706	190718	8	4. 10
52	10. 190731	190743	190756	190768	190781	190793	190806	190818	190831	190843	190856	190868	7	1 = 3
53	10. 190881	190893	190906	190918	190931	190943	190956	190968	190981	190993	191006	191018	6	2. 5
54	10. 191031	191043	191056	191068	191081	191093	191106	191118	191131	191143	191156	191168	5	3. 8
55	10. 191181	191193	191206	191218	191231	191243	191256	191268	191281	191293	191306	191318	4	4. 10
56	10. 191331	191343	191356	191368	191381	191394	191406	191419	191431	191444	191456	191469	3	1 = 3
57	10. 191481	191494	191506	191519	191531	191544	191556	191569	191581	191594	191606	191619	2	2. 5
58	10. 191632	191644	191657	191669	191682	191694	191707	191719	191732	191744	191757	191769	1	3. 8
59	10. 191782	191794	191807	191820	191832	191845	191857	191870	191882	191895	191907	191920	0	4. 10
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.

Co-secant of 40 degrees, or Secant of 130 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 48 degrees, or Co-secant of 138 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 174489	174501	174512	174524	174536	174548	174559	174571	174583	174594	174606	174618	59	1″ =
1	10. 174629	174641	174653	174665	174676	174688	174700	174711	174723	174735	174746	174758	58	2.
2	10. 174770	174782	174793	174805	174817	174828	174840	174852	174863	174875	174887	174899	57	3.
3	10. 174910	174922	174934	174945	174957	174969	174981	174992	175004	175016	175027	175039	56	4.
4	10. 175051	175063	175074	175086	175098	175110	175121	175133	175145	175156	175168	175180	55	1 =
5	10. 175192	175203	175215	175227	175239	175250	175262	175274	175285	175297	175309	175321	54	2.
6	10. 175332	175344	175356	175368	175379	175391	175403	175415	175426	175438	175450	175461	53	3.
7	10. 175473	175485	175497	175508	175520	175532	175544	175555	175567	175579	175591	175602	52	4.
8	10. 175614	175626	175638	175649	175661	175673	175685	175696	175708	175720	175732	175743	51	1 =
9	10. 175755	175767	175779	175790	175802	175814	175826	175837	175849	175861	175873	175884	50	2.
10	10. 175896	175908	175920	175932	175943	175955	175967	175979	175990	176002	176014	176026	49	3.
11	10. 176037	176049	176061	176073	176084	176096	176108	176120	176132	176143	176155	176167	48	4.
12	10. 176179	176190	176202	176214	176226	176238	176249	176261	176273	176285	176296	176308	47	1 =
13	10. 176320	176332	176344	176355	176367	176379	176391	176402	176414	176426	176438	176450	46	2.
14	10. 176461	176473	176485	176497	176509	176520	176532	176544	176556	176568	176579	176591	45	3.
15	10. 176603	176615	176626	176638	176650	176662	176674	176685	176697	176709	176721	176733	44	4.
16	10. 176744	176756	176768	176780	176792	176803	176815	176827	176839	176851	176863	176874	43	1 =
17	10. 176886	176898	176910	176922	176933	176945	176957	176969	176981	176992	177004	177016	42	2.
18	10. 177028	177040	177052	177063	177075	177087	177099	177111	177122	177134	177146	177158	41	3.
19	10. 177170	177182	177193	177205	177217	177229	177241	177252	177264	177276	177288	177300	40	4.
20	10. 177312	177323	177335	177347	177359	177371	177383	177394	177406	177418	177430	177442	39	1 =
21	10. 177454	177465	177477	177489	177501	177513	177525	177537	177548	177560	177572	177584	38	2.
22	10. 177596	177608	177619	177631	177643	177655	177667	177679	177690	177702	177714	177726	37	3.
23	10. 177738	177750	177762	177773	177785	177797	177809	177821	177833	177845	177856	177868	36	4.
24	10. 177880	177892	177904	177916	177928	177939	177951	177963	177975	177987	177999	178011	35	1 =
25	10. 178022	178034	178046	178058	178070	178082	178094	178106	178117	178129	178141	178153	34	2.
26	10. 178165	178177	178189	178200	178212	178224	178236	178248	178260	178272	178284	178296	33	3.
27	10. 178307	178319	178331	178343	178355	178367	178379	178391	178402	178414	178426	178438	32	4.
28	10. 178450	178462	178474	178486	178498	178509	178521	178533	178545	178557	178569	178581	31	1 =
29	10. 178593	178605	178616	178628	178640	178652	178664	178676	178688	178700	178712	178723	30	2.
30	10. 178735	178747	178759	178771	178783	178795	178807	178819	178831	178842	178854	178866	29	3
31	10. 178878	178890	178902	178914	178926	178938	178950	178962	178973	178985	178997	179009	28	4.
32	10. 179021	179033	179045	179057	179069	179081	179093	179105	179116	179128	179140	179152	27	1 =
33	10. 179164	179176	179188	179200	179212	179224	179236	179248	179260	179271	179283	179295	26	2.
34	10. 179307	179319	179331	179343	179355	179367	179379	179391	179403	179415	179427	179438	25	3.
35	10. 179450	179462	179474	179486	179498	179510	179522	179534	179546	179558	179570	179582	24	4.
36	10. 179594	179606	179618	179629	179641	179653	179665	179677	179689	179701	179713	179725	23	1 =
37	10. 179737	179749	179761	179773	179785	179797	179809	179821	179833	179845	179856	179868	22	2.
38	10. 179880	179892	179904	179916	179928	179940	179952	179964	179976	179988	180000	180012	21	3.
39	10. 180024	180036	180048	180060	180072	180084	180096	180108	180120	180132	180144	180156	20	4.
40	10. 180167	180179	180191	180203	180215	180227	180239	180251	180263	180275	180287	180299	19	1 =
41	10. 180311	180323	180335	180347	180359	180371	180383	180395	180407	180419	180431	180443	18	2.
42	10. 180455	180467	180479	180491	180503	180515	180527	180539	180551	180563	180575	180587	17	3.
43	10. 180599	180611	180623	180635	180647	180659	180671	180683	180695	180707	180719	180731	16	4.
44	10. 180743	180755	180767	180779	180791	180803	180815	180827	180839	180851	180863	180875	15	1 =
45	10. 180887	180899	180911	180923	180935	180947	180959	180971	180983	180995	181007	181019	14	2.
46	10. 181031	181043	181055	181067	181079	181091	181103	181115	181127	181139	181151	181163	13	3.
47	10. 181175	181187	181199	181211	181223	181235	181247	181259	181271	181283	181295	181307	12	4.
48	10. 181319	181331	181343	181355	181367	181379	181391	181403	181415	181427	181440	181452	11	1 =
49	10. 181464	181476	181488	181500	181512	181524	181536	181548	181560	181572	181584	181596	10	2.
50	10. 181608	181620	181632	181644	181656	181668	181680	181692	181704	181716	181728	181740	9	3.
51	10. 181753	181765	181777	181789	181801	181813	181825	181837	181849	181861	181873	181885	8	4.
52	10. 181897	181909	181921	181933	181945	181957	181969	181982	181994	182006	182018	182030	7	1 =
53	10. 182042	182054	182066	182078	182090	182102	182114	182126	182138	182150	182162	182175	6	2.
54	10. 182187	182199	182211	182223	182235	182247	182259	182271	182283	182295	182307	182319	5	3.
55	10. 182331	182344	182356	182368	182380	182392	182404	182416	182428	182440	182452	182464	4	4.
56	10. 182476	182488	182501	182513	182525	182537	182549	182561	182573	182585	182597	182609	3	1 =
57	10. 182621	182634	182646	182658	182670	182682	182694	182706	182718	182730	182742	182754	2	2.
58	10. 182767	182779	182791	182803	182815	182827	182839	182851	182863	182875	182888	182900	1	3.
59	10. 182912	182924	182936	182948	182960	182972	182984	182996	183009	183021	183033	183045	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 41 degrees, or Secant of 131 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 49 degrees, or Co-secant of 139 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 183057	183069	183081	183093	183105	183118	183130	183142	183154	183166	183178	183190	59	1″ = 2
1	10. 183202	183215	183227	183239	183251	183263	183275	183287	183299	183311	183324	183336	58	2. 5
2	10. 183348	183360	183372	183384	183396	183408	183421	183433	183445	183457	183469	183481	57	3. 7
3	10. 183493	183506	183518	183530	183542	183554	183566	183578	183590	183603	183615	183627	56	4. 10
4	10. 183639	183651	183663	183675	183688	183700	183712	183724	183736	183748	183760	183773	55	1 = 2
5	10. 183785	183797	183809	183821	183833	183845	183858	183870	183882	183894	183906	183918	54	2. 5
6	10. 183931	183943	183955	183967	183979	183991	184003	184016	184028	184040	184052	184064	53	3. 7
7	10. 184076	184089	184101	184113	184125	184137	184149	184162	184174	184186	184198	184210	52	4. 10
8	10. 184222	184235	184247	184259	184271	184283	184295	184308	184320	184332	184344	184356	51	1 = 2
9	10. 184368	184381	184393	184405	184417	184429	184442	184454	184466	184478	184490	184502	50	2. 5
10	10. 184515	184527	184539	184551	184563	184576	184588	184600	184612	184624	184636	184649	49	3. 7
11	10. 184661	184673	184685	184697	184710	184722	184734	184746	184758	184771	184783	184795	48	4. 10
12	10. 184807	184819	184832	184844	184856	184868	184880	184893	184905	184917	184929	184941	47	1 = 2
13	10. 184954	184966	184978	184990	185002	185015	185027	185039	185051	185063	185076	185088	46	2. 5
14	10. 185100	185112	185124	185137	185149	185161	185173	185185	185198	185210	185222	185234	45	3. 7
15	10. 185247	185259	185271	185283	185295	185308	185320	185332	185344	185357	185369	185381	44	4. 10
16	10. 185393	185405	185418	185430	185442	185454	185467	185479	185491	185503	185516	185528	43	1 = 2
17	10. 185540	185552	185564	185577	185589	185601	185613	185626	185638	185650	185662	185675	42	2. 5
18	10. 185687	185699	185711	185724	185736	185748	185760	185773	185785	185797	185809	185821	41	3. 7
19	10. 185834	185846	185858	185870	185883	185895	185907	185919	185932	185944	185956	185968	40	4. 10
20	10. 185981	185993	186005	186017	186030	186042	186054	186067	186079	186091	186103	186116	39	1 = 2
21	10. 186128	186140	186152	186165	186177	186189	186201	186214	186226	186238	186250	186263	38	2. 5
22	10. 186275	186287	186300	186312	186324	186336	186349	186361	186373	186385	186398	186410	37	3. 7
23	10. 186422	186435	186447	186459	186471	186484	186496	186508	186520	186533	186545	186557	36	4. 10
24	10. 186570	186582	186594	186606	186619	186631	186643	186656	186668	186680	186692	186705	35	1 = 2
25	10. 186717	186729	186742	186754	186766	186779	186791	186803	186815	186828	186840	186852	34	2. 5
26	10. 186865	186877	186889	186901	186914	186926	186938	186951	186963	186975	186988	187000	33	3. 7
27	10. 187012	187024	187037	187049	187061	187074	187086	187098	187111	187123	187135	187148	32	4. 10
28	10. 187160	187172	187185	187197	187209	187221	187234	187246	187258	187271	187283	187295	31	1 = 2
29	10. 187308	187320	187332	187345	187357	187369	187382	187394	187406	187419	187431	187443	30	2. 5
30	10. 187456	187468	187480	187493	187505	187517	187530	187542	187554	187566	187579	187591	29	3 7
31	10. 187603	187616	187628	187640	187653	187665	187678	187690	187702	187715	187727	187739	28	4. 10
32	10. 187752	187764	187776	187789	187801	187813	187826	187838	187850	187863	187875	187887	27	1 = 2
33	10. 187900	187912	187924	187937	187949	187961	187974	187986	187998	188011	188023	188036	26	2. 5
34	10. 188048	188060	188073	188085	188097	188110	188122	188134	188147	188159	188171	188184	25	3. 7
35	10. 188196	188209	188221	188233	188246	188258	188270	188283	188295	188307	188320	188332	24	4. 10
36	10. 188345	188357	188369	188382	188394	188406	188419	188431	188444	188456	188468	188481	23	1 = 2
37	10. 188493	188505	188518	188530	188543	188555	188567	188580	188592	188604	188617	188629	22	2. 5
38	10. 188642	188654	188666	188679	188691	188704	188716	188728	188741	188753	188766	188778	21	3. 7
39	10. 188790	188803	188815	188827	188840	188852	188865	188877	188889	188902	188914	188927	20	4. 10
40	10. 188939	188951	188964	188976	188989	189001	189013	189026	189038	189051	189063	189075	19	1 = 2
41	10. 189088	189100	189113	189125	189138	189150	189162	189175	189187	189200	189212	189224	18	2. 5
42	10. 189237	189249	189262	189274	189286	189299	189311	189324	189336	189349	189361	189373	17	3. 7
43	10. 189386	189398	189411	189423	189435	189448	189460	189473	189485	189498	189510	189522	16	4. 10
44	10. 189535	189547	189560	189572	189585	189597	189609	189622	189634	189647	189659	189672	15	1 = 2
45	10. 189684	189697	189709	189721	189734	189746	189759	189771	189784	189796	189808	189821	14	2. 5
46	10. 189833	189846	189858	189871	189883	189896	189908	189920	189933	189945	189958	189970	13	3. 7
47	10. 189983	189995	190008	190020	190033	190045	190057	190070	190082	190095	190107	190120	12	4. 10
48	10. 190132	190145	190157	190170	190182	190194	190207	190219	190232	190244	190257	190269	11	1 = 3
49	10. 190282	190294	190307	190319	190332	190344	190357	190369	190381	190394	190406	190419	10	2. 5
50	10. 190431	190444	190456	190469	190481	190494	190506	190519	190531	190544	190556	190569	9	3. 8
51	10. 190581	190594	190606	190618	190631	190643	190656	190668	190681	190693	190706	190718	8	4. 10
52	10. 190731	190743	190756	190768	190781	190793	190806	190818	190831	190843	190856	190868	7	1 = 3
53	10. 190881	190893	190906	190918	190931	190943	190956	190968	190981	190993	191006	191018	6	2. 5
54	10. 191031	191043	191056	191068	191081	191093	191106	191118	191131	191143	191156	191168	5	3. 8
55	10. 191181	191193	191206	191218	191231	191243	191256	191268	191281	191293	191306	191318	4	4. 10
56	10. 191331	191343	191356	191368	191381	191394	191406	191419	191431	191444	191456	191469	3	1 = 3
57	10. 191481	191494	191506	191519	191531	191544	191556	191569	191581	191594	191606	191619	2	2. 5
58	10. 191632	191644	191657	191669	191682	191694	191707	191719	191732	191744	191757	191769	1	3. 8
59	10. 191782	191794	191807	191820	191832	191845	191857	191870	191882	191895	191907	191920	0	4. 10
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 40 degrees, or Secant of 130 degrees.													

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LOGARITHMIC SECANTS.

Secant of 50 degrees, or Co-secant of 140 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
0	10. 191932	191945	191958	191970	191983	191995	192008	192020	192033	192045	192058	192070	59	1″ =
1	10. 192083	192096	192108	192121	192133	192146	192158	192171	192184	192196	192209	192221	58	2.
2	10. 192234	192246	192259	192271	192284	192297	192309	192322	192334	192347	192359	192372	57	3.
3	10. 192385	192397	192410	192422	192435	192447	192460	192473	192485	192498	192510	192523	56	4.
4	10. 192535	192548	192561	192573	192586	192598	192611	192623	192636	192649	192661	192674	55	1 =
5	10. 192686	192699	192712	192724	192737	192749	192762	192774	192787	192800	192812	192825	54	2.
6	10. 192837	192850	192863	192875	192888	192900	192913	192926	192938	192951	192963	192976	53	3.
7	10. 192989	193001	193014	193026	193039	193052	193064	193077	193089	193102	193115	193127	52	4.
8	10. 193140	193152	193165	193178	193190	193203	193215	193228	193241	193253	193266	193278	51	1 =
9	10. 193291	193304	193316	193329	193342	193354	193367	193379	193392	193405	193417	193430	50	2.
10	10. 193442	193455	193468	193480	193493	193506	193518	193531	193543	193556	193569	193581	49	3.
11	10. 193594	193607	193619	193632	193644	193657	193670	193682	193695	193708	193720	193733	48	4.
12	10. 193746	193758	193771	193783	193796	193809	193821	193834	193847	193859	193872	193885	47	1 =
13	10. 193897	193910	193923	193935	193948	193960	193973	193986	193998	194011	194024	194036	46	2.
14	10. 194049	194062	194074	194087	194100	194112	194125	194138	194150	194163	194176	194188	45	3.
15	10. 194201	194213	194226	194239	194251	194264	194277	194289	194302	194315	194327	194340	44	4.
16	10. 194353	194365	194378	194391	194403	194416	194429	194441	194454	194467	194479	194492	43	1 =
17	10. 194505	194517	194530	194543	194555	194568	194581	194594	194606	194619	194632	194644	42	2.
18	10. 194657	194670	194682	194695	194708	194720	194733	194746	194758	194771	194784	194796	41	3.
19	10. 194809	194822	194835	194847	194860	194873	194885	194898	194911	194923	194936	194949	40	4.
20	10. 194961	194974	194987	195000	195012	195025	195038	195050	195063	195076	195088	195101	39	1 =
21	10. 195114	195127	195139	195152	195165	195177	195190	195203	195215	195228	195241	195254	38	2.
22	10. 195266	195279	195292	195304	195317	195330	195343	195355	195368	195381	195393	195406	37	3.
23	10. 195419	195432	195444	195457	195470	195482	195495	195508	195521	195533	195546	195559	36	4.
24	10. 195572	195584	195597	195610	195622	195635	195648	195661	195673	195686	195699	195712	35	1 =
25	10. 195724	195737	195750	195763	195775	195788	195801	195813	195826	195839	195852	195864	34	2.
26	10. 195877	195890	195903	195915	195928	195941	195954	195966	195979	195992	196005	196017	33	3.
27	10. 196030	196043	196056	196068	196081	196094	196107	196119	196132	196145	196158	196170	32	4.
28	10. 196183	196196	196209	196221	196234	196247	196260	196272	196285	196298	196311	196323	31	1 =
29	10. 196336	196349	196362	196375	196387	196400	196413	196426	196438	196451	196464	196477	30	2.
30	10. 196489	196502	196515	196528	196541	196553	196566	196579	196592	196604	196617	196630	29	3.
31	10. 196643	196656	196668	196681	196694	196707	196719	196732	196745	196758	196771	196783	28	4.
32	10. 196796	196809	196822	196834	196847	196860	196873	196886	196898	196911	196924	196937	27	1 =
33	10. 196950	196962	196975	196988	197001	197014	197026	197039	197052	197065	197078	197090	26	2.
34	10. 197103	197116	197129	197142	197154	197167	197180	197193	197206	197218	197231	197244	25	3.
35	10. 197257	197270	197282	197295	197308	197321	197334	197346	197359	197372	197385	197398	24	4.
36	10. 197411	197423	197436	197449	197462	197475	197487	197500	197513	197526	197539	197552	23	1 =
37	10. 197564	197577	197590	197603	197616	197629	197641	197654	197667	197680	197693	197706	22	2.
38	10. 197718	197731	197744	197757	197770	197783	197795	197808	197821	197834	197847	197860	21	3.
39	10. 197872	197885	197898	197911	197924	197937	197949	197962	197975	197988	198001	198014	20	4.
40	10. 198026	198039	198052	198065	198078	198091	198104	198116	198129	198142	198155	198168	19	1 =
41	01. 198181	198194	198206	198219	198232	198245	198258	198271	198284	198296	198309	198322	18	2.
42	10. 198335	198348	198361	198374	198386	198399	198412	198425	198438	198451	198464	198477	17	3.
43	10. 198489	198502	198515	198528	198541	198554	198567	198580	198592	198605	198618	198631	16	4.
44	10. 198644	198657	198670	198683	198695	198708	198721	198734	198747	198760	198773	198786	15	1 =
45	10. 198798	198811	198824	198837	198850	198863	198876	198889	198902	198914	198927	198940	14	2.
46	10. 198953	198966	198979	198992	199005	199018	199030	199043	199056	199069	199082	199095	13	3.
47	10. 199108	199121	199134	199147	199159	199172	199185	199198	199211	199224	199237	199250	12	4.
48	10. 199263	199276	199289	199301	199314	199327	199340	199353	199366	199379	199392	199405	11	1 =
49	10. 199418	199431	199444	199456	199469	199482	199495	199508	199521	199534	199547	199560	10	2.
50	10. 199573	199586	199599	199611	199624	199637	199650	199663	199676	199689	199702	199715	9	3.
51	10. 199728	199741	199754	199767	199780	199793	199805	199818	199831	199844	199857	199870	8	4.
52	10. 199883	199896	199909	199922	199935	199948	199961	199974	199987	200000	200012	200025	7	1 =
53	10. 200038	200051	200064	200077	200090	200103	200116	200129	200142	200155	200168	200181	6	2.
54	10. 200194	200207	200220	200233	200246	200259	200272	200284	200297	200310	200323	200336	5	3.
55	10. 200349	200362	200375	200388	200401	200414	200427	200440	200453	200466	200479	200492	4	4.
56	10. 200505	200518	200531	200544	200557	200570	200583	200596	200609	200622	200635	200648	3	1 =
57	10. 200661	200674	200687	200699	200712	200725	200738	200751	200764	200777	200790	200803	2	2.
58	10. 200816	200829	200842	200855	200868	200881	200894	200907	200920	200933	200946	200959	1	3.
59	10. 200972	200985	200998	201011	201024	201037	201050	201063	201076	201089	201102	201115	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts

Co-secant of 39 degrees, or Secant of 129 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 51 degrees, or Co-secant of 141 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 201128	201141	201154	201167	201180	201193	201206	201219	201232	201245	201258	201271	59	1″ = 3
1	10. 201284	201297	201310	201323	201336	201349	201362	201375	201388	201401	201414	201427	58	2. 5
2	10. 201440	201453	201466	201479	201492	201505	201518	201531	201544	201558	201571	201584	57	3. 8
3	10. 201597	201610	201623	201636	201649	201662	201675	201688	201701	201714	201727	201740	56	4. 10
4	10. 201753	201766	201779	201792	201805	201818	201831	201844	201857	201870	201883	201896	55	1 = 3
5	10. 201909	201922	201935	201948	201961	201975	201988	202001	202014	202027	202040	202053	54	2. 5
6	10. 202066	202079	202092	202105	202118	202131	202144	202157	202170	202183	202196	202209	53	3. 8
7	10. 202222	202236	202249	202262	202275	202288	202301	202314	202327	202340	202353	202366	52	4. 10
8	10. 202379	202392	202405	202418	202431	202444	202458	202471	202484	202497	202510	202523	51	1 = 3
9	10. 202536	202549	202562	202575	202588	202601	202614	202627	202641	202654	202667	202680	50	2. 5
10	10. 202693	202706	202719	202732	202745	202758	202771	202784	202798	202811	202824	202837	49	3. 8
11	10. 202850	202863	202876	202889	202902	202915	202928	202941	202955	202968	202981	202994	48	4. 10
12	10. 203007	203020	203033	203046	203059	203072	203085	203099	203112	203125	203138	203151	47	1 = 3
13	10. 203164	203177	203190	203203	203217	203230	203243	203256	203269	203282	203295	203308	46	2. 5
14	10. 203321	203334	203348	203361	203374	203387	203400	203413	203426	203439	203452	203466	45	3. 8
15	10. 203479	203492	203505	203518	203531	203544	203557	203571	203584	203597	203610	203623	44	4. 10
16	10. 203636	203649	203662	203676	203689	203702	203715	203728	203741	203754	203767	203781	43	1 = 3
17	10. 203794	203807	203820	203833	203846	203859	203873	203886	203899	203912	203925	203938	42	2. 5
18	10. 203951	203964	203978	203991	204004	204017	204030	204043	204056	204070	204083	204096	41	3. 8
19	10. 204109	204122	204135	204149	204162	204175	204188	204201	204214	204227	204241	204254	40	4. 11
20	10. 204267	204280	204293	204306	204320	204333	204346	204359	204372	204385	204399	204412	39	1 = 3
21	10. 204425	204438	204451	204464	204477	204491	204504	204517	204530	204543	204557	204570	38	2. 5
22	10. 204583	204596	204609	204622	204636	204649	204662	204675	204688	204701	204715	204728	37	3. 8
23	10. 204741	204754	204767	204781	204794	204807	204820	204833	204846	204860	204873	204886	36	4. 11
24	10. 204899	204912	204926	204939	204952	204965	204978	204991	205005	205018	205031	205044	35	1 = 3
25	10. 205057	205071	205084	205097	205110	205123	205137	205150	205163	205176	205189	205203	34	2. 5
26	10. 205216	205229	205242	205255	205269	205282	205295	205308	205322	205335	205348	205361	33	3. 8
27	10. 205374	205388	205401	205414	205427	205440	205454	205467	205480	205493	205506	205520	32	4. 11
28	10. 205533	205546	205559	205573	205586	205599	205612	205625	205639	205652	205665	205678	31	1 = 3
29	10. 205692	205705	205718	205731	205745	205758	205771	205784	205797	205811	205824	205837	30	2. 5
30	10. 205850	205864	205877	205890	205903	205917	205930	205943	205956	205970	205983	205996	29	3. 8
31	10. 206009	206022	206036	206049	206062	206075	206089	206102	206115	206128	206142	206155	28	4. 11
32	10. 206168	206181	206195	206208	206221	206234	206248	206261	206274	206287	206301	206314	27	1 = 3
33	10. 206327	206341	206354	206367	206380	206394	206407	206420	206433	206447	206460	206473	26	2. 5
34	10. 206486	206500	206513	206526	206539	206553	206566	206579	206593	206606	206619	206632	25	3. 8
35	10. 206646	206659	206672	206685	206699	206712	206725	206739	206752	206765	206778	206792	24	4. 11
36	10. 206805	206818	206832	206845	206858	206872	206885	206898	206911	206925	206938	206951	23	1 = 3
37	10. 206964	206978	206991	207004	207018	207031	207044	207057	207071	207084	207097	207111	22	2. 5
38	10. 207124	207137	207151	207164	207177	207190	207204	207217	207230	207244	207257	207270	21	3. 8
39	10. 207284	207297	207310	207324	207337	207350	207363	207377	207390	207403	207417	207430	20	4. 11
40	10. 207443	207457	207470	207483	207497	207510	207523	207537	207550	207563	207577	207590	19	1 = 3
41	10. 207603	207616	207630	207643	207656	207670	207683	207696	207710	207723	207736	207750	18	2. 5
42	10. 207763	207776	207790	207803	207816	207830	207843	207856	207870	207883	207896	207910	17	3. 8
43	10. 207923	207936	207950	207963	207976	207990	208003	208016	208030	208043	208056	208070	16	4. 11
44	10. 208083	208097	208110	208123	208137	208150	208163	208177	208190	208203	208217	208230	15	1 = 3
45	10. 208243	208257	208270	208283	208297	208310	208324	208337	208350	208364	208377	208390	14	2. 5
46	10. 208404	208417	208430	208444	208457	208471	208484	208497	208511	208524	208537	208551	13	3. 8
47	10. 208564	208577	208591	208604	208618	208631	208644	208658	208671	208684	208698	208711	12	4. 11
48	10. 208725	208738	208751	208765	208778	208791	208805	208818	208832	208845	208858	208872	11	1 = 3
49	10. 208885	208899	208912	208925	208939	208952	208965	208979	208992	209006	209019	209032	10	2. 5
50	10. 209046	209059	209073	209086	209099	209113	209126	209140	209153	209166	209180	209193	9	3. 8
51	10. 209207	209220	209233	209247	209260	209274	209287	209300	209314	209327	209341	209354	8	4. 11
52	10. 209367	209381	209394	209408	209421	209435	209448	209461	209475	209488	209502	209515	7	1 = 3
53	10. 209528	209542	209555	209569	209582	209596	209609	209622	209636	209649	209663	209676	6	2. 5
54	10. 209690	209703	209716	209730	209743	209757	209770	209784	209797	209810	209824	209837	5	3. 8
55	10. 209851	209864	209878	209891	209904	209918	209931	209945	209958	209972	209985	209999	4	4. 11
56	10. 210012	210025	210039	210052	210066	210079	210093	210106	210120	210133	210146	210160	3	1 = 3
57	10. 210173	210187	210200	210214	210227	210241	210254	210267	210281	210294	210308	210321	2	2. 5
58	10. 210335	210348	210362	210375	210389	210402	210416	210429	210442	210456	210469	210483	1	3. 8
59	10. 210496	210510	210523	210537	210550	210564	210577	210591	210604	210618	210631	210644	0	4. 11
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 38 degrees, or Secant of 128 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 52 degrees, or Co-secant of 142 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 210658	210671	210685	210698	210712	210725	210739	210752	210766	210779	210793	210806	59	1″ =
1	10. 210820	210833	210847	210860	210874	210887	210901	210914	210928	210941	210955	210968	58	2.
2	10. 210982	210995	211009	211022	211036	211049	211063	211076	211090	211103	211117	211130	57	3.
3	10. 211143	211157	211170	211184	211197	211211	211225	211238	211252	211265	211279	211292	56	4.
4	10. 211306	211319	211333	211346	211360	211373	211387	211400	211414	211427	211441	211454	55	1 =
5	10. 211468	211481	211495	211508	211522	211535	211549	211562	211576	211589	211603	211616	54	2.
6	10. 211630	211643	211657	211670	211684	211698	211711	211725	211738	211752	211765	211779	53	3.
7	10. 211792	211806	211819	211833	211846	211860	211873	211887	211900	211914	211928	211941	52	4.
8	10. 211955	211968	211982	211995	212009	212022	212036	212049	212063	212077	212090	212104	51	1 =
9	10. 212117	212131	212144	212158	212171	212185	212198	212212	212226	212239	212253	212266	50	2.
10	10. 212280	212293	212307	212320	212334	212348	212361	212375	212388	212402	212415	212429	49	3.
11	10. 212443	212456	212470	212483	212497	212510	212524	212537	212551	212565	212578	212592	48	4.
12	10. 212605	212619	212632	212646	212660	212673	212687	212700	212714	212728	212741	212755	47	1 =
13	10. 212768	212782	212795	212809	212823	212836	212850	212863	212877	212890	212904	212918	46	2.
14	10. 212931	212945	212958	212972	212986	212999	213013	213026	213040	213054	213067	213081	45	3.
15	10. 213094	213108	213122	213135	213149	213162	213176	213190	213203	213217	213230	213244	44	4.
16	10. 213258	213271	213285	213298	213312	213326	213339	213353	213366	213380	213394	213407	43	1 =
17	10. 213421	213434	213448	213462	213475	213489	213503	213516	213530	213543	213557	213571	42	2.
18	10. 213584	213598	213612	213625	213639	213652	213666	213680	213693	213707	213721	213734	41	3.
19	10. 213748	213761	213775	213789	213802	213816	213830	213843	213857	213870	213884	213898	40	4.
20	10. 213911	213925	213939	213952	213966	213980	213993	214007	214021	214034	214048	214061	39	1 =
21	10. 214075	214089	214102	214116	214130	214143	214157	214171	214184	214198	214212	214225	38	2.
22	10. 214239	214253	214266	214280	214294	214307	214321	214334	214348	214362	214375	214389	37	3.
23	10. 214403	214416	214430	214444	214457	214471	214485	214498	214512	214526	214539	214553	36	4.
24	10. 214567	214580	214594	214608	214621	214635	214649	214662	214676	214690	214704	214717	35	1 =
25	10. 214731	214745	214758	214772	214786	214799	214813	214827	214840	214854	214868	214881	34	2.
26	10. 214895	214909	214922	214936	214950	214964	214977	214991	215005	215018	215032	215046	33	3.
27	10. 215059	215073	215087	215100	215114	215128	215142	215155	215169	215183	215196	215210	32	4.
28	10. 215224	215237	215251	215265	215279	215292	215306	215320	215333	215347	215361	215375	31	1 =
29	10. 215388	215402	215416	215429	215443	215457	215471	215484	215498	215512	215525	215539	30	2.
30	10. 215553	215567	215580	215594	215608	215621	215635	215649	215663	215676	215690	215704	29	3.
31	10. 215718	215731	215745	215759	215772	215786	215800	215814	215827	215841	215855	215869	28	4.
32	10. 215882	215896	215910	215924	215937	215951	215965	215978	215992	216006	216020	216033	27	1 =
33	10. 216047	216061	216075	216088	216102	216116	216130	216143	216157	216171	216185	216198	26	2.
34	10. 216212	216226	216240	216253	216267	216281	216295	216308	216322	216336	216350	216363	25	3.
35	10. 216377	216391	216405	216419	216432	216446	216460	216474	216487	216501	216515	216529	24	4.
36	10. 216542	216556	216570	216584	216598	216611	216625	216639	216653	216666	216680	216694	23	1 =
37	10. 216708	216721	216735	216749	216763	216777	216790	216804	216818	216832	216846	216859	22	2.
38	10. 216873	216887	216901	216914	216928	216942	216956	216970	216983	216997	217011	217025	21	3.
39	10. 217039	217052	217066	217080	217094	217108	217121	217135	217149	217163	217177	217190	20	4.
40	10. 217204	217218	217232	217246	217259	217273	217287	217301	217315	217328	217342	217356	19	1 =
41	10. 217370	217384	217397	217411	217425	217439	217453	217467	217480	217494	217508	217522	18	2.
42	10. 217536	217549	217563	217577	217591	217605	217619	217632	217646	217660	217674	217688	17	3.
43	10. 217702	217715	217729	217743	217757	217771	217785	217798	217812	217826	217840	217854	16	4.
44	10. 217868	217881	217895	217909	217923	217937	217951	217964	217978	217992	218006	218020	15	1 =
45	10. 218034	218047	218061	218075	218089	218103	218117	218131	218144	218158	218172	218186	14	2.
46	10. 218200	218214	218227	218241	218255	218269	218283	218297	218311	218324	218338	218352	13	3.
47	10. 218366	218380	218394	218408	218422	218435	218449	218463	218477	218491	218505	218519	12	4.
48	10. 218532	218546	218560	218574	218588	218602	218616	218630	218643	218657	218671	218685	11	1 =
49	10. 218699	218713	218727	218741	218754	218768	218782	218796	218810	218824	218838	218852	10	2.
50	10. 218866	218879	218893	218907	218921	218935	218949	218963	218977	218991	219004	219018	9	3.
51	10. 219032	219046	219060	219074	219088	219102	219116	219129	219143	219157	219171	219185	8	4.
52	10. 219199	219213	219227	219241	219255	219269	219282	219296	219310	219324	219338	219352	7	1 =
53	10. 219366	219380	219394	219408	219422	219435	219449	219463	219477	219491	219505	219519	6	2.
54	10. 219533	219547	219561	219575	219589	219602	219616	219630	219644	219658	219672	219686	5	3.
55	10. 219700	219714	219728	219742	219756	219770	219784	219797	219811	219825	219839	219853	4	4.
56	10. 219867	219881	219895	219909	219923	219937	219951	219965	219979	219993	220007	220020	3	1 =
57	10. 220034	220048	220062	220076	220090	220104	220118	220132	220146	220160	220174	220188	2	2.
58	10. 220202	220216	220230	220244	220258	220272	220286	220300	220314	220327	220341	220355	1	3.
59	10. 220369	220383	220397	220411	220425	220439	220453	220467	220481	220495	220509	220523	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-secant of 37 degrees, or Secant of 127 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 53 degrees, or Co-secant of 143 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 220537	220551	220565	220579	220593	220607	220621	220635	220649	220663	220677	220691	59	1″ = 3
1	10. 220705	220719	220733	220747	220761	220775	220789	220802	220816	220830	220844	220858	58	2. 6
2	10. 220872	220886	220900	220914	220928	220942	220956	220970	220984	220998	221012	221026	57	3. 8
3	10. 221040	221054	221068	221082	221096	221110	221124	221138	221152	221166	221180	221194	56	4. 11
4	10. 221208	221222	221236	221250	221264	221278	221292	221306	221320	221334	221348	221362	55	1 = 3
5	10. 221376	221390	221404	221418	221432	221447	221461	221475	221489	221503	221517	221531	54	2. 6
6	10. 221545	221559	221573	221587	221601	221615	221629	221643	221657	221671	221685	221699	53	3. 8
7	10. 221713	221727	221741	221755	221769	221783	221797	221811	221825	221839	221853	221867	52	4. 11
8	10. 221881	221895	221909	221923	221938	221952	221966	221980	221994	222008	222022	222036	51	1 = 3
9	10. 222050	222064	222078	222092	222106	222120	222134	222148	222162	222176	222190	222204	50	2. 6
10	10. 222218	222233	222247	222261	222275	222289	222303	222317	222331	222345	222359	222373	49	3. 8
11	10. 222387	222401	222415	222429	222443	222458	222472	222486	222500	222514	222528	222542	48	4. 11
12	10. 222556	222570	222584	222598	222612	222626	222640	222655	222669	222683	222697	222711	47	1 = 3
13	10. 222725	222739	222753	222767	222781	222795	222809	222824	222838	222852	222866	222880	46	2. 6
14	10. 222894	222908	222922	222936	222950	222964	222979	222993	223007	223021	223035	223049	45	3. 8
15	10. 223063	223077	223091	223105	223119	223134	223148	223162	223176	223190	223204	223218	44	4. 11
16	10. 223232	223246	223261	223275	223289	223303	223317	223331	223345	223359	223373	223388	43	1 = 3
17	10. 223402	223416	223430	223444	223458	223472	223486	223500	223515	223529	223543	223557	42	2. 6
18	10. 223571	223585	223599	223613	223628	223642	223656	223670	223684	223698	223712	223726	41	3. 8
19	10. 223741	223755	223769	223783	223797	223811	223825	223840	223854	223868	223882	223896	40	4. 11
20	10. 223910	223924	223939	223953	223967	223981	223995	224009	224023	224038	224052	224066	39	1 = 3
21	10. 224080	224094	224108	224122	224137	224151	224165	224179	224193	224207	224222	224236	38	2. 6
22	10. 224250	224264	224278	224292	224306	224321	224335	224349	224363	224377	224391	224406	37	3. 8
23	10. 224420	224434	224448	224462	224476	224491	224505	224519	224533	224547	224562	224576	36	4. 11
24	10. 224590	224604	224618	224632	224647	224661	224675	224689	224703	224717	224732	224746	35	1 = 3
25	10. 224760	224774	224788	224803	224817	224831	224845	224859	224874	224888	224902	224916	34	2. 6
26	10. 224930	224944	224959	224973	224987	225001	225015	225030	225044	225058	225072	225086	33	3. 9
27	10. 225101	225115	225129	225143	225157	225172	225186	225200	225214	225228	225243	225257	32	4. 11
28	10. 225271	225285	225300	225314	225328	225342	225356	225371	225385	225399	225413	225427	31	1 = 3
29	10. 225442	225456	225470	225484	225499	225513	225527	225541	225555	225570	225584	225598	30	2. 6
30	10. 225612	225627	225641	225655	225669	225683	225698	225712	225726	225740	225755	225769	29	3. 9
31	10. 225783	225797	225812	225826	225840	225854	225869	225883	225897	225911	225926	225940	28	4. 11
32	10. 225954	225968	225983	225997	226011	226025	226039	226054	226068	226082	226096	226111	27	1 = 3
33	10. 226125	226139	226154	226168	226182	226196	226211	226225	226239	226253	226268	226282	26	2. 6
34	10. 226296	226310	226325	226339	226353	226367	226382	226396	226410	226424	226439	226453	25	3. 9
35	10. 226467	226482	226496	226510	226524	226539	226553	226567	226581	226596	226610	226624	24	4. 11
36	10. 226639	226653	226667	226681	226696	226710	226724	226739	226753	226767	226781	226796	23	1 = 3
37	10. 226810	226824	226839	226853	226867	226881	226896	226910	226924	226939	226953	226967	22	2. 6
38	10. 226981	226996	227010	227024	227039	227053	227067	227082	227096	227110	227125	227139	21	3. 9
39	10. 227153	227167	227182	227196	227210	227225	227239	227253	227268	227282	227296	227311	20	4. 11
40	10. 227325	227339	227353	227368	227382	227396	227411	227425	227439	227454	227468	227482	19	1 = 3
41	10. 227497	227511	227525	227540	227554	227568	227583	227597	227611	227626	227640	227654	18	2. 6
42	10. 227669	227683	227697	227712	227726	227740	227755	227769	227783	227798	227812	227826	17	3. 9
43	10. 227841	227855	227869	227884	227898	227912	227927	227941	227955	227970	227984	227998	16	4. 11
44	10. 228013	228027	228041	228056	228070	228084	228099	228113	228128	228142	228156	228171	15	1 = 3
45	10. 228185	228199	228214	228228	228242	228257	228271	228286	228300	228314	228329	228343	14	2. 6
46	10. 228357	228372	228386	228400	228415	228429	228444	228458	228472	228487	228501	228515	13	3. 9
47	10. 228530	228544	228559	228573	228587	228602	228616	228630	228645	228659	228674	228688	12	4. 11
48	10. 228702	228717	228731	228745	228760	228774	228789	228803	228817	228832	228846	228861	11	1 = 3
49	10. 228875	228889	228904	228918	228933	228947	228961	228976	228990	229005	229019	229033	10	2. 6
50	10. 229048	229062	229077	229091	229105	229120	229134	229149	229163	229177	229192	229206	9	3. 9
51	10. 229221	229235	229249	229264	229278	229293	229307	229322	229336	229350	229365	229379	8	4. 12
52	10. 229394	229408	229422	229437	229451	229466	229480	229495	229509	229523	229538	229552	7	1 = 3
53	10. 229567	229581	229596	229610	229624	229639	229653	229668	229682	229697	229711	229725	6	2. 6
54	10. 229740	229754	229769	229783	229798	229812	229827	229841	229855	229870	229884	229899	5	3. 9
55	10. 229913	229928	229942	229957	229971	229985	230000	230014	230029	230043	230058	230072	4	4. 12
56	10. 230087	230101	230116	230130	230144	230159	230173	230188	230202	230217	230231	230246	3	1 = 3
57	10. 230260	230275	230289	230303	230318	230332	230347	230361	230376	230390	230405	230419	2	2. 6
58	10. 230434	230448	230463	230477	230492	230506	230521	230535	230550	230564	230578	230593	1	3. 9
59	10. 230607	230622	230636	230651	230665	230680	230694	230709	230723	230738	230752	230767	0	4. 12
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 36 degrees, or Secant of 126 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 54 degrees, or Co-secant of 144 degrees.												Minutes	Propor-tional
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 230781	230796	230810	230825	230839	230854	230868	230883	230897	230912	230926	230941	59	1″ =
1	10. 230955	230970	230984	230999	231013	231028	231042	231057	231071	231086	231100	231115	58	2.
2	10. 231129	231144	231158	231173	231187	231202	231216	231231	231245	231260	231274	231289	57	3.
3	10. 231303	231318	231332	231347	231361	231376	231390	231405	231420	231434	231449	231463	56	4.
4	10. 231478	231492	231507	231521	231536	231550	231565	231579	231594	231608	231623	231637	55	1″ =
5	10. 231652	231667	231681	231696	231710	231725	231739	231754	231768	231783	231797	231812	54	2.
6	10. 231826	231841	231856	231870	231885	231899	231914	231928	231943	231957	231972	231986	53	3.
7	10. 232001	232016	232030	232045	232059	232074	232088	232103	232117	232132	232147	232161	52	4.
8	10. 232176	232190	232205	232219	232234	232249	232263	232278	232292	232307	232321	232336	51	1″ =
9	10. 232351	232365	232380	232394	232409	232423	232438	232453	232467	232482	232496	232511	50	2.
10	10. 232525	232540	232555	232569	232584	232598	232613	232627	232642	232657	232671	232686	49	3.
11	10. 232700	232715	232730	232744	232759	232773	232788	232803	232817	232832	232846	232861	48	4.
12	10. 232876	232890	232905	232919	232934	232949	232963	232978	232992	233007	233022	233036	47	1″ =
13	10. 233051	233065	233080	233095	233109	233124	233138	233153	233168	233182	233197	233211	46	2.
14	10. 233226	233241	233255	233270	233285	233299	233314	233328	233343	233358	233372	233387	45	3.
15	10. 233401	233416	233431	233445	233460	233475	233489	233504	233518	233533	233548	233562	44	4.
16	10. 233577	233592	233606	233621	233636	233650	233665	233679	233694	233709	233723	233738	43	1″ =
17	10. 233753	233767	233782	233797	233811	233826	233841	233855	233870	233884	233899	233914	42	2.
18	10. 233928	233943	233958	233972	233987	234002	234016	234031	234046	234060	234075	234090	41	3.
19	10. 234104	234119	234134	234148	234163	234178	234192	234207	234222	234236	234251	234266	40	4.
20	10. 234280	234295	234310	234324	234339	234354	234368	234383	234398	234412	234427	234442	39	1″ =
21	10. 234456	234471	234486	234500	234515	234530	234544	234559	234574	234588	234603	234618	38	2.
22	10. 234633	234647	234662	234677	234691	234706	234721	234735	234750	234765	234779	234794	37	3.
23	10. 234809	234824	234838	234853	234868	234882	234897	234912	234926	234941	234956	234971	36	4.
24	10. 234985	235000	235015	235029	235044	235059	235073	235088	235103	235118	235132	235147	35	1″ =
25	10. 235162	235176	235191	235206	235221	235235	235250	235265	235279	235294	235309	235324	34	2.
26	10. 235338	235353	235368	235383	235397	235412	235427	235441	235456	235471	235486	235500	33	3.
27	10. 235515	235530	235545	235559	235574	235589	235603	235618	235633	235648	235662	235677	32	4.
28	10. 235692	235707	235721	235736	235751	235766	235780	235795	235810	235825	235839	235854	31	1″ =
29	10. 235869	235884	235898	235913	235928	235943	235957	235972	235987	236002	236016	236031	30	2.
30	10. 236046	236061	236075	236090	236105	236120	236134	236149	236164	236179	236194	236208	29	3.
31	10. 236223	236238	236253	236267	236282	236297	236312	236326	236341	236356	236371	236386	28	4.
32	10. 236400	236415	236430	236445	236459	236474	236489	236504	236519	236533	236548	236563	27	1″ =
33	10. 236578	236593	236607	236622	236637	236652	236666	236681	236696	236711	236726	236740	26	2.
34	10. 236755	236770	236785	236800	236814	236829	236844	236859	236874	236888	236903	236918	25	3.
35	10. 236933	236948	236962	236977	236992	237007	237022	237036	237051	237066	237081	237096	24	4.
36	10. 237111	237125	237140	237155	237170	237185	237199	237214	237229	237244	237259	237274	23	1″ =
37	10. 237288	237303	237318	237333	237348	237362	237377	237392	237407	237422	237437	237451	22	2.
38	10. 237466	237481	237496	237511	237526	237540	237555	237570	237585	237600	237615	237629	21	3.
39	10. 237644	237659	237674	237689	237704	237719	237733	237748	237763	237778	237793	237808	20	4.
40	10. 237822	237837	237852	237867	237882	237897	237912	237926	237941	237956	237971	237986	19	1″ =
41	10. 238001	238016	238030	238045	238060	238075	238090	238105	238120	238134	238149	238164	18	2.
42	10. 238179	238194	238209	238224	238239	238253	238268	238283	238298	238313	238328	238343	17	3.
43	10. 238358	238372	238387	238402	238417	238432	238447	238462	238477	238492	238506	238521	16	4.
44	10. 238536	238551	238566	238581	238596	238611	238626	238640	238655	238670	238685	238700	15	1″ =
45	10. 238715	238730	238745	238760	238774	238789	238804	238819	238834	238849	238864	238879	14	2.
46	10. 238894	238909	238923	238938	238953	238968	238983	238998	239013	239028	239043	239058	13	3.
47	10. 239073	239088	239102	239117	239132	239147	239162	239177	239192	239207	239222	239237	12	4.
48	10. 239252	239267	239281	239296	239311	239326	239341	239356	239371	239386	239401	239416	11	1″ =
49	10. 239431	239446	239461	239476	239491	239505	239520	239535	239550	239565	239580	239595	10	2.
50	10. 239610	239625	239640	239655	239670	239685	239700	239715	239730	239745	239759	239774	9	3.
51	10. 239789	239804	239819	239834	239849	239864	239879	239894	239909	239924	239939	239954	8	4.
52	10. 239969	239984	239999	240014	240029	240044	240059	240074	240089	240104	240119	240133	7	1″ =
53	10. 240148	240163	240178	240193	240208	240223	240238	240253	240268	240283	240298	240313	6	2.
54	10. 240328	240343	240358	240373	240388	240403	240418	240433	240448	240463	240478	240493	5	3.
55	10. 240508	240523	240538	240553	240568	240583	240598	240613	240628	240643	240658	240673	4	4.
56	10. 240688	240703	240718	240733	240748	240763	240778	240793	240808	240823	240838	240853	3	1″ =
57	10. 240868	240883	240898	240913	240928	240943	240958	240973	240988	241003	241018	241033	2	2.
58	10. 241048	241063	241078	241093	241108	241123	241138	241153	241168	241183	241198	241213	1	3.
59	10. 241228	241243	241258	241273	241288	241303	241318	241333	241349	241364	241379	241394	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor-tional
	Co-secant of 35 degrees, or Secant of 125 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 55 degrees, or Co-secant of 145 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 241409	241424	241439	241454	241469	241484	241499	241514	241529	241544	241559	241574	59	1″ = 3
1	10. 241589	241604	241619	241634	241649	241664	241679	241694	241710	241725	241740	241755	58	2. 6
2	10. 241770	241785	241800	241815	241830	241845	241860	241875	241890	241905	241920	241935	57	3. 9
3	10. 241950	241965	241981	241996	242011	242026	242041	242056	242071	242086	242101	242116	56	4. 12
4	10. 242131	242146	242161	242176	242192	242207	242222	242237	242252	242267	242282	242297	55	1 = 3
5	10. 242312	242327	242342	242357	242372	242388	242403	242418	242433	242448	242463	242478	54	2. 6
6	10. 242493	242508	242523	242538	242554	242569	242584	242599	242614	242629	242644	242659	53	3. 9
7	10. 242674	242689	242705	242720	242735	242750	242765	242780	242795	242810	242825	242840	52	4. 12
8	10. 242856	242871	242886	242901	242916	242931	242946	242961	242976	242992	243007	243022	51	1 = 3
9	10. 243037	243052	243067	243082	243097	243113	243128	243143	243158	243173	243188	243203	50	2. 6
10	10. 243218	243234	243249	243264	243279	243294	243309	243324	243339	243355	243370	243385	49	3. 9
11	10. 243400	243415	243430	243445	243461	243476	243491	243506	243521	243536	243551	243567	48	4. 12
12	10. 243582	243597	243612	243627	243642	243657	243673	243688	243703	243718	243733	243748	47	1 = 3
13	10. 243764	243779	243794	243809	243824	243839	243855	243870	243885	243900	243915	243930	46	2. 6
14	10. 243946	243961	243976	243991	244006	244021	244037	244052	244067	244082	244097	244112	45	3. 9
15	10. 244128	244143	244158	244173	244188	244203	244219	244234	244249	244264	244279	244295	44	4. 12
16	10. 244310	244325	244340	244355	244370	244386	244401	244416	244431	244446	244462	244477	43	1 = 3
17	10. 244492	244507	244522	244538	244553	244568	244583	244598	244614	244629	244644	244659	42	2. 6
18	10. 244674	244690	244705	244720	244735	244750	244766	244781	244796	244811	244826	244842	41	3. 9
19	10. 244857	244872	244887	244903	244918	244933	244948	244963	244979	244994	245009	245024	40	4. 12
20	10. 245040	245055	245070	245085	245100	245116	245131	245146	245161	245177	245192	245207	39	1 = 3
21	10. 245222	245237	245253	245268	245283	245298	245314	245329	245344	245359	245375	245390	38	2. 6
22	10. 245405	245420	245436	245451	245466	245481	245497	245512	245527	245542	245558	245573	37	3. 9
23	10. 245588	245603	245619	245634	245649	245664	245680	245695	245710	245725	245741	245756	36	4. 12
24	10. 245771	245786	245802	245817	245832	245847	245863	245878	245893	245908	245924	245939	35	1 = 3
25	10. 245954	245970	245985	246000	246015	246031	246046	246061	246076	246092	246107	246122	34	2. 6
26	10. 246138	246153	246168	246183	246199	246214	246229	246245	246260	246275	246290	246306	33	3. 9
27	10. 246321	246336	246352	246367	246382	246397	246413	246428	246443	246459	246474	246489	32	4. 12
28	10. 246505	246520	246535	246550	246566	246581	246596	246612	246627	246642	246658	246673	31	1 = 3
29	10. 246688	246703	246719	246734	246749	246765	246780	246795	246811	246826	246841	246857	30	2. 6
30	10. 246872	246887	246903	246918	246933	246949	246964	246979	246994	247010	247025	247040	29	3. 9
31	10. 247056	247071	247086	247102	247117	247132	247148	247163	247178	247194	247209	247224	28	4. 12
32	10. 247240	247255	247270	247286	247301	247316	247332	247347	247362	247378	247393	247409	27	1 = 3
33	10. 247424	247439	247455	247470	247485	247501	247516	247531	247547	247562	247577	247593	26	2. 6
34	10. 247608	247623	247639	247654	247670	247685	247700	247716	247731	247746	247762	247777	25	3. 9
35	10. 247792	247808	247823	247839	247854	247869	247885	247900	247915	247931	247946	247961	24	4. 12
36	10. 247977	247992	248008	248023	248038	248054	248069	248085	248100	248115	248131	248146	23	1 = 3
37	10. 248161	248177	248192	248208	248223	248238	248254	248269	248285	248300	248315	248331	22	2. 6
38	10. 248346	248361	248377	248392	248408	248423	248438	248454	248469	248485	248500	248515	21	3. 9
39	10. 248531	248546	248562	248577	248593	248608	248623	248639	248654	248670	248685	248700	20	4. 12
40	10. 248716	248731	248747	248762	248777	248793	248808	248824	248839	248855	248870	248885	19	1 = 3
41	10. 248901	248916	248932	248947	248963	248978	248993	249009	249024	249040	249055	249071	18	2. 6
42	10. 249086	249101	249117	249132	249148	249163	249179	249194	249209	249225	249240	249256	17	3. 9
43	10. 249271	249287	249302	249318	249333	249348	249364	249379	249395	249410	249426	249441	16	4. 12
44	10. 249457	249472	249487	249503	249518	249534	249549	249565	249580	249596	249611	249627	15	1 = 3
45	10. 249642	249658	249673	249688	249704	249719	249735	249750	249766	249781	249797	249812	14	2. 6
46	10. 249828	249843	249859	249874	249890	249905	249921	249936	249951	249967	249982	249998	13	3. 9
47	10. 250013	250029	250044	250060	250075	250091	250106	250122	250137	250153	250168	250184	12	4. 12
48	10. 250199	250215	250230	250246	250261	250277	250292	250308	250323	250339	250354	250370	11	1 = 3
49	10. 250385	250401	250416	250432	250447	250463	250478	250494	250509	250525	250540	250556	10	2. 6
50	10. 250571	250587	250602	250618	250633	250649	250664	250680	250695	250711	250726	250742	9	3. 9
51	10. 250757	250773	250788	250804	250819	250835	250851	250866	250882	250897	250913	250928	8	4. 12
52	10. 250944	250959	250975	250990	251006	251021	251037	251052	251068	251084	251099	251115	7	1 = 3
53	10. 251130	251146	251161	251177	251192	251208	251223	251239	251254	251270	251286	251301	6	2. 6
54	10. 251317	251332	251348	251363	251379	251394	251410	251426	251441	251457	251472	251488	5	3. 9
55	10. 251503	251519	251534	251550	251566	251581	251597	251612	251628	251643	251659	251674	4	4. 12
56	10. 251690	251706	251721	251737	251752	251768	251783	251799	251815	251830	251846	251861	3	1 = 3
57	10. 251877	251893	251908	251924	251939	251955	251970	251986	252002	252017	252033	252048	2	2. 6
58	10. 252064	252080	252095	252111	252126	252142	252157	252173	252189	252204	252220	252235	1	3. 9
59	10. 252251	252267	252282	252298	252313	252329	252345	252360	252376	252391	252407	252423	0	4. 12
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-secant of 34 degrees, or Secant of 124 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 56 degrees, or Co-secant of 146 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 252438	252454	252470	252485	252501	252516	252532	252548	252563	252579	252594	252610	59	1″ =
1	10. 252626	252641	252657	252673	252688	252704	252719	252735	252751	252766	252782	252797	58	2.
2	10. 252813	252829	252844	252860	252876	252891	252907	252923	252938	252954	252969	252985	57	3.
3	10. 253001	253016	253032	253048	253063	253079	253095	253110	253126	253141	253157	253173	56	4.
4	10. 253188	253204	253220	253235	253251	253267	253282	253298	253314	253329	253345	253361	55	1 =
5	10. 253376	253392	253408	253423	253439	253455	253470	253486	253502	253517	253533	253549	54	2.
6	10. 253564	253580	253596	253611	253627	253643	253658	253674	253690	253705	253721	253737	53	3.
7	10. 253752	253768	253784	253799	253815	253831	253846	253862	253878	253893	253909	253925	52	4.
8	10. 253940	253956	253972	253987	254003	254019	254035	254050	254066	254082	254097	254113	51	1 =
9	10. 254129	254144	254160	254176	254192	254207	254223	254239	254254	254270	254286	254301	50	2.
10	10. 254317	254333	254349	254364	254380	254396	254411	254427	254443	254459	254474	254490	49	3.
11	10. 254506	254521	254537	254553	254569	254584	254600	254616	254631	254647	254663	254679	48	4.
12	10. 254694	254710	254726	254741	254757	254773	254789	254804	254820	254836	254852	254867	47	1 =
13	10. 254883	254899	254915	254930	254946	254962	254978	254993	255009	255025	255040	255056	46	2.
14	10. 255072	255088	255103	255119	255135	255151	255166	255182	255198	255214	255229	255245	45	3.
15	10. 255261	255277	255292	255308	255324	255340	255356	255371	255387	255403	255419	255434	44	4.
16	10. 255450	255466	255482	255497	255513	255529	255545	255560	255576	255592	255608	255624	43	1 =
17	10. 255639	255655	255671	255687	255702	255718	255734	255750	255766	255781	255797	255813	42	2.
18	10. 255829	255845	255860	255876	255892	255908	255923	255939	255955	255971	255987	256002	41	3.
19	10. 256018	256034	256050	256066	256081	256097	256113	256129	256145	256160	256176	256192	40	4.
20	10. 256208	256224	256239	256255	256271	256287	256303	256318	256334	256350	256366	256382	39	1 =
21	10. 256398	256413	256429	256445	256461	256477	256492	256508	256524	256540	256556	256572	38	2.
22	10. 256587	256603	256619	256635	256651	256667	256682	256698	256714	256730	256746	256762	37	3.
23	10. 256777	256793	256809	256825	256841	256857	256872	256888	256904	256920	256936	256952	36	4.
24	10. 256967	256983	256999	257015	257031	257047	257063	257078	257094	257110	257126	257142	35	1 =
25	10. 257158	257173	257189	257205	257221	257237	257253	257269	257285	257300	257316	257332	34	2.
26	10. 257348	257364	257380	257396	257411	257427	257443	257459	257475	257491	257507	257523	33	3.
27	10. 257538	257554	257570	257586	257602	257618	257634	257650	257665	257681	257697	257713	32	4.
28	10. 257729	257745	257761	257777	257793	257808	257824	257840	257856	257872	257888	257904	31	1 =
29	10. 257920	257936	257951	257967	257983	257999	258015	258031	258047	258063	258079	258095	30	2.
30	10. 258110	258126	258142	258158	258174	258190	258206	258222	258238	258254	258270	258285	29	3.
31	10. 258301	258317	258333	258349	258365	258381	258397	258413	258429	258445	258461	258477	28	4.
32	10. 258492	258508	258524	258540	258556	258572	258588	258604	258620	258636	258652	258668	27	1 =
33	10. 258684	258700	258715	258731	258747	258763	258779	258795	258811	258827	258843	258859	26	2.
34	10. 258875	258891	258907	258923	258939	258955	258971	258987	259002	259018	259034	259050	25	3.
35	10. 259066	259082	259098	259114	259130	259146	259162	259178	259194	259210	259226	259242	24	4.
36	10. 259258	259274	259290	259306	259322	259338	259354	259370	259386	259402	259418	259433	23	1 =
37	10. 259449	259465	259481	259497	259513	259529	259545	259561	259577	259593	259609	259625	22	2.
38	10. 259641	259657	259673	259689	259705	259721	259737	259753	259769	259785	259801	259817	21	3.
39	10. 259833	259849	259865	259881	259897	259913	259929	259945	259961	259977	259993	260009	20	4.
40	10. 260025	260041	260057	260073	260089	260105	260121	260137	260153	260169	260185	260201	19	1 =
41	10. 260217	260233	260249	260265	260281	260297	260313	260329	260345	260361	260378	260394	18	2.
42	10. 260410	260426	260442	260458	260474	260490	260506	260522	260538	260554	260570	260586	17	3.
43	10. 260602	260618	260634	260650	260666	260682	260698	260714	260730	260746	260762	260778	16	4.
44	10. 260794	260810	260827	260843	260859	260875	260891	260907	260923	260939	260955	260971	15	1 =
45	10. 260987	261003	261019	261035	261051	261067	261083	261099	261116	261132	261148	261164	14	2.
46	10. 261180	261196	261212	261228	261244	261260	261276	261292	261308	261324	261341	261357	13	3.
47	10. 261373	261389	261405	261421	261437	261453	261469	261485	261501	261517	261534	261550	12	4.
48	10. 261566	261582	261598	261614	261630	261646	261662	261678	261694	261711	261727	261743	11	1 =
49	10. 261759	261775	261791	261807	261823	261839	261855	261872	261888	261904	261920	261936	10	2.
50	10. 261952	261968	261984	262000	262016	262033	262049	262065	262081	262097	262113	262129	9	3.
51	10. 262145	262162	262178	262194	262210	262226	262242	262258	262274	262290	262307	262323	8	4.
52	10. 262339	262355	262371	262387	262403	262420	262436	262452	262468	262484	262500	262516	7	1 =
53	10. 262532	262549	262565	262581	262597	262613	262629	262645	262662	262678	262694	262710	6	2.
54	10. 262726	262742	262759	262775	262791	262807	262823	262839	262855	262872	262888	262904	5	3.
55	10. 262920	262936	262952	262969	262985	263001	263017	263033	263049	263066	263082	263098	4	4.
56	10. 263114	263130	263146	263163	263179	263195	263211	263227	263243	263260	263276	263292	3	1 =
57	10. 263308	263324	263341	263357	263373	263389	263405	263421	263438	263454	263470	263486	2	2.
58	10. 263502	263519	263535	263551	263567	263583	263600	263616	263632	263648	263664	263681	1	3.
59	10. 263697	263713	263729	263745	263762	263778	263794	263810	263826	263843	263859	263875	0	4.
Minutes	60′	55′	50′	45′	40	35″	30″	25′	20′	15′	10″	5″	Minutes	Propor. parts.
	Co-secant of 33 degrees, or Secant of 123 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 57 degrees, or Co-secant of 147 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 263891	263907	263924	263940	263956	263972	263988	264005	264021	264037	264053	264070	59	1″ = 3
1	10. 264086	264102	264118	264134	264151	264167	264183	264199	264216	264232	264248	264264	58	2. 7
2	10. 264280	264297	264313	264329	264345	264362	264378	264394	264410	264427	264443	264459	57	3. 10
3	10. 264475	264492	264508	264524	264540	264557	264573	264589	264605	264622	264638	264654	56	4. 13
4	10. 264670	264687	264703	264719	264735	264752	264768	264784	264800	264817	264833	264849	55	1 = 3
5	10. 264865	264882	264898	264914	264930	264947	264963	264979	264996	265012	265028	265044	54	2. 7
6	10. 265061	265077	265093	265109	265126	265142	265158	265175	265191	265207	265223	265240	53	3. 10
7	10. 265256	265272	265289	265305	265321	265337	265354	265370	265386	265403	265419	265435	52	4. 13
8	10. 265451	265468	265484	265500	265517	265533	265549	265566	265582	265598	265614	265631	51	1 = 3
9	10. 265647	265663	265680	265696	265712	265729	265745	265761	265777	265794	265810	265826	50	2. 7
10	10. 265843	265859	265875	265892	265908	265924	265941	265957	265973	265990	266006	266022	49	3. 10
11	10. 266039	266055	266071	266088	266104	266120	266137	266153	266169	266186	266202	266218	48	4. 13
12	10. 266235	266251	266267	266284	266300	266316	266333	266349	266365	266382	266398	266414	47	1 = 3
13	10. 266431	266447	266463	266480	266496	266512	266529	266545	266561	266578	266594	266610	46	2. 7
14	10. 266627	266643	266660	266676	266692	266709	266725	266741	266758	266774	266790	266807	45	3. 10
15	10. 266823	266840	266856	266872	266889	266905	266921	266938	266954	266971	266987	267003	44	4. 13
16	10. 267020	267036	267052	267069	267085	267102	267118	267134	267151	267167	267183	267200	43	1 = 3
17	10. 267216	267233	267249	267265	267282	267298	267315	267331	267347	267364	267380	267397	42	2. 7
18	10. 267413	267429	267446	267462	267479	267495	267511	267528	267544	267561	267577	267593	41	3. 10
19	10. 267610	267626	267643	267659	267675	267692	267708	267725	267741	267758	267774	267790	40	4. 13
20	10. 267807	267823	267840	267856	267872	267889	267905	267922	267938	267955	267971	267987	39	1 = 3
21	10. 268004	268020	268037	268053	268070	268086	268102	268119	268135	268152	268168	268185	38	2. 7
22	10. 268201	268218	268234	268250	268267	268283	268300	268316	268333	268349	268366	268382	37	3. 10
23	10. 268398	268415	268431	268448	268464	268481	268497	268514	268530	268547	268563	268579	36	4. 13
24	10. 268596	268612	268629	268645	268662	268678	268695	268711	268728	268744	268761	268777	35	1 = 3
25	10. 268794	268810	268826	268843	268859	268876	268892	268909	268925	268942	268958	268975	34	2. 7
26	10. 268991	269008	269024	269041	269057	269074	269090	269107	269123	269140	269156	269173	33	3. 10
27	10. 269189	269206	269222	269239	269255	269272	269288	269305	269321	269338	269354	269371	32	4. 13
28	10. 269387	269404	269420	269437	269453	269470	269486	269503	269519	269536	269552	269569	31	1 = 3
29	10. 269585	269602	269618	269635	269651	269668	269684	269701	269717	269734	269750	269767	30	2. 7
30	10. 269783	269800	269816	269833	269850	269866	269883	269899	269916	269932	269949	269965	29	3. 10
31	10. 269982	269998	270015	270031	270048	270064	270081	270098	270114	270131	270147	270164	28	4. 13
32	10. 270180	270197	270213	270230	270246	270263	270280	270296	270313	270329	270346	270362	27	1 = 3
33	10. 270379	270395	270412	270429	270445	270462	270478	270495	270511	270528	270545	270561	26	2. 7
34	10. 270578	270594	270611	270627	270644	270660	270677	270694	270710	270727	270743	270760	25	3. 10
35	10. 270777	270793	270810	270826	270843	270859	270876	270893	270909	270926	270942	270959	24	4. 13
36	10. 270976	270992	271009	271025	271042	271058	271075	271092	271108	271125	271141	271158	23	1 = 3
37	10. 271175	271191	271208	271224	271241	271258	271274	271291	271307	271324	271341	271357	22	2. 7
38	10. 271374	271391	271407	271424	271440	271457	271474	271490	271507	271523	271540	271557	21	3. 10
39	10. 271573	271590	271607	271623	271640	271656	271673	271690	271706	271723	271740	271756	20	4. 13
40	10. 271773	271789	271806	271823	271839	271856	271873	271889	271906	271923	271939	271956	19	1 = 3
41	10. 271972	271989	272006	272022	272039	272056	272072	272089	272106	272122	272139	272156	18	2. 7
42	10. 272172	272189	272206	272222	272239	272256	272272	272289	272305	272322	272339	272355	17	3. 10
43	10. 272372	272389	272405	272422	272439	272455	272472	272489	272505	272522	272539	272555	16	4. 13
44	10. 272572	272589	272606	272622	272639	272656	272672	272689	272706	272722	272739	272756	15	1 = 3
45	10. 272772	272789	272806	272822	272839	272856	272872	272889	272906	272923	272939	272956	14	2. 7
46	10. 272973	272989	273006	273023	273039	273056	273073	273089	273106	273123	273140	273156	13	3. 10
47	10. 273173	273190	273206	273223	273240	273257	273273	273290	273307	273323	273340	273357	12	4. 13
48	10. 273374	273390	273407	273424	273440	273457	273474	273491	273507	273524	273541	273558	11	1 = 3
49	10. 273574	273591	273608	273624	273641	273658	273675	273691	273708	273725	273742	273758	10	2. 7
50	10. 273775	273792	273809	273825	273842	273859	273875	273892	273909	273926	273942	273959	9	3. 10
51	10. 273976	273993	274009	274026	274043	274060	274076	274093	274110	274127	274144	274160	8	4. 13
52	10. 274177	274194	274211	274227	274244	274261	274278	274294	274311	274328	274345	274361	7	1 = 3
53	10. 274378	274395	274412	274429	274445	274462	274479	274496	274512	274529	274546	274563	6	2. 7
54	10. 274580	274596	274613	274630	274647	274663	274680	274697	274714	274731	274747	274764	5	3. 10
55	10. 274781	274798	274815	274831	274848	274865	274882	274899	274915	274932	274949	274966	4	4. 13
56	10. 274983	274999	275016	275033	275050	275067	275083	275100	275117	275134	275151	275167	3	1 = 3
57	10. 275184	275201	275218	275235	275252	275268	275285	275302	275319	275336	275353	275369	2	2. 7
58	10. 275386	275403	275420	275437	275453	275470	275487	275504	275521	275538	275554	275571	1	3. 10
59	10. 275588	275605	275622	275639	275655	275672	275689	275706	275723	275740	275757	275773	0	4. 13
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 32 degrees, or Secant of 122 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 58 degrees, or Co-secant of 148 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 275790	275807	275824	275841	275858	275874	275891	275908	275925	275942	275959	275976	59	1″ =
1	10. 275992	276009	276026	276043	276060	276077	276094	276111	276127	276144	276161	276178	58	2.
2	10. 276195	276212	276229	276245	276262	276279	276296	276313	276330	276347	276364	276380	57	3.
3	10. 276397	276414	276431	276448	276465	276482	276499	276516	276532	276549	276566	276583	56	4.
4	10. 276600	276617	276634	276651	276668	276684	276701	276718	276735	276752	276769	276786	55	1 =
5	10. 276803	276820	276837	276853	276870	276887	276904	276921	276938	276955	276972	276989	54	2.
6	10. 277006	277023	277039	277056	277073	277090	277107	277124	277141	277158	277175	277192	53	3.
7	10. 277209	277226	277243	277259	277276	277293	277310	277327	277344	277361	277378	277395	52	4.
8	10. 277412	277429	277446	277463	277480	277497	277513	277530	277547	277564	277581	277598	51	1 =
9	10. 277615	277632	277649	277666	277683	277700	277717	277734	277751	277768	277785	277802	50	2.
10	10. 277819	277835	277852	277869	277886	277903	277920	277937	277954	277971	277988	278005	49	3.
11	10. 278022	278039	278056	278073	278090	278107	278124	278141	278158	278175	278192	278209	48	4.
12	10. 278226	278243	278260	278277	278294	278311	278328	278345	278362	278379	278396	278413	47	1 =
13	10. 278430	278447	278464	278481	278498	278515	278532	278549	278566	278583	278600	278617	46	2.
14	10. 278634	278651	278668	278685	278702	278719	278736	278753	278770	278787	278804	278821	45	3.
15	10. 278838	278855	278872	278889	278906	278923	278940	278957	278974	278991	279008	279025	44	4.
16	10. 279042	279059	279076	279093	279110	279127	279144	279161	279178	279195	279212	279229	43	1 =
17	10. 279246	279263	279280	279297	279314	279331	279348	279365	279382	279400	279417	279434	42	2.
18	10. 279451	279468	279485	279502	279519	279536	279553	279570	279587	279604	279621	279638	41	3.
19	10. 279655	279672	279689	279706	279724	279741	279758	279775	279792	279809	279826	279843	40	4.
20	10. 279860	279877	279894	279911	279928	279945	279962	279980	279997	280014	280031	280048	39	1 =
21	10. 280065	280082	280099	280116	280133	280150	280167	280184	280202	280219	280236	280253	38	2.
22	10. 280270	280287	280304	280321	280338	280355	280372	280390	280407	280424	280441	280458	37	3.
23	10. 280475	280492	280509	280526	280543	280561	280578	280595	280612	280629	280646	280663	36	4.
24	10. 280680	280697	280715	280732	280749	280766	280783	280800	280817	280834	280852	280869	35	1 =
25	10. 280886	280903	280920	280937	280954	280971	280989	281006	281023	281040	281057	281074	34	2.
26	10. 281091	281108	281126	281143	281160	281177	281194	281211	281228	281246	281263	281280	33	3.
27	10. 281297	281314	281331	281348	281366	281383	281400	281417	281434	281451	281468	281486	32	4.
28	10. 281503	281520	281537	281554	281571	281589	281606	281623	281640	281657	281674	281692	31	1 =
29	10. 281709	281726	281743	281760	281777	281795	281812	281829	281846	281863	281880	281898	30	2.
30	10. 281915	281932	281949	281966	281984	282001	282018	282035	282052	282070	282087	282104	29	3.
31	10. 282121	282138	282155	282173	282190	282207	282224	282241	282259	282276	282293	282310	28	4.
32	10. 282327	282345	282362	282379	282396	282413	282431	282448	282465	282482	282499	282517	27	1 =
33	10. 282534	282551	282568	282586	282603	282620	282637	282654	282672	282689	282706	282723	26	2.
34	10. 282741	282758	282775	282792	282809	282827	282844	282861	282878	282896	282913	282930	25	3.
35	10. 282947	282965	282982	282999	283016	283033	283051	283068	283085	283102	283120	283137	24	4.
36	10. 283154	283171	283189	283206	283223	283240	283258	283275	283292	283309	283327	283344	23	1 =
37	10. 283361	283378	283396	283413	283430	283448	283465	283482	283499	283517	283534	283551	22	2.
38	10. 283568	283586	283603	283620	283637	283655	283672	283689	283707	283724	283741	283758	21	3.
39	10. 283776	283793	283810	283828	283845	283862	283879	283897	283914	283931	283949	283966	20	4.
40	10. 283983	284000	284018	284035	284052	284070	284087	284104	284122	284139	284156	284173	19	1 =
41	10. 284191	284208	284225	284243	284260	284277	284295	284312	284329	284346	284364	284381	18	2.
42	10. 284398	284416	284433	284450	284468	284485	284502	284520	284537	284554	284572	284589	17	3.
43	10. 284606	284624	284641	284658	284676	284693	284710	284728	284745	284762	284780	284797	16	4.
44	10. 284814	284832	284849	284866	284884	284901	284918	284936	284953	284970	284988	285005	15	1 =
45	10. 285022	285040	285057	285074	285092	285109	285126	285144	285161	285179	285196	285213	14	2.
46	10. 285231	285248	285265	285283	285300	285317	285335	285352	285370	285387	285404	285422	13	3.
47	10. 285439	285456	285474	285491	285509	285526	285543	285561	285578	285595	285613	285630	12	4.
48	10. 285648	285665	285682	285700	285717	285734	285752	285769	285787	285804	285821	285839	11	1 =
49	10. 285856	285874	285891	285908	285926	285943	285961	285978	285995	286013	286030	286048	10	2.
50	10. 286065	286082	286100	286117	286135	286152	286169	286187	286204	286222	286239	286257	9	3.
51	10. 286274	286291	286309	286326	286344	286361	286378	286396	286413	286431	286448	286466	8	4.
52	10. 286483	286500	286518	286535	286553	286570	286588	286605	286622	286640	286657	286675	7	1 =
53	10. 286692	286710	286727	286745	286762	286779	286797	286814	286832	286849	286867	286884	6	2.
54	10. 286902	286919	286937	286954	286971	286989	287006	287024	287041	287059	287076	287094	5	3.
55	10. 287111	287129	287146	287163	287181	287198	287216	287233	287251	287268	287286	287303	4	4.
56	10. 287321	287338	287356	287373	287391	287408	287426	287443	287461	287478	287496	287513	3	1 =
57	10. 287530	287548	287565	287583	287600	287618	287635	287653	287670	287688	287705	287723	2	2.
58	10. 287740	287758	287775	287793	287810	287828	287845	287863	287880	287898	287915	287933	1	3.
59	10. 287950	287968	287985	288003	288020	288038	288056	288073	288091	288108	288126	288143	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 31 degrees, or Secant of 121 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 59 degrees, or Co-secant of 149 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 288161	288178	288196	288213	288231	288248	288266	288283	288301	288318	288336	288353	59	1″ = 4
1	10. 288371	288388	288406	288424	288441	288459	288476	288494	288511	288529	288546	288564	58	2. 7
2	10. 288581	288599	288616	288634	288652	288669	288687	288704	288722	288739	288757	288774	57	3. 11
3	10. 288792	288810	288827	288845	288862	288880	288897	288915	288932	288950	288968	288985	56	4. 14
4	10. 289003	289020	289038	289055	289073	289091	289108	289126	289143	289161	289178	289196	55	1 = 4
5	10. 289214	289231	289249	289266	289284	289302	289319	289337	289354	289372	289389	289407	54	2. 7
6	10. 289425	289442	289460	289477	289495	289513	289530	289548	289565	289583	289601	289618	53	3. 11
7	10. 289636	289653	289671	289689	289706	289724	289741	289759	289777	289794	289812	289829	52	4. 14
8	10. 289847	289865	289882	289900	289918	289935	289953	289970	289988	290006	290023	290041	51	1 = 4
9	10. 290058	290076	290094	290111	290129	290147	290164	290182	290200	290217	290235	290252	50	2. 7
10	10. 290270	290288	290305	290323	290341	290358	290376	290394	290411	290429	290446	290464	49	3. 11
11	10. 290482	290499	290517	290535	290552	290570	290588	290605	290623	290641	290658	290676	48	4. 14
12	10. 290694	290711	290729	290747	290764	290782	290800	290817	290835	290853	290870	290888	47	1 = 4
13	10. 290906	290923	290941	290959	290976	290994	291012	291029	291047	291065	291082	291100	46	2. 7
14	10. 291118	291135	291153	291171	291188	291206	291224	291242	291259	291277	291295	291312	45	3. 11
15	10. 291330	291348	291365	291383	291401	291419	291436	291454	291472	291489	291507	291525	44	4. 14
16	10. 291542	291560	291578	291596	291613	291631	291649	291666	291684	291702	291720	291737	43	1 = 4
17	10. 291755	291773	291790	291808	291826	291844	291861	291879	291897	291915	291932	291950	42	2. 7
18	10. 291968	291985	292003	292021	292039	292056	292074	292092	292110	292127	292145	292163	41	3. 11
19	10. 292181	292198	292216	292234	292252	292269	292287	292305	292322	292340	292358	292376	40	4. 14
20	10. 292394	292411	292429	292447	292465	292482	292500	292518	292536	292553	292571	292589	39	1 = 4
21	10. 292607	292624	292642	292660	292678	292695	292713	292731	292749	292767	292784	292802	38	2. 7
22	10. 292820	292838	292855	292873	292891	292909	292927	292944	292962	292980	292998	293015	37	3. 11
23	10. 293033	293051	293069	293087	293104	293122	293140	293158	293176	293193	293211	293229	36	4. 14
24	10. 293247	293265	293282	293300	293318	293336	293354	293371	293389	293407	293425	293443	35	1 = 4
25	10. 293461	293478	293496	293514	293532	293550	293567	293585	293603	293621	293639	293657	34	2. 7
26	10. 293674	293692	293710	293728	293746	293763	293781	293799	293817	293835	293853	293870	33	3. 11
27	10. 293888	293906	293924	293942	293960	293978	293995	294013	294031	294049	294067	294085	32	4. 14
28	10. 294102	294120	294138	294156	294174	294192	294210	294227	294245	294263	294281	294299	31	1 = 4
29	10. 294317	294335	294352	294370	294388	294406	294424	294442	294460	294477	294495	294513	30	2. 7
30	10. 294531	294549	294567	294585	294603	294620	294638	294656	294674	294692	294710	294728	29	3. 11
31	10. 294746	294763	294781	294799	294817	294835	294853	294871	294889	294907	294925	294942	28	4. 14
32	10. 294960	294978	294996	295014	295032	295050	295068	295086	295103	295121	295139	295157	27	1 = 4
33	10. 295175	295193	295211	295229	295247	295265	295283	295301	295318	295336	295354	295372	26	2. 7
34	10. 295390	295408	295426	295444	295462	295480	295498	295516	295533	295551	295569	295587	25	3. 11
35	10. 295605	295623	295641	295659	295677	295695	295713	295731	295749	295767	295785	295803	24	4. 14
36	10. 295820	295838	295856	295874	295892	295910	295928	295946	295964	295982	296000	296018	23	1 = 4
37	10. 296036	296054	296072	296090	296108	296126	296144	296162	296180	296197	296215	296233	22	2. 7
38	10. 296251	296269	296287	296305	296323	296341	296359	296377	296395	296413	296431	296449	21	3. 11
39	10. 296467	296485	296503	296521	296539	296557	296575	296593	296611	296629	296647	296665	20	4. 14
40	10. 296683	296701	296719	296737	296755	296773	296791	296809	296827	296845	296863	296881	19	1 = 4
41	10. 296899	296917	296935	296953	296971	296989	297007	297025	297043	297061	297079	297097	18	2. 7
42	10. 297115	297133	297151	297169	297187	297205	297223	297241	297259	297277	297295	297313	17	3. 11
43	10. 297331	297349	297367	297385	297403	297421	297439	297457	297476	297494	297512	297530	16	4. 14
44	10. 297548	297566	297584	297602	297620	297638	297656	297674	297692	297710	297728	297746	15	1 = 4
45	10. 297764	297782	297800	297818	297836	297854	297873	297891	297909	297927	297945	297963	14	2. 7
46	10. 297981	297999	298017	298035	298053	298071	298089	298107	298125	298144	298162	298180	13	3. 11
47	10. 298198	298216	298234	298252	298270	298288	298306	298324	298342	298360	298379	298397	12	4. 14
48	10. 298415	298433	298451	298469	298487	298505	298523	298541	298559	298578	298596	298614	11	1 = 4
49	10. 298632	298650	298668	298686	298704	298722	298740	298759	298777	298795	298813	298831	10	2. 7
50	10. 298849	298867	298885	298903	298922	298940	298958	298976	298994	299012	299030	299048	9	3. 11
51	10. 299067	299085	299103	299121	299139	299157	299175	299193	299212	299230	299248	299266	8	4. 14
52	10. 299284	299302	299320	299339	299357	299375	299393	299411	299429	299447	299466	299484	7	1 = 4
53	10. 299502	299520	299538	299556	299574	299593	299611	299629	299647	299665	299683	299702	6	2. 7
54	10. 299720	299738	299756	299774	299792	299811	299829	299847	299865	299883	299901	299920	5	3. 11
55	10. 299938	299956	299974	299992	300010	300029	300047	300065	300083	300101	300120	300138	4	4. 15
56	10. 300156	300174	300192	300210	300229	300247	300265	300283	300301	300320	300338	300356	3	1 = 4
57	10. 300374	300392	300411	300429	300447	300465	300483	300502	300520	300538	300556	300574	2	2. 7
58	10. 300593	300611	300629	300647	300665	300684	300702	300720	300738	300757	300775	300793	1	3. 11
59	10. 300811	300829	300848	300866	300884	300902	300921	300939	300957	300975	300993	301012	0	4. 15
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 30 degrees, or Secant of 120 degrees.													

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LOGARITHMIC SECANTS.

Secant of 60 degrees, or Co-secant of 150 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
0	10. 301030	301048	301066	301085	301103	301121	301139	301158	301176	301194	301212	301231	59	1″ =
1	10. 301249	301267	301285	301304	301322	301340	301358	301377	301395	301413	301431	301450	58	2.
2	10. 301468	301486	301504	301523	301541	301559	301577	301596	301614	301632	301651	301669	57	3.
3	10. 301687	301705	301724	301742	301760	301778	301797	301815	301833	301852	301870	301888	56	4.
4	10. 301906	301925	301943	301961	301980	301998	302016	302034	302053	302071	302089	302108	55	1 =
5	10. 302126	302144	302162	302181	302199	302217	302236	302254	302272	302291	302309	302327	54	2.
6	10. 302345	302364	302382	302400	302419	302437	302455	302474	302492	302510	302529	302547	53	3.
7	10. 302565	302584	302602	302620	302639	302657	302675	302694	302712	302730	302748	302767	52	4.
8	10. 302785	302803	302822	302840	302858	302877	302895	302914	302932	302950	302969	302987	51	1 =
9	10. 303005	303024	303042	303060	303079	303097	303115	303134	303152	303170	303189	303207	50	2.
10	10. 303225	303244	303262	303281	303299	303317	303336	303354	303372	303391	303409	303427	49	3.
11	10. 303446	303464	303483	303501	303519	303538	303556	303574	303593	303611	303630	303648	48	4.
12	10. 303666	303685	303703	303721	303740	303758	303777	303795	303813	303832	303850	303869	47	1 =
13	10. 303887	303905	303924	303942	303961	303979	303997	304016	304034	304053	304071	304089	46	2.
14	10. 304108	304126	304145	304163	304181	304200	304218	304237	304255	304273	304292	304310	45	3.
15	10. 304329	304347	304366	304384	304402	304421	304439	304458	304476	304495	304513	304531	44	4.
16	10. 304550	304568	304587	304605	304624	304642	304660	304679	304697	304716	304734	304753	43	1 =
17	10. 304771	304790	304808	304826	304845	304863	304882	304900	304919	304937	304956	304974	42	2.
18	10. 304993	305011	305029	305048	305066	305085	305103	305122	305140	305159	305177	305196	41	3.
19	10. 305214	305233	305251	305269	305288	305306	305325	305343	305362	305380	305399	305417	40	4.
20	10. 305436	305454	305473	305491	305510	305528	305547	305565	305584	305602	305621	305639	39	1 =
21	10. 305658	305676	305695	305713	305732	305750	305769	305787	305806	305824	305843	305861	38	2.
22	10. 305880	305898	305917	305935	305954	305972	305991	306009	306028	306046	306065	306083	37	3.
23	10. 306102	306120	306139	306157	306176	306194	306213	306231	306250	306269	306287	306306	36	4.
24	10. 306324	306343	306361	306380	306398	306417	306435	306454	306472	306491	306509	306528	35	1 =
25	10. 306547	306565	306584	306602	306621	306639	306658	306676	306695	306714	306732	306751	34	2.
26	10. 306769	306788	306806	306825	306843	306862	306881	306899	306918	306936	306955	306973	33	3.
27	10. 306992	307011	307029	307048	307066	307085	307103	307122	307141	307159	307178	307196	32	4.
28	10. 307215	307233	307252	307271	307289	307308	307326	307345	307364	307382	307401	307419	31	1 =
29	10. 307438	307457	307475	307494	307512	307531	307550	307568	307587	307605	307624	307643	30	2.
30	10. 307661	307680	307698	307717	307736	307754	307773	307791	307810	307829	307847	307866	29	3.
31	10. 307884	307903	307922	307940	307959	307978	307996	308015	308033	308052	308071	308089	28	4.
32	10. 308108	308127	308145	308164	308183	308201	308220	308238	308257	308276	308294	308313	27	1 =
33	10. 308332	308350	308369	308388	308406	308425	308444	308462	308481	308500	308518	308537	26	2.
34	10. 308555	308574	308593	308611	308630	308649	308667	308686	308705	308723	308742	308761	25	3.
35	10. 308779	308798	308817	308835	308854	308873	308892	308910	308929	308948	308966	308985	24	4.
36	10. 309004	309022	309041	309060	309078	309097	309116	309134	309153	309172	309190	309209	23	1 =
37	10. 309228	309247	309265	309284	309303	309321	309340	309359	309377	309396	309415	309434	22	2.
38	10. 309452	309471	309490	309508	309527	309546	309565	309583	309602	309621	309639	309658	21	3.
39	10. 309677	309696	309714	309733	309752	309771	309789	309808	309827	309845	309864	309883	20	4.
40	10. 309902	309920	309939	309958	309977	309995	310014	310033	310052	310070	310089	310108	19	1 =
41	10. 310127	310145	310164	310183	310202	310220	310239	310258	310277	310295	310314	310333	18	2.
42	10. 310352	310370	310389	310408	310427	310445	310464	310483	310502	310520	310539	310558	17	3.
43	10. 310577	310596	310614	310633	310652	310671	310689	310708	310727	310746	310765	310783	16	4.
44	10. 310802	310821	310840	310858	310877	310896	310915	310934	310952	310971	310990	311009	15	1 =
45	10. 311028	311046	311065	311084	311103	311122	311140	311159	311178	311197	311216	311234	14	2.
46	10. 311253	311272	311291	311310	311329	311347	311366	311385	311404	311423	311441	311460	13	3.
47	10. 311479	311498	311517	311536	311554	311573	311592	311611	311630	311649	311667	311686	12	4.
48	10. 311705	311724	311743	311762	311780	311799	311818	311837	311856	311875	311893	311912	11	1 =
49	10. 311931	311950	311969	311988	312007	312025	312044	312063	312082	312101	312120	312139	10	2.
50	10. 312157	312176	312195	312214	312233	312252	312271	312290	312308	312327	312346	312365	9	3.
51	10. 312384	312403	312422	312440	312459	312478	312497	312516	312535	312554	312573	312592	8	4.
52	10. 312610	312629	312648	312667	312686	312705	312724	312743	312762	312780	312799	312818	7	1 =
53	10. 312837	312856	312875	312894	312913	312932	312951	312970	312988	313007	313026	313045	6	2.
54	10. 313064	313083	313102	313121	313140	313159	313178	313197	313215	313234	313253	313272	5	3.
55	10. 313291	313310	313329	313348	313367	313386	313405	313424	313443	313462	313480	313499	4	4.
56	10. 313518	313537	313556	313575	313594	313613	313632	313651	313670	313689	313708	313727	3	1 =
57	10. 313746	313765	313784	313803	313822	313840	313859	313878	313897	313916	313935	313954	2	2.
58	10. 313973	313992	314011	314030	314049	314068	314087	314106	314125	314144	314163	314182	1	3.
59	10. 314201	314220	314239	314258	314277	314296	314315	314334	314353	314372	314391	314410	0	4.
Minutes	60″	55″	50″	45	40	35	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts

Co-secant of 29 degrees, or Secant of 119 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 61 degrees, or Co-secant of 151 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 314439	314448	314467	314486	314505	314524	314543	314562	314581	314600	314619	314638	59	1″ = 4
1	10. 314657	314676	314695	314714	314733	314752	314771	314790	314809	314828	314847	314866	58	2. 8
2	10. 314885	314904	314923	314942	314961	314980	314999	315018	315037	315056	315075	315094	57	3. 11
3	10. 315113	315132	315151	315170	315189	315208	315227	315246	315265	315284	315304	315323	56	4. 15
4	10. 315342	315361	315380	315399	315418	315437	315456	315475	315494	315513	315532	315551	55	1 = 4
5	10. 315570	315589	315608	315627	315646	315666	315685	315704	315723	315742	315761	315780	54	2. 8
6	10. 315799	315818	315837	315856	315875	315894	315913	315933	315952	315971	315990	316009	53	3. 11
7	10. 316028	316047	316066	316085	316104	316123	316142	316162	316181	316200	316219	316238	52	4. 15
8	10. 316257	316276	316295	316314	316333	316352	316372	316391	316410	316429	316448	316467	51	1 = 4
9	10. 316486	316505	316524	316544	316563	316582	316601	316620	316639	316658	316677	316697	50	2. 8
10	10. 316716	316735	316754	316773	316792	316811	316830	316850	316869	316888	316907	316926	49	3. 11
11	10. 316945	316964	316983	317003	317022	317041	317060	317079	317098	317117	317137	317156	48	4. 15
12	10. 317175	317194	317213	317232	317252	317271	317290	317309	317328	317347	317366	317386	47	1 = 4
13	10. 317405	317424	317443	317462	317481	317501	317520	317539	317558	317577	317596	317616	46	2. 8
14	10. 317635	317654	317673	317692	317712	317731	317750	317769	317788	317807	317827	317846	45	3. 12
15	10. 317865	317884	317903	317923	317942	317961	317980	317999	318019	318038	318057	318076	44	4. 15
16	10. 318095	318115	318134	318153	318172	318191	318211	318230	318249	318268	318287	318307	43	1 = 4
17	10. 318326	318345	318364	318384	318403	318422	318441	318460	318480	318499	318518	318537	42	2. 8
18	10. 318557	318576	318595	318614	318633	318653	318672	318691	318710	318730	318749	318768	41	3. 12
19	10. 318787	318807	318826	318845	318864	318884	318903	318922	318941	318961	318980	318999	40	4. 15
20	10. 319018	319038	319057	319076	319095	319115	319134	319153	319172	319192	319211	319230	39	1 = 4
21	10. 319250	319269	319288	319307	319327	319346	319365	319384	319404	319423	319442	319462	38	2. 8
22	10. 319481	319500	319519	319539	319558	319577	319597	319616	319635	319654	319674	319693	37	3. 12
23	10. 319712	319732	319751	319770	319789	319809	319828	319847	319867	319886	319905	319925	36	4. 15
24	10. 319944	319963	319983	320002	320021	320040	320060	320079	320098	320118	320137	320156	35	1 = 4
25	10. 320176	320195	320214	320234	320253	320272	320292	320311	320330	320350	320369	320388	34	2. 8
26	10. 320408	320427	320446	320466	320485	320504	320524	320543	320562	320582	320601	320620	33	3. 12
27	10. 320640	320659	320678	320698	320717	320737	320756	320775	320795	320814	320833	320853	32	4. 15
28	10. 320872	320891	320911	320930	320949	320969	320988	321008	321027	321046	321066	321085	31	1 = 4
29	10. 321104	321124	321143	321163	321182	321201	321221	321240	321259	321279	321298	321318	30	2. 8
30	10. 321337	321356	321376	321395	321415	321434	321453	321473	321492	321512	321531	321550	29	3. 12
31	10. 321570	321589	321609	321628	321647	321667	321686	321706	321725	321744	321764	321783	28	4. 16
32	10. 321803	321822	321842	321861	321880	321900	321919	321939	321958	321978	321997	322016	27	1 = 4
33	10. 322036	322055	322075	322094	322114	322133	322152	322172	322191	322211	322230	322250	26	2. 8
34	10. 322269	322288	322308	322327	322347	322366	322386	322405	322425	322444	322464	322483	25	3. 12
35	10. 322502	322522	322541	322561	322580	322600	322619	322639	322658	322678	322697	322717	24	4. 16
36	10. 322736	322755	322775	322794	322814	322833	322853	322872	322892	322911	322931	322950	23	1 = 4
37	10. 322970	322989	323009	323028	323048	323067	323087	323106	323126	323145	323165	323184	22	2. 8
38	10. 323204	323223	323243	323262	323282	323301	323321	323340	323360	323379	323399	323418	21	3. 12
39	10. 323438	323457	323477	323496	323516	323535	323555	323574	323594	323613	323633	323652	20	4. 16
40	10. 323672	323691	323711	323730	323750	323770	323789	323809	323828	323848	323867	323887	19	1 = 4
41	10. 323906	323926	323945	323965	323984	324004	324024	324043	324063	324082	324102	324121	18	2. 8
42	10. 324141	324160	324180	324199	324219	324239	324258	324278	324297	324317	324336	324356	17	3. 12
43	10. 324375	324395	324415	324434	324454	324473	324493	324512	324532	324552	324571	324591	16	4. 16
44	10. 324610	324630	324650	324669	324689	324708	324728	324747	324767	324787	324806	324826	15	1 = 4
45	10. 324845	324865	324885	324904	324924	324943	324963	324983	325002	325022	325041	325061	14	2. 8
46	10. 325081	325100	325120	325139	325159	325179	325198	325218	325237	325257	325277	325296	13	3. 12
47	10. 325316	325336	325355	325375	325394	325414	325434	325453	325473	325493	325512	325532	12	4. 16
48	10. 325551	325571	325591	325610	325630	325650	325669	325689	325709	325728	325748	325768	11	1 = 4
49	10. 325787	325807	325826	325846	325866	325885	325905	325925	325944	325964	325984	326003	10	2. 8
50	10. 326023	326043	326062	326082	326102	326121	326141	326161	326180	326200	326220	326239	9	3. 12
51	10. 326259	326279	326298	326318	326338	326357	326377	326397	326416	326436	326456	326476	8	4. 16
52	10. 326495	326515	326535	326554	326574	326594	326613	326633	326653	326672	326692	326712	7	1 = 4
53	10. 326732	326751	326771	326791	326810	326830	326850	326870	326889	326909	326929	326948	6	2. 8
54	10. 326968	326988	327008	327027	327047	327067	327086	327106	327126	327146	327165	327185	5	3. 12
55	10. 327205	327224	327244	327264	327284	327304	327323	327343	327363	327382	327402	327422	4	4. 16
56	10. 327442	327461	327481	327501	327521	327540	327560	327580	327600	327619	327639	327659	3	1 = 4
57	10. 327679	327698	327718	327738	327758	327777	327797	327817	327837	327856	327876	327896	2	2. 8
58	10. 327916	327936	327955	327975	327995	328015	328034	328054	328074	328094	328114	328133	1	3. 12
59	10. 328153	328173	328193	328213	328232	328252	328272	328292	328311	328331	328351	328371	0	4. 16
	60′	55′	50′	45″	40″	35″	30″	25″	20″	15	10″	5″	Minutes	Propor. parts.
	Co-secant of 28 degrees, or Secant of 118 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 52 degrees, or Co-secant of 142 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 210658	210671	210685	210698	210712	210725	210739	210752	210766	210779	210793	210806	59	1″ =
1	10. 210820	210833	210847	210860	210874	210887	210901	210914	210928	210941	210955	210968	58	2.
2	10. 210982	210995	211009	211022	211036	211049	211063	211076	211090	211103	211117	211130	57	3.
3	10. 211143	211157	211170	211184	211197	211211	211225	211238	211252	211265	211279	211292	56	4.
4	10. 211306	211319	211333	211346	211360	211373	211387	211400	211414	211427	211441	211454	55	1 =
5	10. 211468	211481	211495	211508	211522	211535	211549	211562	211576	211589	211603	211616	54	2.
6	10. 211630	211643	211657	211670	211684	211698	211711	211725	211738	211752	211765	211779	53	3.
7	10. 211792	211806	211819	211833	211846	211860	211873	211887	211900	211914	211928	211941	52	4.
8	10. 211955	211968	211982	211995	212009	212022	212036	212049	212063	212077	212090	212104	51	1 =
9	10. 212117	212131	212144	212158	212171	212185	212198	212212	212226	212239	212253	212266	50	2.
10	10. 212280	212293	212307	212320	212334	212348	212361	212375	212388	212402	212415	212429	49	3.
11	10. 212443	212456	212470	212483	212497	212510	212524	212537	212551	212565	212578	212592	48	4.
12	10. 212605	212619	212632	212646	212660	212673	212687	212700	212714	212728	212741	212755	47	1 =
13	10. 212768	212782	212795	212809	212823	212836	212850	212863	212877	212890	212904	212918	46	2.
14	10. 212931	212945	212958	212972	212986	212999	213013	213026	213040	213054	213067	213081	45	3.
15	10. 213094	213108	213122	213135	213149	213162	213176	213190	213203	213217	213230	213244	44	4.
16	10. 213258	213271	213285	213298	213312	213326	213339	213353	213366	213380	213394	213407	43	1 =
17	10. 213421	213434	213448	213462	213475	213489	213503	213516	213530	213543	213557	213571	42	2.
18	10. 213584	213598	213612	213625	213639	213652	213666	213680	213693	213707	213721	213734	41	3.
19	10. 213748	213761	213775	213789	213802	213816	213830	213843	213857	213870	213884	213898	40	4.
20	10. 213911	213925	213939	213952	213966	213980	213993	214007	214021	214034	214048	214061	39	1 =
21	10. 214075	214089	214102	214116	214130	214143	214157	214171	214184	214198	214212	214225	38	2.
22	10. 214239	214253	214266	214280	214294	214307	214321	214334	214348	214362	214375	214389	37	3.
23	10. 214403	214416	214430	214444	214457	214471	214485	214498	214512	214526	214539	214553	36	4.
24	10. 214567	214580	214594	214608	214621	214635	214649	214662	214676	214690	214704	214717	35	1 =
25	10. 214731	214745	214758	214772	214786	214799	214813	214827	214840	214854	214868	214881	34	2.
26	10. 214895	214909	214922	214936	214950	214964	214977	214991	215005	215018	215032	215046	33	3.
27	10. 215059	215073	215087	215100	215114	215128	215142	215155	215169	215183	215196	215210	32	4.
28	10. 215224	215237	215251	215265	215279	215292	215306	215320	215333	215347	215361	215375	31	1 =
29	10. 215388	215402	215416	215429	215443	215457	215471	215484	215498	215512	215525	215539	30	2.
30	10. 215553	215567	215580	215594	215608	215621	215635	215649	215663	215676	215690	215704	29	3.
31	10. 215718	215731	215745	215759	215772	215786	215800	215814	215827	215841	215855	215869	28	4.
32	10. 215882	215896	215910	215924	215937	215951	215965	215978	215992	216006	216020	216033	27	1 =
33	10. 216047	216061	216075	216088	216102	216116	216130	216143	216157	216171	216185	216198	26	2.
34	10. 216212	216226	216240	216253	216267	216281	216295	216308	216322	216336	216350	216363	25	3.
35	10. 216377	216391	216405	216419	216432	216446	216460	216474	216487	216501	216515	216529	24	4.
36	10. 216542	216556	216570	216584	216598	216611	216625	216639	216653	216666	216680	216694	23	1 =
37	10. 216708	216721	216735	216749	216763	216777	216790	216804	216818	216832	216846	216859	22	2.
38	10. 216873	216887	216901	216914	216928	216942	216956	216970	216983	216997	217011	217025	21	3.
39	10. 217039	217052	217066	217080	217094	217108	217121	217135	217149	217163	217177	217190	20	4.
40	10. 217204	217218	217232	217246	217259	217273	217287	217301	217315	217328	217342	217356	19	1 =
41	10. 217370	217384	217397	217411	217425	217439	217453	217467	217480	217494	217508	217522	18	2.
42	10. 217536	217549	217563	217577	217591	217605	217619	217632	217646	217660	217674	217688	17	3.
43	10. 217702	217715	217729	217743	217757	217771	217785	217798	217812	217826	217840	217854	16	4.
44	10. 217868	217881	217895	217909	217923	217937	217951	217964	217978	217992	218006	218020	15	1 =
45	10. 218034	218047	218061	218075	218089	218103	218117	218131	218144	218158	218172	218186	14	2.
46	10. 218200	218214	218227	218241	218255	218269	218283	218297	218311	218324	218338	218352	13	3.
47	10. 218366	218380	218394	218408	218422	218435	218449	218463	218477	218491	218505	218519	12	4.
48	10. 218532	218546	218560	218574	218588	218602	218616	218630	218643	218657	218671	218685	11	1 =
49	10. 218699	218713	218727	218741	218754	218768	218782	218796	218810	218824	218838	218852	10	2.
50	10. 218866	218879	218893	218907	218921	218935	218949	218963	218977	218991	219004	219018	9	3.
51	10. 219032	219046	219060	219074	219088	219102	219116	219129	219143	219157	219171	219185	8	4.
52	10. 219199	219213	219227	219241	219255	219269	219282	219296	219310	219324	219338	219352	7	1 =
53	10. 219366	219380	219394	219408	219422	219435	219449	219463	219477	219491	219505	219519	6	2.
54	10. 219533	219547	219561	219575	219589	219602	219616	219630	219644	219658	219672	219686	5	3.
55	10. 219700	219714	219728	219742	219756	219770	219784	219797	219811	219825	219839	219853	4	4.
56	10. 219867	219881	219895	219909	219923	219937	219951	219965	219979	219993	220007	220020	3	1 =
57	10. 220034	220048	220062	220076	220090	220104	220118	220132	220146	220160	220174	220188	2	2.
58	10. 220202	220216	220230	220244	220258	220272	220286	220300	220314	220327	220341	220355	1	3.
59	10. 220369	220383	220397	220411	220425	220439	220453	220467	220481	220495	220509	220523	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-secant of 37 degrees, or Secant of 127 degrees.													

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LOGARITHMIC SECANTS.

Secant of 53 degrees, or Co-secant of 143 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 220537	220551	220565	220579	220593	220607	220621	220635	220649	220663	220677	220691	59	1″ = 3
1	10. 220705	220719	220733	220747	220761	220775	220789	220802	220816	220830	220844	220858	58	2. 6
2	10. 220872	220886	220900	220914	220928	220942	220956	220970	220984	220998	221012	221026	57	3. 8
3	10. 221040	221054	221068	221082	221096	221110	221124	221138	221152	221166	221180	221194	56	4. 11
4	10. 221208	221222	221236	221250	221264	221278	221292	221306	221320	221334	221348	221362	55	1 = 3
5	10. 221376	221390	221404	221418	221432	221447	221461	221475	221489	221503	221517	221531	54	2. 6
6	10. 221545	221559	221573	221587	221601	221615	221629	221643	221657	221671	221685	221699	53	3. 8
7	10. 221713	221727	221741	221755	221769	221783	221797	221811	221825	221839	221853	221867	52	4. 11
8	10. 221881	221895	221909	221923	221938	221952	221966	221980	221994	222008	222022	222036	51	1 = 3
9	10. 222050	222064	222078	222092	222106	222120	222134	222148	222162	222176	222190	222204	50	2. 6
10	10. 222218	222233	222247	222261	222275	222289	222303	222317	222331	222345	222359	222373	49	3. 8
11	10. 222387	222401	222415	222429	222443	222458	222472	222486	222500	222514	222528	222542	48	4. 11
12	10. 222556	222570	222584	222598	222612	222626	222640	222655	222669	222683	222697	222711	47	1 = 3
13	10. 222725	222739	222753	222767	222781	222795	222809	222824	222838	222852	222866	222880	46	2. 6
14	10. 222894	222908	222922	222936	222950	222964	222979	222993	223007	223021	223035	223049	45	3. 8
15	10. 223063	223077	223091	223105	223119	223134	223148	223162	223176	223190	223204	223218	44	4. 11
16	10. 223232	223246	223261	223275	223289	223303	223317	223331	223345	223359	223373	223388	43	1 = 3
17	10. 223402	223416	223430	223444	223458	223472	223486	223500	223515	223529	223543	223557	42	2. 6
18	10. 223571	223585	223599	223613	223628	223642	223656	223670	223684	223698	223712	223726	41	3. 8
19	10. 223741	223755	223769	223783	223797	223811	223825	223840	223854	223868	223882	223896	40	4. 11
20	10. 223910	223924	223939	223953	223967	223981	223995	224009	224023	224038	224052	224066	39	1 = 3
21	10. 224080	224094	224108	224122	224137	224151	224165	224179	224193	224207	224222	224236	38	2. 6
22	10. 224250	224264	224278	224292	224306	224321	224335	224349	224363	224377	224391	224406	37	3. 8
23	10. 224420	224434	224448	224462	224476	224491	224505	224519	224533	224547	224562	224576	36	4. 11
24	10. 224590	224604	224618	224632	224647	224661	224675	224689	224703	224717	224732	224746	35	1 = 3
25	10. 224760	224774	224788	224803	224817	224831	224845	224859	224874	224888	224902	224916	34	2. 6
26	10. 224930	224944	224959	224973	224987	225001	225015	225030	225044	225058	225072	225086	33	3. 9
27	10. 225101	225115	225129	225143	225157	225172	225186	225200	225214	225228	225243	225257	32	4. 11
28	10. 225271	225285	225300	225314	225328	225342	225356	225371	225385	225399	225413	225427	31	1 = 3
29	10. 225442	225456	225470	225484	225499	225513	225527	225541	225555	225570	225584	225598	30	2. 6
30	10. 225612	225627	225641	225655	225669	225683	225698	225712	225726	225740	225755	225769	29	3. 9
31	10. 225783	225797	225812	225826	225840	225854	225869	225883	225897	225911	225926	225940	28	4. 11
32	10. 225954	225968	225983	225997	226011	226025	226039	226054	226068	226082	226096	226111	27	1 = 3
33	10. 226125	226139	226154	226168	226182	226196	226211	226225	226239	226253	226268	226282	26	2. 6
34	10. 226296	226310	226325	226339	226353	226367	226382	226396	226410	226424	226439	226453	25	3. 9
35	10. 226467	226482	226496	226510	226524	226539	226553	226567	226581	226596	226610	226624	24	4. 11
36	10. 226639	226653	226667	226681	226696	226710	226724	226739	226753	226767	226781	226796	23	1 = 3
37	10. 226810	226824	226839	226853	226867	226881	226896	226910	226924	226939	226953	226967	22	2. 6
38	10. 226981	226996	227010	227024	227039	227053	227067	227082	227096	227110	227125	227139	21	3. 9
39	10. 227153	227167	227182	227196	227210	227225	227239	227253	227268	227282	227296	227311	20	4. 11
40	10. 227325	227339	227353	227368	227382	227396	227411	227425	227439	227454	227468	227482	19	1 = 3
41	10. 227497	227511	227525	227540	227554	227568	227583	227597	227611	227626	227640	227654	18	2. 6
42	10. 227669	227683	227697	227712	227726	227740	227755	227769	227783	227798	227812	227826	17	3. 9
43	10. 227841	227855	227869	227884	227898	227912	227927	227941	227955	227970	227984	227998	16	4. 11
44	10. 228013	228027	228041	228056	228070	228084	228099	228113	228128	228142	228156	228171	15	1 = 3
45	10. 228185	228199	228214	228228	228242	228257	228271	228286	228300	228314	228329	228343	14	2. 6
46	10. 228357	228372	228386	228400	228415	228429	228444	228458	228472	228487	228501	228515	13	3. 9
47	10. 228530	228544	228559	228573	228587	228602	228616	228630	228645	228659	228674	228688	12	4. 11
48	10. 228702	228717	228731	228745	228760	228774	228789	228803	228817	228832	228846	228861	11	1 = 3
49	10. 228875	228889	228904	228918	228933	228947	228961	228976	228990	229005	229019	229033	10	2. 6
50	10. 229048	229062	229077	229091	229105	229120	229134	229149	229163	229177	229192	229206	9	3. 9
51	10. 229221	229235	229249	229264	229278	229293	229307	229322	229336	229350	229365	229379	8	4. 12
52	10. 229394	229408	229422	229437	229451	229466	229480	229495	229509	229523	229538	229552	7	1 = 3
53	10. 229567	229581	229596	229610	229624	229639	229653	229668	229682	229697	229711	229725	6	2. 6
54	10. 229740	229754	229769	229783	229798	229812	229827	229841	229855	229870	229884	229899	5	3. 9
55	10. 229913	229928	229942	229957	229971	229985	230000	230014	230029	230043	230058	230072	4	4. 12
56	10. 230087	230101	230116	230130	230144	230159	230173	230188	230202	230217	230231	230246	3	1 = 3
57	10. 230260	230275	230289	230303	230318	230332	230347	230361	230376	230390	230405	230419	2	2. 6
58	10. 230434	230448	230463	230477	230492	230506	230521	230535	230550	230564	230578	230593	1	3. 9
59	10. 230607	230622	230636	230651	230665	230680	230694	230709	230723	230738	230752	230767	0	4. 12
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 36 degrees, or Secant of 126 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 54 degrees, or Co-secant of 144 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 230781	230796	230810	230825	230839	230854	230868	230883	230897	230912	230926	230941	59	1° =
1	10. 230955	230970	230984	230999	231013	231028	231042	231057	231071	231086	231100	231115	58	2.
2	10. 231129	231144	231158	231173	231187	231202	231216	231231	231245	231260	231274	231289	57	3.
3	10. 231303	231318	231332	231347	231361	231376	231390	231405	231420	231434	231449	231463	56	4.
4	10. 231478	231492	231507	231521	231536	231550	231565	231579	231594	231608	231623	231637	55	1 =
5	10. 231652	231667	231681	231696	231710	231725	231739	231754	231768	231783	231797	231812	54	2.
6	10. 231826	231841	231856	231870	231885	231899	231914	231928	231943	231957	231972	231986	53	3.
7	10. 232001	232016	232030	232045	232059	232074	232088	232103	232117	232132	232147	232161	52	4.
8	10. 232176	232190	232205	232219	232234	232249	232263	232278	232292	232307	232321	232336	51	1 =
9	10. 232351	232365	232380	232394	232409	232423	232438	232453	232467	232482	232496	232511	50	2.
10	10. 232525	232540	232555	232569	232584	232598	232613	232627	232642	232657	232671	232686	49	3.
11	10. 232700	232715	232730	232744	232759	232773	232788	232803	232817	232832	232846	232861	48	4.
12	10. 232876	232890	232905	232919	232934	232949	232963	232978	232992	233007	233022	233036	47	1 =
13	10. 233051	233065	233080	233095	233109	233124	233138	233153	233168	233182	233197	233211	46	2.
14	10. 233226	233241	233255	233270	233285	233299	233314	233328	233343	233358	233372	233387	45	3.
15	10. 233401	233416	233431	233445	233460	233475	233489	233504	233518	233533	233548	233562	44	4.
16	10. 233577	233592	233606	233621	233636	233650	233665	233679	233694	233709	233723	233738	43	1 =
17	10. 233753	233767	233782	233797	233811	233826	233841	233855	233870	233884	233899	233914	42	2.
18	10. 233928	233943	233958	233972	233987	234002	234016	234031	234046	234060	234075	234090	41	3.
19	10. 234104	234119	234134	234148	234163	234178	234192	234207	234222	234236	234251	234266	40	4.
20	10. 234280	234295	234310	234324	234339	234354	234368	234383	234398	234412	234427	234442	39	1 =
21	10. 234456	234471	234486	234500	234515	234530	234544	234559	234574	234588	234603	234618	38	2.
22	10. 234633	234647	234662	234677	234691	234706	234721	234735	234750	234765	234779	234794	37	3.
23	10. 234809	234824	234838	234853	234868	234882	234897	234912	234926	234941	234956	234971	36	4.
24	10. 234985	235000	235015	235029	235044	235059	235073	235088	235103	235118	235132	235147	35	1 =
25	10. 235162	235176	235191	235206	235221	235235	235250	235265	235279	235294	235309	235324	34	2.
26	10. 235338	235353	235368	235383	235397	235412	235427	235441	235456	235471	235486	235500	33	3.
27	10. 235515	235530	235545	235559	235574	235589	235603	235618	235633	235648	235662	235677	32	4.
28	10. 235692	235707	235721	235736	235751	235766	235780	235795	235810	235825	235839	235854	31	1 =
29	10. 235869	235884	235898	235913	235928	235943	235957	235972	235987	236002	236016	236031	30	2.
30	10. 236046	236061	236075	236090	236105	236120	236134	236149	236164	236179	236194	236208	29	3.
31	10. 236223	236238	236253	236267	236282	236297	236312	236326	236341	236356	236371	236386	28	4.
32	10. 236400	236415	236430	236445	236459	236474	236489	236504	236519	236533	236548	236563	27	1 =
33	10. 236578	236593	236607	236622	236637	236652	236666	236681	236696	236711	236726	236740	26	2.
34	10. 236755	236770	236785	236800	236814	236829	236844	236859	236874	236888	236903	236918	25	3.
35	10. 236933	236948	236962	236977	236992	237007	237022	237036	237051	237066	237081	237096	24	4.
36	10. 237111	237125	237140	237155	237170	237185	237199	237214	237229	237244	237259	237274	23	1 =
37	10. 237288	237303	237318	237333	237348	237362	237377	237392	237407	237422	237437	237451	22	2.
38	10. 237466	237481	237496	237511	237526	237540	237555	237570	237585	237600	237615	237629	21	3.
39	10. 237644	237659	237674	237689	237704	237719	237733	237748	237763	237778	237793	237808	20	4.
40	10. 237822	237837	237852	237867	237882	237897	237912	237926	237941	237956	237971	237986	19	1 =
41	10. 238001	238016	238030	238045	238060	238075	238090	238105	238120	238134	238149	238164	18	2.
42	10. 238179	238194	238209	238224	238239	238253	238268	238283	238298	238313	238328	238343	17	3.
43	10. 238358	238372	238387	238402	238417	238432	238447	238462	238477	238492	238506	238521	16	4.
44	10. 238536	238551	238566	238581	238596	238611	238626	238640	238655	238670	238685	238700	15	1 =
45	10. 238715	238730	238745	238760	238774	238789	238804	238819	238834	238849	238864	238879	14	2.
46	10. 238894	238909	238923	238938	238953	238968	238983	238998	239013	239028	239043	239058	13	3.
47	10. 239073	239088	239102	239117	239132	239147	239162	239177	239192	239207	239222	239237	12	4.
48	10. 239252	239267	239281	239296	239311	239326	239341	239356	239371	239386	239401	239416	11	1 =
49	10. 239431	239446	239461	239476	239491	239505	239520	239535	239550	239565	239580	239595	10	2.
50	10. 239610	239625	239640	239655	239670	239685	239700	239715	239730	239745	239759	239774	9	3.
51	10. 239789	239804	239819	239834	239849	239864	239879	239894	239909	239924	239939	239954	8	4.
52	10. 239969	239984	239999	240014	240029	240044	240059	240074	240089	240104	240119	240133	7	1 =
53	10. 240148	240163	240178	240193	240208	240223	240238	240253	240268	240283	240298	240313	6	2.
54	10. 240328	240343	240358	240373	240388	240403	240418	240433	240448	240463	240478	240493	5	3.
55	10. 240508	240523	240538	240553	240568	240583	240598	240613	240628	240643	240658	240673	4	4.
56	10. 240688	240703	240718	240733	240748	240763	240778	240793	240808	240823	240838	240853	3	1 =
57	10. 240868	240883	240898	240913	240928	240943	240958	240973	240988	241003	241018	241033	2	2.
58	10. 241048	241063	241078	241093	241108	241123	241138	241153	241168	241183	241198	241213	1	3.
59	10. 241228	241243	241258	241273	241288	241303	241318	241333	241349	241364	241379	241394	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 35 degrees, or Secant of 125 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 55 degrees, or Co-secant of 145 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 241409	241424	241439	241454	241469	241484	241499	241514	241529	241544	241559	241574	59	1″ = 3
1	10. 241589	241604	241619	241634	241649	241664	241679	241694	241710	241725	241740	241755	58	2. 6
2	10. 241770	241785	241800	241815	241830	241845	241860	241875	241890	241905	241920	241935	57	3. 9
3	10. 241950	241965	241981	241996	242011	242026	242041	242056	242071	242086	242101	242116	56	4. 12
4	10. 242131	242146	242161	242176	242192	242207	242222	242237	242252	242267	242282	242297	55	1 = 3
5	10. 242312	242327	242342	242357	242372	242388	242403	242418	242433	242448	242463	242478	54	2. 6
6	10. 242493	242508	242523	242538	242554	242569	242584	242599	242614	242629	242644	242659	53	3. 9
7	10. 242674	242689	242705	242720	242735	242750	242765	242780	242795	242810	242825	242840	52	4. 12
8	10. 242856	242871	242886	242901	242916	242931	242946	242961	242976	242992	243007	243022	51	1 = 3
9	10. 243037	243052	243067	243082	243097	243113	243128	243143	243158	243173	243188	243203	50	2. 6
10	10. 243218	243234	243249	243264	243279	243294	243309	243324	243339	243355	243370	243385	49	3. 9
11	10. 243400	243415	243430	243445	243461	243476	243491	243506	243521	243536	243551	243567	48	4. 12
12	10. 243582	243597	243612	243627	243642	243657	243673	243688	243703	243718	243733	243748	47	1 = 3
13	10. 243764	243779	243794	243809	243824	243839	243855	243870	243885	243900	243915	243930	46	2. 6
14	10. 243946	243961	243976	243991	244006	244021	244037	244052	244067	244082	244097	244112	45	3. 9
15	10. 244128	244143	244158	244173	244188	244203	244219	244234	244249	244264	244279	244295	44	4. 12
16	10. 244310	244325	244340	244355	244370	244386	244401	244416	244431	244446	244462	244477	43	1 = 3
17	10. 244492	244507	244522	244538	244553	244568	244583	244598	244614	244629	244644	244659	42	2. 6
18	10. 244674	244690	244705	244720	244735	244750	244766	244781	244796	244811	244826	244842	41	3. 9
19	10. 244857	244872	244887	244903	244918	244933	244948	244963	244979	244994	245009	245024	40	4. 12
20	10. 245040	245055	245070	245085	245100	245116	245131	245146	245161	245177	245192	245207	39	1 = 3
21	10. 245222	245237	245253	245268	245283	245298	245314	245329	245344	245359	245375	245390	38	2. 6
22	10. 245405	245420	245436	245451	245466	245481	245497	245512	245527	245542	245558	245573	37	3. 9
23	10. 245588	245603	245619	245634	245649	245664	245680	245695	245710	245725	245741	245756	36	4. 12
24	10. 245771	245786	245802	245817	245832	245847	245863	245878	245893	245908	245924	245939	35	1 = 3
25	10. 245954	245970	245985	246000	246015	246031	246046	246061	246076	246092	246107	246122	34	2. 6
26	10. 246138	246153	246168	246183	246199	246214	246229	246245	246260	246275	246290	246306	33	3. 9
27	10. 246321	246336	246352	246367	246382	246397	246413	246428	246443	246459	246474	246489	32	4. 12
28	10. 246505	246520	246535	246550	246566	246581	246596	246612	246627	246642	246658	246673	31	1 = 3
29	10. 246688	246703	246719	246734	246749	246765	246780	246795	246811	246826	246841	246857	30	2. 6
30	10. 246872	246887	246903	246918	246933	246949	246964	246979	246994	247010	247025	247040	29	3. 9
31	10. 247056	247071	247086	247102	247117	247132	247148	247163	247178	247194	247209	247224	28	4. 12
32	10. 247240	247255	247270	247286	247301	247316	247332	247347	247362	247378	247393	247409	27	1 = 3
33	10. 247424	247439	247455	247470	247485	247501	247516	247531	247547	247562	247577	247593	26	2. 6
34	10. 247608	247623	247639	247654	247670	247685	247700	247716	247731	247746	247762	247777	25	3. 9
35	10. 247792	247808	247823	247839	247854	247869	247885	247900	247915	247931	247946	247961	24	4. 12
36	10. 247977	247992	248008	248023	248038	248054	248069	248085	248100	248115	248131	248146	23	1 = 3
37	10. 248161	248177	248192	248208	248223	248238	248254	248269	248285	248300	248315	248331	22	2. 6
38	10. 248346	248361	248377	248392	248408	248423	248438	248454	248469	248485	248500	248515	21	3. 9
39	10. 248531	248546	248562	248577	248593	248608	248623	248639	248654	248670	248685	248700	20	4. 12
40	10. 248716	248731	248747	248762	248777	248793	248808	248824	248839	248855	248870	248885	19	1 = 3
41	10. 248901	248916	248932	248947	248963	248978	248993	249009	249024	249040	249055	249071	18	2. 6
42	10. 249086	249101	249117	249132	249148	249163	249179	249194	249209	249225	249240	249256	17	3. 9
43	10. 249271	249287	249302	249318	249333	249348	249364	249379	249395	249410	249426	249441	16	4. 12
44	10. 249457	249472	249487	249503	249518	249534	249549	249565	249580	249596	249611	249627	15	1 = 3
45	10. 249642	249658	249673	249688	249704	249719	249735	249750	249766	249781	249797	249812	14	2. 6
46	10. 249828	249843	249859	249874	249890	249905	249921	249936	249951	249967	249982	249998	13	3. 9
47	10. 250013	250029	250044	250060	250075	250091	250106	250122	250137	250153	250168	250184	12	4. 12
48	10. 250199	250215	250230	250246	250261	250277	250292	250308	250323	250339	250354	250370	11	1 = 3
49	10. 250385	250401	250416	250432	250447	250463	250478	250494	250509	250525	250540	250556	10	2. 6
50	10. 250571	250587	250602	250618	250633	250649	250664	250680	250695	250711	250726	250742	9	3. 9
51	10. 250757	250773	250788	250804	250819	250835	250851	250866	250882	250897	250913	250928	8	4. 12
52	10. 250944	250959	250975	250990	251006	251021	251037	251052	251068	251084	251099	251115	7	1 = 3
53	10. 251130	251146	251161	251177	251192	251208	251223	251239	251254	251270	251286	251301	6	2. 6
54	10. 251317	251332	251348	251363	251379	251394	251410	251426	251441	251457	251472	251488	5	3. 9
55	10. 251503	251519	251534	251550	251566	251581	251597	251612	251628	251643	251659	251674	4	4. 12
56	10. 251690	251706	251721	251737	251752	251768	251783	251799	251815	251830	251846	251861	3	1 = 3
57	10. 251877	251893	251908	251924	251939	251955	251970	251986	252002	252017	252033	252048	2	2. 6
58	10. 252064	252080	252095	252111	252126	252142	252157	252173	252189	252204	252220	252235	1	3. 9
59	10. 252251	252267	252282	252298	252313	252329	252345	252360	252376	252391	252407	252423	0	4. 12
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-secant of 34 degrees, or Secant of 124 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 56 degrees, or Co-secant of 146 degrees.												Minutes	Propor. parts
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	10. 252438	252454	252470	252485	252501	252516	252532	252548	252563	252579	252594	252610	59	1″ =
1	10. 252626	252641	252657	252673	252688	252704	252719	252735	252751	252766	252782	252797	58	2.
2	10. 252813	252829	252844	252860	252876	252891	252907	252923	252938	252954	252969	252985	57	3.
3	10. 253001	253016	253032	253048	253063	253079	253095	253110	253126	253141	253157	253173	56	4.
4	10. 253188	253204	253220	253235	253251	253267	253282	253298	253314	253329	253345	253361	55	1 =
5	10. 253376	253392	253408	253423	253439	253455	253470	253486	253502	253517	253533	253549	54	2.
6	10. 253564	253580	253596	253611	253627	253643	253658	253674	253690	253705	253721	253737	53	3.
7	10. 253752	253768	253784	253799	253815	253831	253846	253862	253878	253893	253909	253925	52	4.
8	10. 253940	253956	253972	253987	254003	254019	254035	254050	254066	254082	254097	254113	51	1 =
9	10. 254129	254144	254160	254176	254192	254207	254223	254239	254254	254270	254286	254301	50	2.
10	10. 254317	254333	254349	254364	254380	254396	254411	254427	254443	254459	254474	254490	49	3.
11	10. 254506	254521	254537	254553	254569	254584	254600	254616	254631	254647	254663	254679	48	4.
12	10. 254694	254710	254726	254741	254757	254773	254789	254804	254820	254836	254852	254867	47	1 =
13	10. 254883	254899	254915	254930	254946	254962	254978	254993	255009	255025	255040	255056	46	2.
14	10. 255072	255088	255103	255119	255135	255151	255166	255182	255198	255214	255229	255245	45	3.
15	10. 255261	255277	255292	255308	255324	255340	255356	255371	255387	255403	255419	255434	44	4.
16	10. 255450	255466	255482	255497	255513	255529	255545	255560	255576	255592	255608	255624	43	1 =
17	10. 255639	255655	255671	255687	255702	255718	255734	255750	255766	255781	255797	255813	42	2.
18	10. 255829	255845	255860	255876	255892	255908	255923	255939	255955	255971	255987	256002	41	3.
19	10. 256018	256034	256050	256066	256081	256097	256113	256129	256145	256160	256176	256192	40	4.
20	10. 256208	256224	256239	256255	256271	256287	256303	256318	256334	256350	256366	256382	39	1 =
21	10. 256398	256413	256429	256445	256461	256477	256492	256508	256524	256540	256556	256572	38	2.
22	10. 256587	256603	256619	256635	256651	256667	256682	256698	256714	256730	256746	256762	37	3.
23	10. 256777	256793	256809	256825	256841	256857	256872	256888	256904	256920	256936	256952	36	4.
24	10. 256967	256983	256999	257015	257031	257047	257063	257078	257094	257110	257126	257142	35	1 =
25	10. 257158	257173	257189	257205	257221	257237	257253	257269	257285	257300	257316	257332	34	2.
26	10. 257348	257364	257380	257396	257411	257427	257443	257459	257475	257491	257507	257523	33	3.
27	10. 257538	257554	257570	257586	257602	257618	257634	257650	257665	257681	257697	257713	32	4.
28	10. 257729	257745	257761	257777	257793	257808	257824	257840	257856	257872	257888	257904	31	1 =
29	10. 257920	257936	257951	257967	257983	257999	258015	258031	258047	258063	258079	258095	30	2.
30	10. 258110	258126	258142	258158	258174	258190	258206	258222	258238	258254	258270	258285	29	3.
31	10. 258301	258317	258333	258349	258365	258381	258397	258413	258429	258445	258461	258477	28	4.
32	10. 258492	258508	258524	258540	258556	258572	258588	258604	258620	258636	258652	258668	27	1 =
33	10. 258684	258700	258715	258731	258747	258763	258779	258795	258811	258827	258843	258859	26	2.
34	10. 258875	258891	258907	258923	258939	258955	258971	258987	259002	259018	259034	259050	25	3.
35	10. 259066	259082	259098	259114	259130	259146	259162	259178	259194	259210	259226	259242	24	4.
36	10. 259258	259274	259290	259306	259322	259338	259354	259370	259386	259402	259418	259433	23	1 =
37	10. 259449	259465	259481	259497	259513	259529	259545	259561	259577	259593	259609	259625	22	2.
38	10. 259641	259657	259673	259689	259705	259721	259737	259753	259769	259785	259801	259817	21	3.
39	10. 259833	259849	259865	259881	259897	259913	259929	259945	259961	259977	259993	260009	20	4.
40	10. 260025	260041	260057	260073	260089	260105	260121	260137	260153	260169	260185	260201	19	1 =
41	10. 260217	260233	260249	260265	260281	260297	260313	260329	260345	260361	260378	260394	18	2.
42	10. 260410	260426	260442	260458	260474	260490	260506	260522	260538	260554	260570	260586	17	3.
43	10. 260602	260618	260634	260650	260666	260682	260698	260714	260730	260746	260762	260778	16	4.
44	10. 260794	260810	260827	260843	260859	260875	260891	260907	260923	260939	260955	260971	15	1 =
45	10. 260987	261003	261019	261035	261051	261067	261083	261099	261116	261132	261148	261164	14	2.
46	10. 261180	261196	261212	261228	261244	261260	261276	261292	261308	261324	261341	261357	13	3.
47	10. 261373	261389	261405	261421	261437	261453	261469	261485	261501	261517	261534	261550	12	4.
48	10. 261566	261582	261598	261614	261630	261646	261662	261678	261694	261711	261727	261743	11	1 =
49	10. 261759	261775	261791	261807	261823	261839	261855	261872	261888	261904	261920	261936	10	2.
50	10. 261952	261968	261984	262000	262016	262033	262049	262065	262081	262097	262113	262129	9	3.
51	10. 262145	262162	262178	262194	262210	262226	262242	262258	262274	262290	262307	262323	8	4.
52	10. 262339	262355	262371	262387	262403	262420	262436	262452	262468	262484	262500	262516	7	1 =
53	10. 262532	262549	262565	262581	262597	262613	262629	262645	262662	262678	262694	262710	6	2.
54	10. 262726	262742	262759	262775	262791	262807	262823	262839	262855	262872	262888	262904	5	3.
55	10. 262920	262936	262952	262969	262985	263001	263017	263033	263049	263066	263082	263098	4	4.
56	10. 263114	263130	263146	263163	263179	263195	263211	263227	263243	263260	263276	263292	3	1 =
57	10. 263308	263324	263341	263357	263373	263389	263405	263421	263438	263454	263470	263486	2	2.
58	10. 263502	263519	263535	263551	263567	263583	263600	263616	263632	263648	263664	263681	1	3.
59	10. 263697	263713	263729	263745	263762	263778	263794	263810	263826	263843	263859	263875	0	4.
Minutes	60′	55′	50′	45′	40	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts
	Co-secant of 33 degrees, or Secant of 123 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 57 degrees, or Co-secant of 147 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 263891	263907	263924	263940	263956	263972	263988	264005	264021	264037	264053	264070	59	1″ = 3
1	10. 264086	264102	264118	264134	264151	264167	264183	264199	264216	264232	264248	264264	58	2. 7
2	10. 264280	264297	264313	264329	264345	264362	264378	264394	264410	264427	264443	264459	57	3. 10
3	10. 264475	264492	264508	264524	264540	264557	264573	264589	264605	264622	264638	264654	56	4. 13
4	10. 264670	264687	264703	264719	264735	264752	264768	264784	264800	264817	264833	264849	55	1 = 3
5	10. 264865	264882	264898	264914	264930	264947	264963	264979	264996	265012	265028	265044	54	2. 7
6	10. 265061	265077	265093	265109	265126	265142	265158	265175	265191	265207	265223	265240	53	3. 10
7	10. 265256	265272	265289	265305	265321	265337	265354	265370	265386	265403	265419	265435	52	4. 13
8	10. 265451	265468	265484	265500	265517	265533	265549	265566	265582	265598	265614	265631	51	1 = 3
9	10. 265647	265663	265680	265696	265712	265729	265745	265761	265777	265794	265810	265826	50	2. 7
10	10. 265843	265859	265875	265892	265908	265924	265941	265957	265973	265990	266006	266022	49	3. 10
11	10. 266039	266055	266071	266088	266104	266120	266137	266153	266169	266186	266202	266218	48	4. 13
12	10. 266235	266251	266267	266284	266300	266316	266333	266349	266365	266382	266398	266414	47	1 = 3
13	10. 266431	266447	266463	266480	266496	266512	266529	266545	266561	266578	266594	266610	46	2. 7
14	10. 266627	266643	266660	266676	266692	266709	266725	266741	266758	266774	266790	266807	45	3. 10
15	10. 266823	266840	266856	266872	266889	266905	266921	266938	266954	266971	266987	267003	44	4. 13
16	10. 267020	267036	267052	267069	267085	267102	267118	267134	267151	267167	267183	267200	43	1 = 3
17	10. 267216	267233	267249	267265	267282	267298	267315	267331	267347	267364	267380	267397	42	2. 7
18	10. 267413	267429	267446	267462	267479	267495	267511	267528	267544	267561	267577	267593	41	3. 10
19	10. 267610	267626	267643	267659	267675	267692	267708	267725	267741	267758	267774	267790	40	4. 13
20	10. 267807	267823	267840	267856	267872	267889	267905	267922	267938	267955	267971	267987	39	1 = 3
21	10. 268004	268020	268037	268053	268070	268086	268102	268119	268135	268152	268168	268185	38	2. 7
22	10. 268201	268218	268234	268250	268267	268283	268300	268316	268333	268349	268366	268382	37	3. 10
23	10. 268398	268415	268431	268448	268464	268481	268497	268514	268530	268547	268563	268579	36	4. 13
24	10. 268596	268612	268629	268645	268662	268678	268695	268711	268728	268744	268761	268777	35	1 = 3
25	10. 268794	268810	268826	268843	268859	268876	268892	268909	268925	268942	268958	268975	34	2. 7
26	10. 268991	269008	269024	269041	269057	269074	269090	269107	269123	269140	269156	269173	33	3. 10
27	10. 269189	269206	269222	269239	269255	269272	269288	269305	269321	269338	269354	269371	32	4. 13
28	10. 269387	269404	269420	269437	269453	269470	269486	269503	269519	269536	269552	269569	31	1 = 3
29	10. 269585	269602	269618	269635	269651	269668	269684	269701	269717	269734	269750	269767	30	2. 7
30	10. 269783	269800	269816	269833	269850	269866	269883	269899	269916	269932	269949	269965	29	3. 10
31	10. 269982	269998	270015	270031	270048	270064	270081	270098	270114	270131	270147	270164	28	4. 13
32	10. 270180	270197	270213	270230	270246	270263	270280	270296	270313	270329	270346	270362	27	1 = 3
33	10. 270379	270395	270412	270429	270445	270462	270478	270495	270511	270528	270545	270561	26	2. 7
34	10. 270578	270594	270611	270627	270644	270660	270677	270694	270710	270727	270743	270760	25	3. 10
35	10. 270777	270793	270810	270826	270843	270859	270876	270893	270909	270926	270942	270959	24	4. 13
36	10. 270976	270992	271009	271025	271042	271058	271075	271092	271108	271125	271141	271158	23	1 = 3
37	10. 271175	271191	271208	271224	271241	271258	271274	271291	271307	271324	271341	271357	22	2. 7
38	10. 271374	271391	271407	271424	271440	271457	271474	271490	271507	271523	271540	271557	21	3. 10
39	10. 271573	271590	271607	271623	271640	271656	271673	271690	271706	271723	271740	271756	20	4. 13
40	10. 271773	271789	271806	271823	271839	271856	271873	271889	271906	271923	271939	271956	19	1 = 3
41	10. 271972	271989	272006	272022	272039	272056	272072	272089	272106	272122	272139	272156	18	2. 7
42	10. 272172	272189	272206	272222	272239	272256	272272	272289	272305	272322	272339	272355	17	3. 10
43	10. 272372	272389	272405	272422	272439	272455	272472	272489	272505	272522	272539	272555	16	4. 13
44	10. 272572	272589	272606	272622	272639	272656	272672	272689	272706	272722	272739	272756	15	1 = 3
45	10. 272772	272789	272806	272822	272839	272856	272872	272889	272906	272923	272939	272956	14	2. 7
46	10. 272973	272989	273006	273023	273039	273056	273073	273089	273106	273123	273140	273156	13	3. 10
47	10. 273173	273190	273206	273223	273240	273257	273273	273290	273307	273323	273340	273357	12	4. 13
48	10. 273374	273390	273407	273424	273440	273457	273474	273491	273507	273524	273541	273558	11	1 = 3
49	10. 273574	273591	273608	273624	273641	273658	273675	273691	273708	273725	273742	273758	10	2. 7
50	10. 273775	273792	273809	273825	273842	273859	273875	273892	273909	273926	273942	273959	9	3. 10
51	10. 273976	273993	274009	274026	274043	274060	274076	274093	274110	274127	274144	274160	8	4. 13
52	10. 274177	274194	274211	274227	274244	274261	274278	274294	274311	274328	274345	274361	7	1 = 3
53	10. 274378	274395	274412	274429	274445	274462	274479	274496	274512	274529	274546	274563	6	2. 7
54	10. 274580	274596	274613	274630	274647	274663	274680	274697	274714	274731	274747	274764	5	3. 10
55	10. 274781	274798	274815	274831	274848	274865	274882	274899	274915	274932	274949	274966	4	4. 13
56	10. 274983	274999	275016	275033	275050	275067	275083	275100	275117	275134	275151	275167	3	1 = 3
57	10. 275184	275201	275218	275235	275252	275268	275285	275302	275319	275336	275353	275369	2	2. 7
58	10. 275386	275403	275420	275437	275453	275470	275487	275504	275521	275538	275554	275571	1	3. 10
59	10. 275588	275605	275622	275639	275655	275672	275689	275706	275723	275740	275757	275773	0	4. 13
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 32 degrees, or Secant of 122 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 58 degrees, or Co-secant of 148 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 275790	275807	275824	275841	275858	275874	275891	275908	275925	275942	275959	275976	59	1″ =
1	10. 275992	276009	276026	276043	276060	276077	276094	276111	276127	276144	276161	276178	58	2.
2	10. 276195	276212	276229	276245	276262	276279	276296	276313	276330	276347	276364	276380	57	3.
3	10. 276397	276414	276431	276448	276465	276482	276499	276516	276532	276549	276566	276583	56	4.
4	10. 276600	276617	276634	276651	276668	276684	276701	276718	276735	276752	276769	276786	55	1 =
5	10. 276803	276820	276837	276853	276870	276887	276904	276921	276938	276955	276972	276989	54	2.
6	10. 277006	277023	277039	277056	277073	277090	277107	277124	277141	277158	277175	277192	53	3.
7	10. 277209	277226	277243	277259	277276	277293	277310	277327	277344	277361	277378	277395	52	4.
8	10. 277412	277429	277446	277463	277480	277497	277513	277530	277547	277564	277581	277598	51	1 =
9	10. 277615	277632	277649	277666	277683	277700	277717	277734	277751	277768	277785	277802	50	2.
10	10. 277819	277835	277852	277869	277886	277903	277920	277937	277954	277971	277988	278005	49	3.
11	10. 278022	278039	278056	278073	278090	278107	278124	278141	278158	278175	278192	278209	48	4.
12	10. 278226	278243	278260	278277	278294	278311	278328	278345	278362	278379	278396	278413	47	1 =
13	10. 278430	278447	278464	278481	278498	278515	278532	278549	278566	278583	278600	278617	46	2.
14	10. 278634	278651	278668	278685	278702	278719	278736	278753	278770	278787	278804	278821	45	3.
15	10. 278838	278855	278872	278889	278906	278923	278940	278957	278974	278991	279008	279025	44	4.
16	10. 279042	279059	279076	279093	279110	279127	279144	279161	279178	279195	279212	279229	43	1 =
17	10. 279246	279263	279280	279297	279314	279331	279348	279365	279382	279400	279417	279434	42	2.
18	10. 279451	279468	279485	279502	279519	279536	279553	279570	279587	279604	279621	279638	41	3.
19	10. 279655	279672	279689	279706	279724	279741	279758	279775	279792	279809	279826	279843	40	4.
20	10. 279860	279877	279894	279911	279928	279945	279962	279980	279997	280014	280031	280048	39	1 =
21	10. 280065	280082	280099	280116	280133	280150	280167	280184	280202	280219	280236	280253	38	2.
22	10. 280270	280287	280304	280321	280338	280355	280372	280390	280407	280424	280441	280458	37	3.
23	10. 280475	280492	280509	280526	280543	280561	280578	280595	280612	280629	280646	280663	36	4.
24	10. 280680	280697	280715	280732	280749	280766	280783	280800	280817	280834	280852	280869	35	1 =
25	10. 280886	280903	280920	280937	280954	280971	280989	281006	281023	281040	281057	281074	34	2.
26	10. 281091	281108	281126	281143	281160	281177	281194	281211	281228	281246	281263	281280	33	3.
27	10. 281297	281314	281331	281348	281366	281383	281400	281417	281434	281451	281468	281486	32	4.
28	10. 281503	281520	281537	281554	281571	281589	281606	281623	281640	281657	281674	281692	31	1 =
29	10. 281709	281726	281743	281760	281777	281795	281812	281829	281846	281863	281880	281898	30	2.
30	10. 281915	281932	281949	281966	281984	282001	282018	282035	282052	282070	282087	282104	29	3.
31	10. 282121	282138	282155	282173	282190	282207	282224	282241	282259	282276	282293	282310	28	4.
32	10. 282327	282345	282362	282379	282396	282413	282431	282448	282465	282482	282499	282517	27	1 =
33	10. 282534	282551	282568	282586	282603	282620	282637	282654	282672	282689	282706	282723	26	2.
34	10. 282741	282758	282775	282792	282809	282827	282844	282861	282878	282896	282913	282930	25	3.
35	10. 282947	282965	282982	282999	283016	283033	283051	283068	283085	283102	283120	283137	24	4.
36	10. 283154	283171	283189	283206	283223	283240	283258	283275	283292	283309	283327	283344	23	1 =
37	10. 283361	283378	283396	283413	283430	283448	283465	283482	283499	283517	283534	283551	22	2.
38	10. 283568	283586	283603	283620	283637	283655	283672	283689	283707	283724	283741	283758	21	3.
39	10. 283776	283793	283810	283828	283845	283862	283879	283897	283914	283931	283949	283966	20	4.
40	10. 283983	284000	284018	284035	284052	284070	284087	284104	284122	284139	284156	284173	19	1 =
41	10. 284191	284208	284225	284243	284260	284277	284295	284312	284329	284346	284364	284381	18	2.
42	10. 284398	284416	284433	284450	284468	284485	284502	284520	284537	284554	284572	284589	17	3.
43	10. 284606	284624	284641	284658	284676	284693	284710	284728	284745	284762	284780	284797	16	4.
44	10. 284814	284832	284849	284866	284884	284901	284918	284936	284953	284970	284988	285005	15	1 =
45	10. 285022	285040	285057	285074	285092	285109	285126	285144	285161	285179	285196	285213	14	2.
46	10. 285231	285248	285265	285283	285300	285317	285335	285352	285370	285387	285404	285422	13	3.
47	10. 285439	285456	285474	285491	285509	285526	285543	285561	285578	285595	285613	285630	12	4.
48	10. 285648	285665	285682	285700	285717	285734	285752	285769	285787	285804	285821	285839	11	1 =
49	10. 285856	285874	285891	285908	285926	285943	285961	285978	285995	286013	286030	286048	10	2.
50	10. 286065	286082	286100	286117	286135	286152	286169	286187	286204	286222	286239	286257	9	3.
51	10. 286274	286291	286309	286326	286344	286361	286378	286396	286413	286431	286448	286466	8	4.
52	10. 286483	286500	286518	286535	286553	286570	286588	286605	286622	286640	286657	286675	7	1 =
53	10. 286692	286710	286727	286745	286762	286779	286797	286814	286832	286849	286867	286884	6	2.
54	10. 286902	286919	286937	286954	286971	286989	287006	287024	287041	287059	287076	287094	5	3.
55	10. 287111	287129	287146	287163	287181	287198	287216	287233	287251	287268	287286	287303	4	4.
56	10. 287321	287338	287356	287373	287391	287408	287426	287443	287461	287478	287496	287513	3	1 =
57	10. 287530	287548	287565	287583	287600	287618	287635	287653	287670	287688	287705	287723	2	2.
58	10. 287740	287758	287775	287793	287810	287828	287845	287863	287880	287898	287915	287933	1	3.
59	10. 287950	287968	287985	288003	288020	288038	288056	288073	288091	288108	288126	288143	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 31 degrees, or Secant of 121 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 59 degrees, or Co-secant of 149 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 288161	288178	288196	288213	288231	288248	288266	288283	288301	288318	288336	288353	59	1″ = 4
1	10. 288371	288388	288406	288424	288441	288459	288476	288494	288511	288529	288546	288564	58	2. 7
2	10. 288581	288599	288616	288634	288652	288669	288687	288704	288722	288739	288757	288774	57	3. 11
3	10. 288792	288810	288827	288845	288862	288880	288897	288915	288932	288950	288968	288985	56	4. 14
4	10. 289003	289020	289038	289055	289073	289091	289108	289126	289143	289161	289178	289196	55	1 = 4
5	10. 289214	289231	289249	289266	289284	289302	289319	289337	289354	289372	289389	289407	54	2. 7
6	10. 289425	289442	289460	289477	289495	289513	289530	289548	289565	289583	289601	289618	53	3. 11
7	10. 289636	289653	289671	289689	289706	289724	289741	289759	289777	289794	289812	289829	52	4. 14
8	10. 289847	289865	289882	289900	289918	289935	289953	289970	289988	290006	290023	290041	51	1 = 4
9	10. 290058	290076	290094	290111	290129	290147	290164	290182	290200	290217	290235	290252	50	2. 7
10	10. 290270	290288	290305	290323	290341	290358	290376	290394	290411	290429	290446	290464	49	3. 11
11	10. 290482	290499	290517	290535	290552	290570	290588	290605	290623	290641	290658	290676	48	4. 14
12	10. 290694	290711	290729	290747	290764	290782	290800	290817	290835	290853	290870	290888	47	1 = 4
13	10. 290906	290923	290941	290959	290976	290994	291012	291029	291047	291065	291082	291100	46	2. 7
14	10. 291118	291135	291153	291171	291188	291206	291224	291242	291259	291277	291295	291312	45	3. 11
15	10. 291330	291348	291365	291383	291401	291419	291436	291454	291472	291489	291507	291525	44	4. 14
16	10. 291542	291560	291578	291596	291613	291631	291649	291666	291684	291702	291720	291737	43	1 = 4
17	10. 291755	291773	291790	291808	291826	291844	291861	291879	291897	291915	291932	291950	42	2. 7
18	10. 291968	291985	292003	292021	292039	292056	292074	292092	292110	292127	292145	292163	41	3. 11
19	10. 292181	292198	292216	292234	292252	292269	292287	292305	292322	292340	292358	292376	40	4. 14
20	10. 292394	292411	292429	292447	292465	292482	292500	292518	292536	292553	292571	292589	39	1 = 4
21	10. 292607	292624	292642	292660	292678	292695	292713	292731	292749	292767	292784	292802	38	2. 7
22	10. 292820	292838	292855	292873	292891	292909	292927	292944	292962	292980	292998	293015	37	3. 11
23	10. 293033	293051	293069	293087	293104	293122	293140	293158	293176	293193	293211	293229	36	4. 14
24	10. 293247	293265	293282	293300	293318	293336	293354	293371	293389	293407	293425	293443	35	1 = 4
25	10. 293461	293478	293496	293514	293532	293550	293567	293585	293603	293621	293639	293657	34	2. 7
26	10. 293674	293692	293710	293728	293746	293763	293781	293799	293817	293835	293853	293870	33	3. 11
27	10. 293888	293906	293924	293942	293960	293978	293995	294013	294031	294049	294067	294085	32	4. 14
28	10. 294102	294120	294138	294156	294174	294192	294210	294227	294245	294263	294281	294299	31	1 = 4
29	10. 294317	294335	294352	294370	294388	294406	294424	294442	294460	294477	294495	294513	30	2. 7
30	10. 294531	294549	294567	294585	294603	294620	294638	294656	294674	294692	294710	294728	29	3. 11
31	10. 294746	294763	294781	294799	294817	294835	294853	294871	294889	294907	294925	294942	28	4. 14
32	10. 294960	294978	294996	295014	295032	295050	295068	295086	295103	295121	295139	295157	27	1 = 4
33	10. 295175	295193	295211	295229	295247	295265	295283	295301	295318	295336	295354	295372	26	2. 7
34	10. 295390	295408	295426	295444	295462	295480	295498	295516	295533	295551	295569	295587	25	3. 11
35	10. 295605	295623	295641	295659	295677	295695	295713	295731	295749	295767	295785	295803	24	4. 14
36	10. 295820	295838	295856	295874	295892	295910	295928	295946	295964	295982	296000	296018	23	1 = 4
37	10. 296036	296054	296072	296090	296108	296126	296144	296162	296180	296197	296215	296233	22	2. 7
38	10. 296251	296269	296287	296305	296323	296341	296359	296377	296395	296413	296431	296449	21	3. 11
39	10. 296467	296485	296503	296521	296539	296557	296575	296593	296611	296629	296647	296665	20	4. 14
40	10. 296683	296701	296719	296737	296755	296773	296791	296809	296827	296845	296863	296881	19	1 = 4
41	10. 296899	296917	296935	296953	296971	296989	297007	297025	297043	297061	297079	297097	18	2. 7
42	10. 297115	297133	297151	297169	297187	297205	297223	297241	297259	297277	297295	297313	17	3. 11
43	10. 297331	297349	297367	297385	297403	297421	297439	297457	297476	297494	297512	297530	16	4. 14
44	10. 297548	297566	297584	297602	297620	297638	297656	297674	297692	297710	297728	297746	15	1 = 4
45	10. 297764	297782	297800	297818	297836	297854	297873	297891	297909	297927	297945	297963	14	2. 7
46	10. 297981	297999	298017	298035	298053	298071	298089	298107	298125	298144	298162	298180	13	3. 11
47	10. 298198	298216	298234	298252	298270	298288	298306	298324	298342	298360	298379	298397	12	4. 14
48	10. 298415	298433	298451	298469	298487	298505	298523	298541	298559	298578	298596	298614	11	1 = 4
49	10. 298632	298650	298668	298686	298704	298722	298740	298759	298777	298795	298813	298831	10	2. 7
50	10. 298849	298867	298885	298903	298922	298940	298958	298976	298994	299012	299030	299048	9	3. 11
51	10. 299067	299085	299103	299121	299139	299157	299175	299193	299212	299230	299248	299266	8	4. 14
52	10. 299284	299302	299320	299339	299357	299375	299393	299411	299429	299447	299466	299484	7	1 = 4
53	10. 299502	299520	299538	299556	299574	299593	299611	299629	299647	299665	299683	299702	6	2. 7
54	10. 299720	299738	299756	299774	299792	299811	299829	299847	299865	299883	299901	299920	5	3. 11
55	10. 299938	299956	299974	299992	300010	300029	300047	300065	300083	300101	300120	300138	4	4. 15
56	10. 300156	300174	300192	300210	300229	300247	300265	300283	300301	300320	300338	300356	3	1 = 4
57	10. 300374	300392	300411	300429	300447	300465	300483	300502	300520	300538	300556	300574	2	2. 7
58	10. 300593	300611	300629	300647	300665	300684	300702	300720	300738	300757	300775	300793	1	3. 11
59	10. 300811	300829	300848	300866	300884	300902	300921	300939	300957	300975	300993	301012	0	4. 15
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 30 degrees, or Secant of 120 degrees.													

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LOGARITHMIC SECANTS.

Secant of 60 degrees, or Co-secant of 150 degrees.

Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Propor. parts
0	10. 301030	301048	301066	301085	301103	301121	301139	301158	301176	301194	301212	301231	59	1 =
1	10. 301249	301267	301285	301304	301322	301340	301358	301377	301395	301413	301431	301450	58	2.
2	10. 301468	301486	301504	301523	301541	301559	301577	301596	301614	301632	301651	301669	57	3.
3	10. 301687	301705	301724	301742	301760	301778	301797	301815	301833	301852	301870	301888	56	4.
4	10. 301906	301925	301943	301961	301980	301998	302016	302034	302053	302071	302089	302108	55	1 =
5	10. 302126	302144	302162	302181	302199	302217	302236	302254	302272	302291	302309	302327	54	2.
6	10. 302345	302364	302382	302400	302419	302437	302455	302474	302492	302510	302529	302547	53	3.
7	10. 302565	302584	302602	302620	302639	302657	302675	302694	302712	302730	302748	302767	52	4.
8	10. 302785	302803	302822	302840	302858	302877	302895	302914	302932	302950	302969	302987	51	1 =
9	10. 303005	303024	303042	303060	303079	303097	303115	303134	303152	303170	303189	303207	50	2.
10	10. 303225	303244	303262	303281	303299	303317	303336	303354	303372	303391	303409	303427	49	3.
11	10. 303446	303464	303483	303501	303519	303538	303556	303574	303593	303611	303630	303648	48	4.
12	10. 303666	303685	303703	303721	303740	303758	303777	303795	303813	303832	303850	303869	47	1 =
13	10. 303887	303905	303924	303942	303961	303979	303997	304016	304034	304053	304071	304089	46	2.
14	10. 304108	304126	304145	304163	304181	304200	304218	304237	304255	304273	304292	304310	45	3.
15	10. 304329	304347	304366	304384	304402	304421	304439	304458	304476	304495	304513	304531	44	4.
16	10. 304550	304568	304587	304605	304624	304642	304660	304679	304697	304716	304734	304753	43	1 =
17	10. 304771	304790	304808	304826	304845	304863	304882	304900	304919	304937	304956	304974	42	2.
18	10. 304993	305011	305029	305048	305066	305085	305103	305122	305140	305159	305177	305196	41	3.
19	10. 305214	305233	305251	305269	305288	305306	305325	305343	305362	305380	305399	305417	40	4.
20	10. 305436	305454	305473	305491	305510	305528	305547	305565	305584	305602	305621	305639	39	1 =
21	10. 305658	305676	305695	305713	305732	305750	305769	305787	305806	305824	305843	305861	38	2.
22	10. 305880	305898	305917	305935	305954	305972	305991	306009	306028	306046	306065	306083	37	3.
23	10. 306102	306120	306139	306157	306176	306194	306213	306231	306250	306269	306287	306306	36	4.
24	10. 306324	306343	306361	306380	306398	306417	306435	306454	306472	306491	306509	306528	35	1 =
25	10. 306547	306565	306584	306602	306621	306639	306658	306676	306695	306714	306732	306751	34	2.
26	10. 306769	306788	306806	306825	306843	306862	306881	306899	306918	306936	306955	306973	33	3.
27	10. 306992	307011	307029	307048	307066	307085	307103	307122	307141	307159	307178	307196	32	4.
28	10. 307215	307233	307252	307271	307289	307308	307326	307345	307364	307382	307401	307419	31	1 =
29	10. 307438	307457	307475	307494	307512	307531	307550	307568	307587	307605	307624	307643	30	2.
30	10. 307661	307680	307698	307717	307736	307754	307773	307791	307810	307829	307847	307866	29	3.
31	10. 307884	307903	307922	307940	307959	307978	307996	308015	308033	308052	308071	308089	28	4.
32	10. 308108	308127	308145	308164	308183	308201	308220	308238	308257	308276	308294	308313	27	1 =
33	10. 308332	308350	308369	308388	308406	308425	308444	308462	308481	308500	308518	308537	26	2.
34	10. 308555	308574	308593	308611	308630	308649	308667	308686	308705	308723	308742	308761	25	3.
35	10. 308779	308798	308817	308835	308854	308873	308892	308910	308929	308948	308966	308985	24	4.
36	10. 309004	309022	309041	309060	309078	309097	309116	309134	309153	309172	309190	309209	23	1 =
37	10. 309228	309247	309265	309284	309303	309321	309340	309359	309377	309396	309415	309434	22	2.
38	10. 309452	309471	309490	309508	309527	309546	309565	309583	309602	309621	309639	309658	21	3.
39	10. 309677	309696	309714	309733	309752	309771	309789	309808	309827	309845	309864	309883	20	4.
40	10. 309902	309920	309939	309958	309977	309995	310014	310033	310052	310070	310089	310108	19	1 =
41	10. 310127	310145	310164	310183	310202	310220	310239	310258	310277	310295	310314	310333	18	2.
42	10. 310352	310370	310389	310408	310427	310445	310464	310483	310502	310520	310539	310558	17	3.
43	10. 310577	310596	310614	310633	310652	310671	310689	310708	310727	310746	310765	310783	16	4.
44	10. 310802	310821	310840	310858	310877	310896	310915	310934	310952	310971	310990	311009	15	1 =
45	10. 311028	311046	311065	311084	311103	311122	311140	311159	311178	311197	311216	311234	14	2.
46	10. 311253	311272	311291	311310	311329	311347	311366	311385	311404	311423	311441	311460	13	3.
47	10. 311479	311498	311517	311536	311554	311573	311592	311611	311630	311649	311667	311686	12	4.
48	10. 311705	311724	311743	311762	311780	311799	311818	311837	311856	311875	311893	311912	11	1 =
49	10. 311931	311950	311969	311988	312007	312025	312044	312063	312082	312101	312120	312139	10	2.
50	10. 312157	312176	312195	312214	312233	312252	312271	312290	312308	312327	312346	312365	9	3.
51	10. 312384	312403	312422	312440	312459	312478	312497	312516	312535	312554	312573	312592	8	4.
52	10. 312610	312629	312648	312667	312686	312705	312724	312743	312762	312780	312799	312818	7	1 =
53	10. 312837	312856	312875	312894	312913	312932	312951	312970	312988	313007	313026	313045	6	2.
54	10. 313064	313083	313102	313121	313140	313159	313178	313197	313215	313234	313253	313272	5	3.
55	10. 313291	313310	313329	313348	313367	313386	313405	313424	313443	313462	313480	313499	4	4.
56	10. 313518	313537	313556	313575	313594	313613	313632	313651	313670	313689	313708	313727	3	1 =
57	10. 313746	313765	313784	313803	313822	313840	313859	313878	313897	313916	313935	313954	2	2.
58	10. 313973	313992	314011	314030	314049	314068	314087	314106	314125	314144	314163	314182	1	3.
59	10. 314201	314220	314239	314258	314277	314296	314315	314334	314353	314372	314391	314410	0	4.
Minutes	60′	55′	50′	45	40	35	30	25	20′	15′	10′	5′	Minutes	Propor. parts

Co-secant of 29 degrees, or Secant of 119 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 61 degrees, or Co-secant of 151 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts.
0	10. 314429	314448	314467	314486	314505	314524	314543	314562	314581	314600	314619	314638	59	1″ = 4
1	10. 314657	314676	314695	314714	314733	314752	314771	314790	314809	314828	314847	314866	58	2. 8
2	10. 314885	314904	314923	314942	314961	314980	314999	315018	315037	315056	315075	315094	57	3. 11
3	10. 315113	315132	315151	315170	315189	315208	315227	315246	315265	315284	315304	315323	56	4. 15
4	10. 315342	315361	315380	315399	315418	315437	315456	315475	315494	315513	315532	315551	55	1 = 4
5	10. 315570	315589	315608	315627	315646	315666	315685	315704	315723	315742	315761	315780	54	2. 8
6	10. 315799	315818	315837	315856	315875	315894	315913	315933	315952	315971	315990	316009	53	3. 11
7	10. 316028	316047	316066	316085	316104	316123	316142	316162	316181	316200	316219	316238	52	4. 15
8	10. 316257	316276	316295	316314	316333	316352	316372	316391	316410	316429	316448	316467	51	1 = 4
9	10. 316486	316505	316524	316544	316563	316582	316601	316620	316639	316658	316677	316697	50	2. 8
0	10. 316716	316735	316754	316773	316792	316811	316830	316850	316869	316888	316907	316926	49	3. 11
1	10. 316945	316964	316983	317003	317022	317041	317060	317079	317098	317117	317137	317156	48	4. 15
2	10. 317175	317194	317213	317232	317252	317271	317290	317309	317328	317347	317366	317386	47	1 = 4
3	10. 317405	317424	317443	317462	317481	317501	317520	317539	317558	317577	317596	317616	46	2. 8
4	10. 317635	317654	317673	317692	317712	317731	317750	317769	317788	317807	317827	317846	45	3. 12
5	10. 317865	317884	317903	317923	317942	317961	317980	317999	318019	318038	318057	318076	44	4. 15
6	10. 318095	318115	318134	318153	318172	318191	318211	318230	318249	318268	318287	318307	43	1 = 4
7	10. 318326	318345	318364	318384	318403	318422	318441	318460	318480	318499	318518	318537	42	2. 8
8	10. 318557	318576	318595	318614	318633	318653	318672	318691	318710	318730	318749	318768	41	3. 12
9	10. 318787	318807	318826	318845	318864	318884	318903	318922	318941	318961	318980	318999	40	4. 15
0	10. 319018	319038	319057	319076	319095	319115	319134	319153	319172	319192	319211	319230	39	1 = 4
1	10. 319250	319269	319288	319307	319327	319346	319365	319384	319404	319423	319442	319462	38	2. 8
2	10. 319481	319500	319519	319539	319558	319577	319597	319616	319635	319654	319674	319693	37	3. 12
3	10. 319712	319732	319751	319770	319789	319809	319828	319847	319867	319886	319905	319925	36	4. 15
4	10. 319944	319963	319983	320002	320021	320040	320060	320079	320098	320118	320137	320156	35	1 = 4
5	10. 320176	320195	320214	320234	320253	320272	320292	320311	320330	320350	320369	320388	34	2. 8
6	10. 320408	320427	320446	320466	320485	320504	320524	320543	320562	320582	320601	320620	33	3. 12
7	10. 320640	320659	320678	320698	320717	320737	320756	320775	320795	320814	320833	320853	32	4. 15
8	10. 320872	320891	320911	320930	320949	320969	320988	321008	321027	321046	321066	321085	31	1 = 4
9	10. 321104	321124	321143	321163	321182	321201	321221	321240	321259	321279	321298	321318	30	2. 8
0	10. 321337	321356	321376	321395	321415	321434	321453	321473	321492	321512	321531	321550	29	3. 12
1	10. 321570	321589	321609	321628	321647	321667	321686	321706	321725	321744	321764	321783	28	4. 16
2	10. 321803	321822	321842	321861	321880	321900	321919	321939	321958	321978	321997	322016	27	1 = 4
3	10. 322036	322055	322075	322094	322114	322133	322152	322172	322191	322211	322230	322250	26	2. 8
4	10. 322269	322288	322308	322327	322347	322366	322386	322405	322425	322444	322464	322483	25	3. 12
5	10. 322502	322522	322541	322561	322580	322600	322619	322639	322658	322678	322697	322717	24	4. 16
6	10. 322736	322755	322775	322794	322814	322833	322853	322872	322892	322911	322931	322950	23	1 = 4
7	10. 322970	322989	323009	323028	323048	323067	323087	323106	323126	323145	323165	323184	22	2. 8
8	10. 323204	323223	323243	323262	323282	323301	323321	323340	323360	323379	323399	323418	21	3. 12
9	10. 323438	323457	323477	323496	323516	323535	323555	323574	323594	323613	323633	323652	20	4. 16
0	10. 323672	323691	323711	323730	323750	323770	323789	323809	323828	323848	323867	323887	19	1 = 4
1	10. 323906	323926	323945	323965	323984	324004	324024	324043	324063	324082	324102	324121	18	2. 8
2	10. 324141	324160	324180	324199	324219	324239	324258	324278	324297	324317	324336	324356	17	3. 12
3	10. 324375	324395	324415	324434	324454	324473	324493	324512	324532	324552	324571	324591	16	4. 16
4	10. 324610	324630	324650	324669	324689	324708	324728	324747	324767	324787	324806	324826	15	1 = 4
5	10. 324845	324865	324885	324904	324924	324943	324963	324983	325002	325022	325041	325061	14	2. 8
6	10. 325081	325100	325120	325139	325159	325179	325198	325218	325237	325257	325277	325296	13	3. 12
7	10. 325316	325336	325355	325375	325394	325414	325434	325453	325473	325493	325512	325532	12	4. 16
8	10. 325551	325571	325591	325610	325630	325650	325669	325689	325709	325728	325748	325768	11	1 = 4
9	10. 325787	325807	325826	325846	325866	325885	325905	325925	325944	325964	325984	326003	10	2. 8
0	10. 326023	326043	326062	326082	326102	326121	326141	326161	326180	326200	326220	326239	9	3. 12
1	10. 326259	326279	326298	326318	326338	326357	326377	326397	326416	326436	326456	326476	8	4. 16
2	10. 326495	326515	326535	326554	326574	326594	326613	326633	326653	326672	326692	326712	7	1 = 4
3	10. 326732	326751	326771	326791	326810	326830	326850	326870	326889	326909	326929	326948	6	2. 8
4	10. 326968	326988	327008	327027	327047	327067	327086	327106	327126	327146	327165	327185	5	3. 12
5	10. 327205	327224	327244	327264	327284	327304	327323	327343	327363	327382	327402	327422	4	4. 16
6	10. 327442	327461	327481	327501	327521	327540	327560	327580	327600	327619	327639	327659	3	1 = 4
7	10. 327679	327698	327718	327738	327758	327777	327797	327817	327837	327856	327876	327896	2	2. 8
8	10. 327916	327936	327955	327975	327995	328015	328034	328054	328074	328094	328114	328133	1	3. 12
9	10. 328153	328173	328193	328213	328232	328252	328272	328292	328311	328331	328351	328371	0	4. 16
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-secant of 28 degrees, or Secant of 118 degrees.													

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LOGARITHMIC SECANTS.

Secant of 62 degrees, or Co-secant of 152 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper.
0	10. 328391	328410	328430	328450	328470	328490	328509	328529	328549	328569	328589	328609	59	1″ =
1	10. 328628	328648	328668	328688	328708	328727	328747	328767	328787	328807	328827	328846	58	2.
2	10. 328866	328886	328906	328926	328946	328965	328985	329005	329025	329045	329065	329084	57	3.
3	10. 329104	329124	329144	329164	329184	329203	329223	329243	329263	329283	329303	329323	56	4.
4	10. 329342	329362	329382	329402	329422	329442	329462	329481	329501	329521	329541	329561	55	1 =
5	10. 329581	329601	329620	329640	329660	329680	329700	329720	329740	329760	329779	329799	54	2.
6	10. 329819	329839	329859	329879	329899	329919	329939	329958	329978	329998	330018	330038	53	3.
7	10. 330058	330078	330098	330118	330138	330157	330177	330197	330217	330237	330257	330277	52	4.
8	10. 330297	330317	330337	330357	330376	330396	330416	330436	330456	330476	330496	330516	51	1 =
9	10. 330536	330556	330576	330596	330615	330635	330655	330675	330695	330715	330735	330755	50	2.
10	10. 330775	330795	330815	330835	330855	330875	330895	330915	330935	330954	330974	330994	49	3.
11	10. 331014	331034	331054	331074	331094	331114	331134	331154	331174	331194	331214	331234	48	4.
12	10. 331254	331274	331294	331314	331334	331354	331374	331394	331414	331434	331454	331474	47	1 =
13	10. 331494	331514	331534	331553	331573	331593	331613	331633	331653	331673	331693	331713	46	2.
14	10. 331733	331753	331773	331793	331813	331833	331853	331873	331893	331913	331933	331953	45	3.
15	10. 331973	331993	332013	332033	332053	332073	332094	332114	332134	332154	332174	332194	44	4.
16	10. 332214	332234	332254	332274	332294	332314	332334	332354	332374	332394	332414	332434	43	1 =
17	10. 332454	332474	332494	332514	332534	332554	332574	332594	332614	332634	332654	332674	42	2.
18	10. 332695	332715	332735	332755	332775	332795	332815	332835	332855	332875	332895	332915	41	3.
19	10. 332935	332955	332975	332995	333016	333036	333056	333076	333096	333116	333136	333156	40	4.
20	10. 333176	333196	333216	333236	333256	333277	333297	333317	333337	333357	333377	333397	39	1 =
21	10. 333417	333437	333457	333477	333498	333518	333538	333558	333578	333598	333618	333638	38	2.
22	10. 333658	333679	333699	333719	333739	333759	333779	333799	333819	333839	333860	333880	37	3.
23	10. 333900	333920	333940	333960	333980	334000	334021	334041	334061	334081	334101	334121	36	4.
24	10. 334141	334162	334182	334202	334222	334242	334262	334282	334303	334323	334343	334363	35	1 =
25	10. 334383	334403	334423	334444	334464	334484	334504	334524	334544	334565	334585	334605	34	2.
26	10. 334625	334645	334665	334686	334706	334726	334746	334766	334786	334807	334827	334847	33	3.
27	10. 334867	334887	334907	334928	334948	334968	334988	335008	335029	335049	335069	335089	32	4.
28	10. 335109	335130	335150	335170	335190	335210	335231	335251	335271	335291	335311	335332	31	1 =
29	10. 335352	335372	335392	335412	335433	335453	335473	335493	335513	335534	335554	335574	30	2.
30	10. 335594	335615	335635	335655	335675	335695	335716	335736	335756	335776	335797	335817	29	3.
31	10. 335837	335857	335878	335898	335918	335938	335959	335979	335999	336019	336040	336060	28	4.
32	10. 336080	336100	336121	336141	336161	336181	336202	336222	336242	336262	336283	336303	27	1 =
33	10. 336323	336343	336364	336384	336404	336425	336445	336465	336485	336506	336526	336546	26	2.
34	10. 336566	336587	336607	336627	336648	336668	336688	336708	336729	336749	336769	336790	25	3.
35	10. 336810	336830	336851	336871	336891	336911	336932	336952	336972	336993	337013	337033	24	4.
36	10. 337054	337074	337094	337114	337135	337155	337175	337196	337216	337236	337257	337277	23	1 =
37	10. 337297	337318	337338	337358	337379	337399	337419	337440	337460	337480	337501	337521	22	2.
38	10. 337541	337562	337582	337602	337623	337643	337663	337684	337704	337724	337745	337765	21	3.
39	10. 337785	337806	337826	337847	337867	337887	337908	337928	337948	337969	337989	338009	20	4.
40	10. 338030	338050	338071	338091	338111	338132	338152	338172	338193	338213	338234	338254	19	1 =
41	10. 338274	338295	338315	338335	338356	338376	338397	338417	338437	338458	338478	338499	18	2.
42	10. 338519	338539	338560	338580	338601	338621	338641	338662	338682	338703	338723	338743	17	3.
43	10. 338764	338784	338805	338825	338845	338866	338886	338907	338927	338948	338968	338988	16	4.
44	10. 339009	339029	339050	339070	339091	339111	339131	339152	339172	339193	339213	339234	15	1 =
45	10. 339254	339274	339295	339315	339336	339356	339377	339397	339418	339438	339459	339479	14	2.
46	10. 339499	339520	339540	339561	339581	339602	339622	339643	339663	339684	339704	339725	13	3.
47	10. 339745	339765	339786	339806	339827	339847	339868	339888	339909	339929	339950	339970	12	4.
48	10. 339991	340011	340032	340052	340073	340093	340114	340134	340155	340175	340196	340216	11	1 =
49	10. 340237	340257	340278	340298	340319	340339	340360	340380	340401	340421	340442	340462	10	2.
50	10. 340483	340503	340524	340544	340565	340585	340606	340626	340647	340667	340688	340708	9	3.
51	10. 340729	340749	340770	340791	340811	340832	340852	340873	340893	340914	340934	340955	8	4.
52	10. 340975	340996	341016	341037	341058	341078	341099	341119	341140	341160	341181	341201	7	1 =
53	10. 341222	341243	341263	341284	341304	341325	341345	341366	341386	341407	341428	341448	6	2.
54	10. 341469	341489	341510	341530	341551	341572	341592	341613	341633	341654	341675	341695	5	3.
55	10. 341716	341736	341757	341777	341798	341819	341839	341860	341880	341901	341922	341942	4	4.
56	10. 341963	341983	342004	342025	342045	342066	342086	342107	342128	342148	342169	342190	3	1 =
57	10. 342210	342231	342251	342272	342293	342313	342334	342355	342375	342396	342416	342437	2	2.
58	10. 342458	342478	342499	342520	342540	342561	342581	342602	342623	342643	342664	342685	1	3.
59	10. 342705	342726	342747	342767	342788	342809	342829	342850	342871	342891	342912	342933	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper.

Co-secant of 27 degrees, or Secant of 117 degrees.

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LOGARITHMIC SECANTS.

Secant of 63 degrees, or Co-secant of 153 degrees.

Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Propor. parts
0	10.342953	342974	342995	343015	343036	343057	343077	343098	343119	343139	343160	343181	59	1″ = 4
1	10.343201	343222	343243	343263	343284	343305	343325	343346	343367	343387	343408	343429	58	2. 8
2	10.343449	343470	343491	343511	343532	343553	343574	343594	343615	343636	343656	343677	57	3. 12
3	10.343698	343719	343739	343760	343781	343801	343822	343843	343863	343884	343905	343926	56	4. 17
4	10.343946	343967	343988	344009	344029	344050	344071	344091	344112	344133	344154	344174	55	1 = 4
5	10.344195	344216	344237	344257	344278	344299	344320	344340	344361	344382	344403	344423	54	2. 8
6	10.344444	344465	344486	344506	344527	344548	344569	344589	344610	344631	344652	344672	53	3. 12
7	10.344693	344714	344735	344755	344776	344797	344818	344839	344859	344880	344901	344922	52	4. 17
8	10.344942	344963	344984	345005	345026	345046	345067	345088	345109	345129	345150	345171	51	1 = 4
9	10.345192	345213	345233	345254	345275	345296	345317	345337	345358	345379	345400	345421	50	2. 8
10	10.345442	345462	345483	345504	345525	345546	345566	345587	345608	345629	345650	345671	49	3. 12
11	10.345691	345712	345733	345754	345775	345795	345816	345837	345858	345879	345900	345921	48	4. 17
12	10.345941	345962	345983	346004	346025	346046	346066	346087	346108	346129	346150	346171	47	1 = 4
13	10.346192	346212	346233	346254	346275	346296	346317	346338	346358	346379	346400	346421	46	2. 8
14	10.346442	346463	346484	346505	346525	346546	346567	346588	346609	346630	346651	346672	45	3. 13
15	10.346692	346713	346734	346755	346776	346797	346818	346839	346860	346880	346901	346922	44	4. 17
16	10.346943	346964	346985	347006	347027	347048	347069	347090	347110	347131	347152	347173	43	1 = 4
17	10.347194	347215	347236	347257	347278	347299	347320	347341	347361	347382	347403	347424	42	2. 8
18	10.347445	347466	347487	347508	347529	347550	347571	347592	347613	347634	347655	347675	41	3. 13
19	10.347696	347717	347738	347759	347780	347801	347822	347843	347864	347885	347906	347927	40	4. 17
20	10.347948	347969	347990	348011	348032	348053	348074	348095	348116	348137	348158	348179	39	1 = 4
21	10.348200	348221	348241	348262	348283	348304	348325	348346	348367	348388	348409	348430	38	2. 8
22	10.348451	348472	348493	348514	348535	348556	348577	348598	348619	348640	348661	348682	37	3. 13
23	10.348703	348724	348745	348766	348787	348808	348829	348850	348871	348892	348913	348935	36	4. 17
24	10.348956	348977	348998	349019	349040	349061	349082	349103	349124	349145	349166	349187	35	1 = 4
25	10.349208	349229	349250	349271	349292	349313	349334	349355	349376	349397	349418	349439	34	2. 8
26	10.349460	349482	349503	349524	349545	349566	349587	349608	349629	349650	349671	349692	33	3. 13
27	10.349713	349734	349755	349776	349797	349819	349840	349861	349882	349903	349924	349945	32	4. 17
28	10.349966	349987	350008	350029	350050	350072	350093	350114	350135	350156	350177	350198	31	1 = 4
29	10.350219	350240	350261	350283	350304	350325	350346	350367	350388	350409	350430	350451	30	2. 8
30	10.350473	350494	350515	350536	350557	350578	350599	350620	350641	350663	350684	350705	29	3. 13
31	10.350726	350747	350768	350789	350811	350832	350853	350874	350895	350916	350937	350958	28	4. 17
32	10.350980	351001	351022	351043	351064	351085	351107	351128	351149	351170	351191	351212	27	1 = 4
33	10.351233	351255	351276	351297	351318	351339	351360	351382	351403	351424	351445	351466	26	2. 8
34	10.351488	351509	351530	351551	351572	351593	351615	351636	351657	351678	351699	351721	25	3. 13
35	10.351742	351763	351784	351805	351827	351848	351869	351890	351911	351933	351954	351975	24	4. 17
36	10.351996	352017	352039	352060	352081	352102	352123	352145	352166	352187	352208	352229	23	1 = 4
37	10.352251	352272	352293	352314	352336	352357	352378	352399	352421	352442	352463	352484	22	2. 9
38	10.352505	352527	352548	352569	352590	352612	352633	352654	352675	352697	352718	352739	21	3. 13
39	10.352760	352782	352803	352824	352845	352867	352888	352909	352931	352952	352973	352994	20	4. 17
40	10.353016	353037	353058	353079	353101	353122	353143	353165	353186	353207	353228	353250	19	1 = 4
41	10.353271	353292	353313	353335	353356	353377	353399	353420	353441	353463	353484	353505	18	2. 9
42	10.353526	353548	353569	353590	353612	353633	353654	353676	353697	353718	353740	353761	17	3. 13
43	10.353782	353803	353825	353846	353867	353889	353910	353931	353953	353974	353995	354017	16	4. 17
44	10.354038	354059	354081	354102	354123	354145	354166	354187	354209	354230	354251	354273	15	1 = 4
45	10.354294	354315	354337	354358	354380	354401	354422	354444	354465	354486	354508	354529	14	2. 9
46	10.354550	354572	354593	354614	354636	354657	354679	354700	354721	354743	354764	354785	13	3. 13
47	10.354807	354828	354850	354871	354892	354914	354935	354957	354978	354999	355021	355042	12	4. 17
48	10.355063	355085	355106	355128	355149	355170	355192	355213	355235	355256	355277	355299	11	1 = 4
49	10.355320	355342	355363	355385	355406	355427	355449	355470	355492	355513	355534	355556	10	2. 9
50	10.355577	355599	355620	355642	355663	355684	355706	355727	355749	355770	355792	355813	9	3. 13
51	10.355835	355856	355877	355899	355920	355942	355963	355985	356006	356028	356049	356070	8	4. 17
52	10.356092	356113	356135	356156	356178	356199	356221	356242	356264	356285	356307	356328	7	1 = 4
53	10.356350	356371	356392	356414	356435	356457	356478	356500	356521	356543	356564	356586	6	2. 9
54	10.356607	356629	356650	356672	356693	356715	356736	356758	356779	356801	356822	356844	5	3. 13
55	10.356865	356887	356908	356930	356951	356973	356994	357016	357037	357059	357080	357102	4	4. 17
56	10.357123	357145	357166	357188	357210	357231	357253	357274	357296	357317	357339	357360	3	1 = 4
57	10.357382	357403	357425	357446	357468	357489	357511	357533	357554	357576	357597	357619	2	2. 9
58	10.357640	357662	357683	357705	357727	357748	357770	357791	357813	357834	357856	357877	1	3. 13
59	10.357899	357921	357942	357964	357985	358007	358029	358050	358072	358093	358115	358136	0	4. 17
	60′	55′	50′	45′	40	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.

Co-secant of 26 degrees, or Secant of 116 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 64 degrees, or Co-secant of 154 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 358158	358180	358201	358223	358244	358266	358288	358309	358331	358352	358374	358396	59	1″ =
1	10. 358417	358439	358460	358482	358504	358525	358547	358568	358590	358612	358633	358655	58	2.
2	10. 358676	358698	358720	358741	358763	358785	358806	358828	358849	358871	358893	358914	57	3.
3	10. 358936	358958	358979	359001	359022	359044	359066	359087	359109	359131	359152	359174	56	4.
4	10. 359196	359217	359239	359261	359282	359304	359326	359347	359369	359390	359412	359434	55	1 =
5	10. 359455	359477	359499	359520	359542	359564	359585	359607	359629	359651	359672	359694	54	2.
6	10. 359716	359737	359759	359781	359802	359824	359846	359867	359889	359911	359932	359954	53	3.
7	10. 359976	359998	360019	360041	360063	360084	360106	360128	360149	360171	360193	360215	52	4.
8	10. 360236	360258	360280	360301	360323	360345	360367	360388	360410	360432	360453	360475	51	1 =
9	10. 360497	360519	360540	360562	360584	360606	360627	360649	360671	360693	360714	360736	50	2.
10	10. 360758	360780	360801	360823	360845	360867	360888	360910	360932	360954	360975	360997	49	3.
11	10. 361019	361041	361062	361084	361106	361128	361149	361171	361193	361215	361236	361258	48	4.
12	10. 361280	361302	361324	361345	361367	361389	361411	361433	361454	361476	361498	361520	47	1 =
13	10. 361541	361563	361585	361607	361629	361650	361672	361694	361716	361738	361759	361781	46	2.
14	10. 361803	361825	361847	361869	361890	361912	361934	361956	361978	361999	362021	362043	45	3.
15	10. 362065	362087	362109	362130	362152	362174	362196	362218	362240	362261	362283	362305	44	4.
16	10. 362327	362349	362371	362392	362414	362436	362458	362480	362502	362524	362545	362567	43	1 =
17	10. 362589	362611	362633	362655	362677	362698	362720	362742	362764	362786	362808	362830	42	2.
18	10. 362852	362873	362895	362917	362939	362961	362983	363005	363027	363048	363070	363092	41	3.
19	10. 363114	363136	363158	363180	363202	363224	363245	363267	363289	363311	363333	363355	40	4.
20	10. 363377	363399	363421	363443	363465	363486	363508	363530	363552	363574	363596	363618	39	1 =
21	10. 363640	363662	363684	363706	363728	363750	363771	363793	363815	363837	363859	363881	38	2.
22	10. 363903	363925	363947	363969	363991	364013	364035	364057	364079	364101	364123	364144	37	3.
23	10. 364166	364188	364210	364232	364254	364276	364298	364320	364342	364364	364386	364408	36	4.
24	10. 364430	364452	364474	364496	364518	364540	364562	364584	364606	364628	364650	364672	35	1 =
25	10. 364694	364716	364738	364760	364782	364804	364826	364848	364870	364892	364914	364936	34	2.
26	10. 364958	364980	365002	365024	365046	365068	365090	365112	365134	365156	365178	365200	33	3.
27	10. 365222	365244	365266	365288	365310	365332	365354	365376	365398	365420	365442	365464	32	4.
28	10. 365486	365508	365530	365552	365574	365596	365619	365641	365663	365685	365707	365729	31	1 =
29	10. 365751	365773	365795	365817	365839	365861	365883	365905	365927	365949	365971	365994	30	2.
30	10. 366016	366038	366060	366082	366104	366126	366148	366170	366192	366214	366236	366258	29	3.
31	10. 366281	366303	366325	366347	366369	366391	366413	366435	366457	366479	366502	366524	28	4.
32	10. 366546	366568	366590	366612	366634	366656	366678	366700	366723	366745	366767	366789	27	1 =
33	10. 366811	366833	366855	366877	366900	366922	366944	366966	366988	367010	367032	367054	26	2.
34	10. 367077	367099	367121	367143	367165	367187	367209	367232	367254	367276	367298	367320	25	3.
35	10. 367342	367365	367387	367409	367431	367453	367475	367497	367520	367542	367564	367586	24	4.
36	10. 367608	367631	367653	367675	367697	367719	367741	367764	367786	367808	367830	367852	23	1 =
37	10. 367874	367897	367919	367941	367963	367985	368008	368030	368052	368074	368096	368119	22	2.
38	10. 368141	368163	368185	368207	368230	368252	368274	368296	368319	368341	368363	368385	21	3.
39	10. 368407	368430	368452	368474	368496	368519	368541	368563	368585	368607	368630	368652	20	4.
40	10. 368674	368696	368719	368741	368763	368785	368808	368830	368852	368874	368897	368919	19	1 =
41	10. 368941	368963	368986	369008	369030	369052	369075	369097	369119	369141	369164	369186	18	2.
42	10. 369208	369231	369253	369275	369297	369320	369342	369364	369386	369409	369431	369453	17	3.
43	10. 369476	369498	369520	369542	369565	369587	369609	369632	369654	369676	369699	369721	16	4.
44	10. 369743	369765	369788	369810	369832	369855	369877	369899	369922	369944	369966	369989	15	1 =
45	10. 370011	370033	370056	370078	370100	370123	370145	370167	370190	370212	370234	370257	14	2.
46	10. 370279	370301	370324	370346	370368	370391	370413	370435	370458	370480	370502	370525	13	3.
47	10. 370547	370569	370592	370614	370636	370659	370681	370704	370726	370748	370771	370793	12	4.
48	10. 370815	370838	370860	370883	370905	370927	370950	370972	370994	371017	371039	371062	11	1 =
49	10. 371084	371106	371129	371151	371174	371196	371218	371241	371263	371286	371308	371330	10	2.
50	10. 371353	371375	371398	371420	371442	371465	371487	371510	371532	371554	371577	371599	9	3.
51	10. 371622	371644	371667	371689	371711	371734	371756	371779	371801	371824	371846	371868	8	4.
52	10. 371891	371913	371936	371958	371981	372003	372026	372048	372070	372093	372115	372138	7	1 =
53	10. 372160	372183	372205	372228	372250	372273	372295	372318	372340	372362	372385	372407	6	2.
54	10. 372430	372452	372475	372497	372520	372542	372565	372587	372610	372632	372655	372678	5	3.
55	10. 372700	372722	372745	372767	372790	372812	372835	372857	372880	372902	372925	372947	4	4.
56	10. 372970	372992	373015	373037	373060	373082	373105	373127	373150	373172	373195	373217	3	1 =
57	10. 373240	373262	373285	373307	373330	373353	373375	373398	373420	373443	373465	373488	2	2.
58	10. 373510	373533	373555	373578	373600	373623	373646	373668	373691	373713	373736	373758	1	3.
59	10. 373781	373803	373826	373849	373871	373894	373916	373939	373961	373984	374007	374029	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 25 degrees, or Secant of 115 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 65 degrees, or Co-secant of 155 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.374052	374074	374097	374119	374142	374165	374187	374210	374232	374255	374278	374300	59	1″ = 5
1	10.374323	374345	374368	374390	374413	374436	374458	374481	374504	374526	374549	374571	58	2. 9
2	10.374594	374617	374639	374662	374684	374707	374730	374752	374775	374797	374820	374843	57	3. 14
3	10.374865	374888	374911	374933	374956	374979	375001	375024	375046	375069	375092	375114	56	4. 18
4	10.375137	375160	375182	375205	375228	375250	375273	375296	375318	375341	375364	375386	55	1 = 5
5	10.375409	375432	375454	375477	375500	375522	375545	375568	375590	375613	375636	375658	54	2. 9
6	10.375681	375704	375726	375749	375772	375794	375817	375840	375862	375885	375908	375930	53	3. 14
7	10.375953	375976	375999	376021	376044	376067	376089	376112	376135	376158	376180	376203	52	4. 18
8	10.376226	376248	376271	376294	376317	376339	376362	376385	376407	376430	376453	376476	51	1 = 5
9	10.376498	376521	376544	376567	376589	376612	376635	376657	376680	376703	376726	376748	50	2. 9
10	10.376771	376794	376817	376839	376862	376885	376908	376930	376953	376976	376999	377022	49	3. 14
11	10.377044	377067	377090	377113	377135	377158	377181	377204	377226	377249	377272	377295	48	4. 18
12	10.377318	377340	377363	377386	377409	377432	377454	377477	377500	377523	377546	377568	47	1 = 5
13	10.377591	377614	377637	377660	377682	377705	377728	377751	377774	377796	377819	377842	46	2. 9
14	10.377865	377888	377910	377933	377956	377979	378002	378025	378047	378070	378093	378116	45	3. 14
15	10.378139	378162	378184	378207	378230	378253	378276	378299	378321	378344	378367	378390	44	4 18
16	10.378413	378436	378459	378481	378504	378527	378550	378573	378596	378619	378642	378664	43	1 = 5
17	10.378687	378710	378733	378756	378779	378802	378824	378847	378870	378893	378916	378939	42	2. 9
18	10.378962	378985	379008	379030	379053	379076	379099	379122	379145	379168	379191	379214	41	3. 14
19	10.379237	379259	379282	379305	379328	379351	379374	379397	379420	379443	379466	379489	40	4. 18
20	10.379512	379534	379557	379580	379603	379626	379649	379672	379695	379718	379741	379764	39	1 = 5
21	10.379787	379810	379833	379856	379879	379901	379924	379947	379970	379993	380016	380039	38	2. 9
22	10.380062	380085	380108	380131	380154	380177	380200	380223	380246	380269	380292	380315	37	3. 14
23	10.380338	380361	380384	380407	380430	380453	380476	380499	380522	380545	380568	380591	36	4. 18
24	10.380614	380637	380660	380683	380706	380729	380752	380775	380798	380821	380844	380867	35	1 = 5
25	10.380890	380913	380936	380959	380982	381005	381028	381051	381074	381097	381120	381143	34	2. 9
26	10.381166	381189	381212	381235	381258	381281	381304	381327	381350	381373	381396	381419	33	3. 12
27	10.381442	381465	381488	381511	381535	381558	381581	381604	381627	381650	381673	381696	32	4. 18
28	10.381719	381742	381765	381788	381811	381834	381857	381880	381904	381927	381950	381973	31	1 = 5
29	10.381996	382019	382042	382065	382088	382111	382134	382158	382181	382204	382227	382250	30	2. 9
30	10.382273	382296	382319	382342	382365	382389	382412	382435	382458	382481	382504	382527	29	3. 14
31	10.382550	382573	382597	382620	382643	382666	382689	382712	382735	382758	382782	382805	28	4. 19
32	10.382828	382851	382874	382897	382920	382944	382967	382990	383013	383036	383059	383082	27	1 = 5
33	10.383106	383129	383152	383175	383198	383221	383245	383268	383291	383314	383337	383360	26	2. 9
34	10.383384	383407	383430	383453	383476	383499	383523	383546	383569	383592	383615	383639	25	3. 14
35	10.383662	383685	383708	383731	383754	383778	383801	383824	383847	383870	383894	383917	24	4. 19
36	10.383940	383963	383987	384010	384033	384056	384079	384103	384126	384149	384172	384195	23	1 = 5
37	10.384219	384242	384265	384288	384312	384335	384358	384381	384405	384428	384451	384474	22	2. 9
38	10.384498	384521	384544	384567	384591	384614	384637	384660	384684	384707	384730	384753	21	3. 14
39	10.384777	384800	384823	384846	384870	384893	384916	384939	384963	384986	385009	385033	20	4. 19
40	10.385056	385079	385102	385126	385149	385172	385196	385219	385242	385265	385289	385312	19	1 = 5
41	10.385335	385359	385382	385405	385428	385452	385475	385498	385522	385545	385568	385592	18	2. 9
42	10.385615	385638	385662	385685	385708	385732	385755	385778	385802	385825	385848	385872	17	3. 14
43	10.385895	385918	385942	385965	385988	386012	386035	386058	386082	386105	386128	386152	16	4. 19
44	10.386175	386198	386222	386245	386268	386292	386315	386338	386362	386385	386409	386432	15	1 = 5
45	10.386455	386479	386502	386525	386549	386572	386596	386619	386642	386666	386689	386712	14	2. 9
46	10.386736	386759	386783	386806	386829	386853	386876	386900	386923	386946	386970	386993	13	3. 14
47	10.387017	387040	387063	387087	387110	387134	387157	387181	387204	387227	387251	387274	12	4 19
48	10.387298	387321	387344	387368	387391	387415	387438	387462	387485	387509	387532	387555	11	1 = 5
49	10.387579	387602	387626	387649	387673	387696	387720	387743	387766	387790	387813	387837	10	2. 9
50	10.387860	387884	387907	387931	387954	387978	388001	388025	388048	388071	388095	388118	9	3. 14
51	10.388142	388165	388189	388212	388236	388259	388283	388306	388330	388353	388377	388400	8	4. 19
52	10.388424	388447	388471	388494	388518	388541	388565	388588	388612	388635	388659	388682	7	1 = 5
53	10.388706	388729	388753	388776	388800	388823	388847	388871	388894	388918	388941	388965	6	2. 9
54	10.388988	389012	389035	389059	389082	389106	389129	389153	389176	389200	389224	389247	5	3. 14
55	10.389271	389294	389318	389341	389365	389388	389412	389436	389459	389483	389506	389530	4	4. 19
56	10.389553	389577	389601	389624	389648	389671	389695	389718	389742	389766	389789	389813	3	1 = 5
57	10.389836	389860	389884	389907	389931	389954	389978	390002	390025	390049	390072	390096	2	2. 9
58	10.390120	390143	390167	390190	390214	390238	390261	390285	390309	390332	390356	390379	1	3. 14
59	10.390403	390427	390450	390474	390498	390521	390545	390568	390592	390616	390639	390663	0	4. 19
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10	5	Minutes	Propor. parts.
	Co-secant of 24 degrees, or Secant of 114 degrees.													

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LOGARITHMIC SECANTS.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
	Secant of 66 degrees, or Co-secant of 156 degrees.													
0	10. 390687	390710	390734	390758	390781	390805	390829	390852	390876	390900	390923	390947	59	1″ =
1	10. 390971	390994	391018	391042	391065	391089	391113	391136	391160	391184	391207	391231	58	2.
2	10. 391255	391278	391302	391326	391349	391373	391397	391420	391444	391468	391491	391515	57	3.
3	10. 391539	391563	391586	391610	391634	391657	391681	391705	391729	391752	391776	391800	56	4.
4	10. 391823	391847	391871	391895	391918	391942	391966	391989	392013	392037	392061	392084	55	1 =
5	10. 392108	392132	392156	392179	392203	392227	392251	392274	392298	392322	392346	392369	54	2.
6	10. 392393	392417	392441	392464	392488	392512	392536	392559	392583	392607	392631	392655	53	3.
7	10. 392678	392702	392726	392750	392773	392797	392821	392845	392869	392892	392916	392940	52	4.
8	10. 392964	392988	393011	393035	393059	393083	393107	393130	393154	393178	393202	393226	51	1 =
9	10. 393249	393273	393297	393321	393345	393368	393392	393416	393440	393464	393488	393511	50	2.
10	10. 393535	393559	393583	393607	393631	393654	393678	393702	393726	393750	393774	393797	49	3.
11	10. 393821	393845	393869	393893	393917	393941	393964	393988	394012	394036	394060	394084	48	4.
12	10. 394108	394132	394155	394179	394203	394227	394251	394275	394299	394323	394346	394370	47	1 =
13	10. 394394	394418	394442	394466	394490	394514	394538	394561	394585	394609	394633	394657	46	2.
14	10. 394681	394705	394729	394753	394777	394801	394824	394848	394872	394896	394920	394944	45	3.
15	10. 394968	394992	395016	395040	395064	395088	395112	395135	395159	395183	395207	395231	44	4.
16	10. 395255	395279	395303	395327	395351	395375	395399	395423	395447	395471	395495	395519	43	1 =
17	10. 395543	395567	395591	395615	395639	395662	395686	395710	395734	395758	395782	395806	42	2.
18	10. 395830	395854	395878	395902	395926	395950	395974	395998	396022	396046	396070	396094	41	3.
19	10. 396118	396142	396166	396190	396214	396238	396262	396286	396310	396334	396358	396382	40	4.
20	10. 396406	396430	396454	396478	396502	396526	396551	396575	396599	396623	396647	396671	39	1 =
21	10. 396695	396719	396743	396767	396791	396815	396839	396863	396887	396911	396935	396959	38	2.
22	10. 396983	397007	397031	397055	397080	397104	397128	397152	397176	397200	397224	397248	37	3.
23	10. 397272	397296	397320	397344	397368	397393	397417	397441	397465	397489	397513	397537	36	4.
24	10. 397561	397585	397609	397633	397658	397682	397706	397730	397754	397778	397802	397826	35	1 =
25	10. 397850	397875	397899	397923	397947	397971	397995	398019	398043	398068	398092	398116	34	2.
26	10. 398140	398164	398188	398212	398236	398261	398285	398309	398333	398357	398381	398406	33	3.
27	10. 398430	398454	398478	398502	398526	398550	398575	398599	398623	398647	398671	398695	32	4.
28	10. 398720	398744	398768	398792	398816	398841	398865	398889	398913	398937	398961	398986	31	1 =
29	10. 399010	399034	399058	399082	399107	399131	399155	399179	399203	399228	399252	399276	30	2.
30	10. 399300	399324	399349	399373	399397	399421	399446	399470	399494	399518	399542	399567	29	3.
31	10. 399591	399615	399639	399664	399688	399712	399736	399761	399785	399809	399833	399858	28	4.
32	10. 399882	399906	399930	399955	399979	400003	400027	400052	400076	400100	400124	400149	27	1 =
33	10. 400173	400197	400221	400246	400270	400294	400319	400343	400367	400391	400416	400440	26	2.
34	10. 400464	400489	400513	400537	400561	400586	400610	400634	400659	400683	400707	400732	25	3.
35	10. 400756	400780	400804	400829	400853	400877	400902	400926	400950	400975	400999	401023	24	4.
36	10. 401048	401072	401096	401121	401145	401169	401194	401218	401242	401267	401291	401315	23	1 =
37	10. 401340	401364	401388	401413	401437	401461	401486	401510	401535	401559	401583	401608	22	2.
38	10. 401632	401656	401681	401705	401730	401754	401778	401803	401827	401851	401876	401900	21	3.
39	10. 401925	401949	401973	401998	402022	402046	402071	402095	402120	402144	402168	402193	20	4.
40	10. 402217	402242	402266	402291	402315	402339	402364	402388	402413	402437	402461	402486	19	1 =
41	10. 402510	402535	402559	402584	402608	402632	402657	402681	402706	402730	402755	402779	18	2.
42	10. 402803	402828	402852	402877	402901	402926	402950	402975	402999	403024	403048	403072	17	3.
43	10. 403097	403121	403146	403170	403195	403219	403244	403268	403293	403317	403342	403366	16	4.
44	10. 403391	403415	403440	403464	403489	403513	403538	403562	403587	403611	403636	403660	15	1 =
45	10. 403685	403709	403734	403758	403783	403807	403832	403856	403881	403905	403930	403954	14	2.
46	10. 403979	404003	404028	404052	404077	404101	404126	404150	404175	404200	404224	404249	13	3.
47	10. 404273	404298	404322	404347	404371	404396	404420	404445	404470	404494	404519	404543	12	4.
48	10. 404568	404592	404617	404641	404666	404691	404715	404740	404764	404789	404813	404838	11	1 =
49	10. 404863	404887	404912	404936	404961	404986	405010	405035	405059	405084	405109	405133	10	2.
50	10. 405158	405182	405207	405232	405256	405281	405305	405330	405355	405379	405404	405428	9	3.
51	10. 405453	405478	405502	405527	405552	405576	405601	405625	405650	405675	405699	405724	8	4.
52	10. 405749	405773	405798	405823	405847	405872	405897	405921	405946	405971	405995	406020	7	1 =
53	10. 406044	406069	406094	406118	406143	406168	406192	406217	406242	406267	406291	406316	6	2.
54	10. 406341	406365	406390	406415	406439	406464	406489	406513	406538	406563	406587	406612	5	3.
55	10. 406637	406662	406686	406711	406736	406760	406785	406810	406835	406859	406884	406909	4	4.
56	10. 406933	406958	406983	407008	407032	407057	407082	407106	407131	407156	407181	407205	3	1 =
57	10. 407230	407255	407280	407304	407329	407354	407379	407403	407428	407453	407478	407502	2	2.
58	10. 407527	407552	407577	407601	407626	407651	407676	407701	407725	407750	407775	407800	1	3.
59	10. 407824	407849	407874	407899	407924	407948	407973	407998	408023	408048	408072	408097	0	4.
Minutes	60′	55″	50′	45″	40′	35″	30′	25″	20′	15″	10′	5	Minutes	Proportional parts
	Co-secant of 23 degrees, or Secant of 113 degrees.													

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LOGARITHMIC SECANTS.

Secant of 67 degrees, or Co-secant of 157 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper. parts.
0	10.408122	408147	408172	408196	408221	408246	408271	408296	408320	408345	408370	408395	59	1″ = 5
1	10.408420	408444	408467	408494	408519	408544	408569	408593	408618	408643	408668	408693	58	2. 10
2	10.408718	408742	408767	408792	408817	408842	408867	408892	408916	408941	408966	408991	57	3. 15
3	10.409016	409041	409066	409090	409115	409140	409165	409190	409215	409240	409265	409289	56	4. 20
4	10.409314	409339	409364	409389	409414	409439	409464	409489	409513	409538	409563	409588	55	1 = 5
5	10.409613	409638	409663	409688	409713	409738	409762	409787	409812	409837	409862	409887	54	2. 10
6	10.409912	409937	409962	409987	410012	410037	410062	410086	410111	410136	410161	410186	53	3. 15
7	10.410211	410236	410261	410286	410311	410336	410361	410386	410411	410436	410461	410486	52	4. 20
8	10.410511	410536	410561	410586	410610	410635	410660	410685	410710	410735	410760	410785	51	1 = 5
9	10.410810	410835	410860	410885	410910	410935	410960	410985	411010	411035	411060	411085	50	2. 10
10	10.411110	411135	411160	411185	411210	411235	411260	411285	411310	411335	411360	411385	49	3. 15
11	10.411410	411435	411460	411485	411510	411536	411561	411586	411611	411636	411661	411686	48	4. 20
12	10.411711	411736	411761	411786	411811	411836	411861	411886	411911	411936	411961	411986	47	1 = 5
13	10.412011	412036	412062	412087	412112	412137	412162	412187	412212	412237	412262	412287	46	2. 10
14	10.412312	412337	412362	412388	412413	412438	412463	412488	412513	412538	412563	412588	45	3. 15
15	10.412613	412639	412664	412689	412714	412739	412764	412789	412814	412839	412865	412890	44	4. 20
16	10.412915	412940	412965	412990	413015	413041	413066	413091	413116	413141	413166	413191	43	1 = 5
17	10.413216	413242	413267	413292	413317	413342	413367	413393	413418	413443	413468	413493	42	2. 10
18	10.413518	413544	413569	413594	413619	413644	413669	413695	413720	413745	413770	413795	41	3. 15
19	10.413820	413846	413871	413896	413921	413946	413972	413997	414022	414047	414072	414098	40	4. 20
20	10.414123	414148	414173	414199	414224	414249	414274	414299	414325	414350	414375	414400	39	1 = 5
21	10.414425	414451	414476	414501	414526	414552	414577	414602	414627	414653	414678	414703	38	2. 10
22	10.414728	414754	414779	414804	414829	414855	414880	414905	414930	414956	414981	415006	37	3. 15
23	10.415031	415057	415082	415107	415133	415158	415183	415208	415234	415259	415284	415310	36	4. 20
24	10.415335	415360	415385	415411	415436	415461	415487	415512	415537	415563	415588	415613	35	1 = 5
25	10.415638	415664	415689	415714	415740	415765	415790	415816	415841	415866	415892	415917	34	2. 10
26	10.415942	415968	415993	416018	416044	416069	416094	416120	416145	416170	416196	416221	33	3. 15
27	10.416246	416272	416297	416323	416348	416373	416399	416424	416449	416475	416500	416525	32	4. 20
28	10.416551	416576	416602	416627	416652	416678	416703	416728	416754	416779	416805	416830	31	1 = 5
29	10.416855	416881	416906	416932	416957	416982	417008	417033	417059	417084	417109	417135	30	2. 10
30	10.417160	417186	417211	417237	417262	417287	417313	417338	417364	417389	417415	417440	29	3. 15
31	10.417465	417491	417516	417542	417567	417593	417618	417644	417669	417694	417720	417745	28	4. 20
32	10.417771	417796	417822	417847	417873	417898	417924	417949	417974	418000	418025	418051	27	1 = 5
33	10.418076	418102	418127	418153	418178	418204	418229	418255	418280	418306	418331	418357	26	2. 10
34	10.418382	418408	418433	418459	418484	418510	418535	418561	418586	418612	418637	418663	25	3. 15
35	10.418688	418714	418739	418765	418790	418816	418842	418867	418893	418918	418944	418969	24	4. 20
36	10.418995	419020	419046	419071	419097	419122	419148	419174	419199	419225	419250	419276	23	1 = 5
37	10.419301	419327	419353	419378	419404	419429	419455	419480	419506	419532	419557	419583	22	2. 10
38	10.419608	419634	419659	419685	419711	419736	419762	419787	419813	419839	419864	419890	21	3. 15
39	10.419915	419941	419967	419992	420018	420043	420069	420095	420120	420146	420172	420197	20	4. 20
40	10.420223	420248	420274	420300	420325	420351	420377	420402	420428	420454	420479	420505	19	1 = 5
41	10.420530	420556	420582	420607	420633	420659	420684	420710	420736	420761	420787	420813	18	2. 10
42	10.420838	420864	420890	420915	420941	420967	420992	421018	421044	421069	421095	421121	17	3. 15
43	10.421146	421172	421198	421224	421249	421275	421301	421326	421352	421378	421403	421429	16	4. 21
44	10.421455	421481	421506	421532	421558	421583	421609	421635	421661	421686	421712	421738	15	1 = 5
45	10.421764	421789	421815	421841	421867	421892	421918	421944	421969	421995	422021	422047	14	2. 10
46	10.422072	422098	422124	422150	422176	422201	422227	422253	422279	422304	422330	422356	13	3. 15
47	10.422382	422407	422433	422459	422485	422511	422536	422562	422588	422614	422640	422665	12	4. 21
48	10.422691	422717	422743	422769	422794	422820	422846	422872	422898	422923	422949	422975	11	1 = 5
49	10.423001	423027	423052	423078	423104	423130	423156	423182	423207	423233	423259	423285	10	2. 10
50	10.423311	423337	423362	423388	423414	423440	423466	423492	423518	423543	423569	423595	9	3. 16
51	10.423621	423647	423673	423699	423724	423750	423776	423802	423828	423854	423880	423906	8	4. 21
52	10.423931	423957	423983	424009	424035	424061	424087	424113	424139	424164	424190	424216	7	1 = 5
53	10.424242	424268	424294	424320	424346	424372	424398	424424	424449	424475	424501	424527	6	2. 10
54	10.424553	424579	424605	424631	424657	424683	424709	424735	424761	424787	424813	424838	5	3. 16
55	424864	424890	424916	424942	424968	424994	425020	425046	425072	425098	425124	425150	4	4. 21
56	10.425176	425202	425228	425254	425280	425306	425332	425358	425384	425410	425436	425462	3	1 = 5
57	10.425488	425514	425540	425566	425592	425618	425644	425670	425696	425722	425748	425774	2	2. 10
58	10.425800	425826	425852	425878	425904	425930	425956	425982	426008	426034	426060	426086	1	3. 16
59	10.426112	426138	426164	426190	426216	426242	426268	426294	426320	426346	426372	426398	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Proper. parts.

Co-secant of 22 degrees, or Secant of 112 degrees.

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LOGARITHMIC SECANTS.

Secant of 68 degrees, or Co-secant of 158 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts
0	10. 426425	426451	426477	426503	426529	426555	426581	426607	426633	426659	426685	426711	59	1″ =
1	10. 426737	426763	426790	426816	426842	426868	426894	426920	426946	426972	426998	427024	58	2.
2	10. 427050	427077	427103	427129	427155	427181	427207	427233	427259	427285	427312	427338	57	3.
3	10. 427364	427390	427416	427442	427468	427494	427521	427547	427573	427599	427625	427651	56	4.
4	10. 427677	427703	427730	427756	427782	427808	427834	427860	427887	427913	427939	427965	55	1 =
5	10. 427991	428017	428044	428070	428096	428122	428148	428174	428201	428227	428253	428279	54	2.
6	10. 428305	428332	428358	428384	428410	428436	428463	428489	428515	428541	428567	428594	53	3.
7	10. 428620	428646	428672	428698	428725	428751	428777	428803	428829	428856	428882	428908	52	4.
8	10. 428934	428961	428987	429013	429039	429066	429092	429118	429144	429171	429197	429223	51	1 =
9	10. 429249	429276	429302	429328	429354	429381	429407	429433	429459	429486	429512	429538	50	2.
10	10. 429564	429591	429617	429643	429670	429696	429722	429748	429775	429801	429827	429854	49	3.
11	10. 429880	429906	429933	429959	429985	430011	430038	430064	430090	430117	430143	430169	48	4.
12	10. 430196	430222	430248	430275	430301	430327	430354	430380	430406	430433	430459	430485	47	1 =
13	10. 430512	430538	430564	430591	430617	430643	430670	430696	430722	430749	430775	430802	46	2.
14	10. 430828	430854	430881	430907	430933	430960	430986	431013	431039	431065	431092	431118	45	3.
15	10. 431144	431171	431197	431224	431250	431276	431303	431329	431356	431382	431408	431435	44	4.
16	10. 431461	431488	431514	431540	431567	431593	431620	431646	431673	431699	431725	431752	43	1 =
17	10. 431778	431805	431831	431858	431884	431910	431937	431963	431990	432016	432043	432069	42	2.
18	10. 432096	432122	432148	432175	432201	432228	432254	432281	432307	432334	432360	432387	41	3.
19	10. 432413	432440	432466	432493	432519	432546	432572	432599	432625	432652	432678	432705	40	4.
20	10. 432731	432758	432784	432811	432837	432864	432890	432917	432943	432970	432996	433023	39	1 =
21	10. 433049	433076	433102	433129	433155	433182	433208	433235	433261	433288	433314	433341	38	2.
22	10. 433368	433394	433421	433447	433474	433500	433527	433553	433580	433607	433633	433660	37	3.
23	10. 433686	433713	433739	433766	433793	433819	433846	433872	433899	433925	433952	433979	36	4.
24	10. 434005	434032	434058	434085	434112	434138	434165	434191	434218	434245	434271	434298	35	1 =
25	10. 434324	434351	434378	434404	434431	434457	434484	434511	434537	434564	434591	434617	34	2.
26	10. 434644	434670	434697	434724	434750	434777	434804	434830	434857	434884	434910	434937	33	3.
27	10. 434964	434990	435017	435044	435070	435097	435124	435150	435177	435204	435230	435257	32	4.
28	10. 435284	435310	435337	435364	435390	435417	435444	435470	435497	435524	435551	435577	31	1 =
29	10. 435604	435631	435657	435684	435711	435737	435764	435791	435818	435844	435871	435898	30	2.
30	10. 435925	435951	435978	436005	436031	436058	436085	436112	436138	436165	436192	436219	29	3.
31	10. 436245	436272	436299	436326	436352	436379	436406	436433	436459	436486	436513	436540	28	4.
32	10. 436566	436593	436620	436647	436674	436700	436727	436754	436781	436808	436834	436861	27	1 =
33	10. 436888	436915	436941	436968	436995	437022	437049	437075	437102	437129	437156	437183	26	2.
34	10. 437210	437236	437263	437290	437317	437344	437370	437397	437424	437451	437478	437505	25	3.
35	10. 437531	437558	437585	437612	437639	437666	437693	437719	437746	437773	437800	437827	24	4.
36	10. 437854	437881	437907	437934	437961	437988	438015	438042	438069	438096	438122	438149	23	1 =
37	10. 438176	438203	438230	438257	438284	438311	438338	438364	438391	438418	438445	438472	22	2.
38	10. 438499	438526	438553	438580	438607	438634	438660	438687	438714	438741	438768	438795	21	3.
39	10. 438822	438849	438876	438903	438930	438957	438984	439011	439038	439065	439091	439118	20	4.
40	10. 439145	439172	439199	439226	439253	439280	439307	439334	439361	439388	439415	439442	19	1 =
41	10. 439469	439496	439523	439550	439577	439604	439631	439658	439685	439712	439739	439766	18	2.
42	10. 439793	439820	439847	439874	439901	439928	439955	439982	440009	440036	440063	440090	17	3.
43	10. 440117	440144	440171	440198	440225	440252	440279	440306	440333	440360	440387	440414	16	4.
44	10. 440441	440469	440496	440523	440550	440577	440604	440631	440658	440685	440712	440739	15	1 =
45	10. 440766	440793	440820	440847	440874	440902	440929	440956	440983	441010	441037	441064	14	2.
46	10. 441091	441118	441145	441172	441200	441227	441254	441281	441308	441335	441362	441389	13	3.
47	10. 441416	441444	441471	441498	441525	441552	441579	441606	441633	441661	441688	441715	12	4.
48	10. 441742	441769	441796	441823	441851	441878	441905	441932	441959	441986	442014	442041	11	1 =
49	10. 442068	442095	442122	442149	442177	442204	442231	442258	442285	442312	442340	442367	10	2.
50	10. 442394	442421	442448	442476	442503	442530	442557	442584	442612	442639	442666	442693	9	3.
51	10. 442720	442748	442775	442802	442829	442856	442884	442911	442938	442965	442993	443020	8	4.
52	10. 443047	443074	443102	443129	443156	443183	443211	443238	443265	443292	443320	443347	7	1 =
53	10. 443374	443401	443429	443456	443483	443510	443538	443565	443592	443619	443647	443674	6	2.
54	10. 443701	443729	443756	443783	443810	443838	443865	443892	443920	443947	443974	444002	5	3.
55	10. 444029	444056	444083	444111	444138	444165	444193	444220	444247	444275	444302	444329	4	4.
56	10. 444357	444386	444411	444439	444466	444493	444521	444548	444575	444603	444630	444657	3	1 =
57	10. 444685	444712	444739	444767	444794	444822	444849	444876	444904	444931	444958	444986	2	2.
58	10. 445013	445041	445068	445095	445123	445150	445177	445205	445232	445260	445287	445314	1	3.
59	10. 445342	445369	445397	445424	445451	445479	445506	445534	445561	445589	445616	445643	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts

Co-secant of 21 degrees, or Secant of 111 degrees.

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LOGARITHMIC SECANTS.

Secant of 69 degrees, or Co-secant of 159 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 445671	445698	445726	445753	445781	445808	445835	445863	445890	445918	445945	445973	59	1″ = 6
1	10. 446000	446027	446055	446082	446110	446137	446165	446192	446220	446247	446275	446302	58	2. 11
2	10. 446330	446357	446385	446412	446439	446467	446494	446522	446549	446577	446604	446632	57	3. 17
3	10. 446659	446687	446714	446742	446769	446797	446824	446852	446879	446907	446934	446962	56	4. 22
4	10. 446989	447017	447045	447072	447100	447127	447155	447182	447210	447237	447265	447292	55	1 = 6
5	10. 447320	447347	447375	447403	447430	447458	447485	447513	447540	447568	447595	447623	54	2. 11
6	10. 447651	447678	447706	447733	447761	447788	447816	447844	447871	447899	447926	447954	53	3. 17
7	10. 447982	448009	448037	448064	448092	448120	448147	448175	448202	448230	448258	448285	52	4. 22
8	10. 448313	448340	448368	448396	448423	448451	448479	448506	448534	448561	448589	448617	51	1 = 6
9	10. 448644	448672	448700	448727	448755	448783	448810	448838	448866	448893	448921	448949	50	2. 11
10	10. 448976	449004	449032	449059	449087	449115	449142	449170	449198	449225	449253	449281	49	3. 17
11	10. 449308	449336	449364	449391	449419	449447	449475	449502	449530	449558	449585	449613	48	4. 22
12	10. 449641	449668	449696	449724	449752	449779	449807	449835	449863	449890	449918	449946	47	1 = 6
13	10. 449973	450001	450029	450057	450084	450112	450140	450168	450195	450223	450251	450279	46	2. 11
14	10. 450306	450334	450362	450390	450418	450445	450473	450501	450529	450556	450584	450612	45	3. 17
15	10. 450640	450668	450695	450723	450751	450779	450807	450834	450862	450890	450918	450946	44	4. 22
16	10. 450973	451001	451029	451057	451085	451112	451140	451168	451196	451224	451252	451279	43	1 = 6
17	10. 451307	451335	451363	451391	451419	451446	451474	451502	451530	451558	451586	451614	42	2. 11
18	10. 451641	451669	451697	451725	451753	451781	451809	451837	451864	451892	451920	451948	41	3. 17
19	10. 451976	452004	452032	452060	452087	452115	452143	452171	452199	452227	452255	452283	40	4. 22
20	10. 452311	452339	452367	452394	452422	452450	452478	452506	452534	452562	452590	452618	39	1 = 6
21	10. 452646	452674	452702	452730	452757	452785	452813	452841	452869	452897	452925	452953	38	2. 11
22	10. 452981	453009	453037	453065	453093	453121	453149	453177	453205	453233	453261	453289	37	3. 17
23	10. 453317	453345	453373	453401	453429	453457	453485	453513	453541	453569	453597	453625	36	4. 22
24	10. 453653	453681	453709	453737	453765	453793	453821	453849	453877	453905	453933	453961	35	1 = 6
25	10. 453989	454017	454045	454073	454101	454129	454157	454185	454213	454241	454269	454297	34	2. 11
26	10. 454325	454354	454382	454410	454438	454466	454494	454522	454550	454578	454606	454634	33	3. 17
27	10. 454662	454690	454719	454747	454775	454803	454831	454859	454887	454915	454943	454971	32	4. 22
28	10. 454999	455028	455056	455084	455112	455140	455168	455196	455224	455253	455281	455309	31	1 = 6
29	10. 455337	455365	455393	455421	455449	455478	455506	455534	455562	455590	455618	455646	30	2. 11
30	10. 455675	455703	455731	455759	455787	455815	455844	455872	455900	455928	455956	455985	29	3. 17
31	10. 456013	456041	456069	456097	456125	456154	456182	456210	456238	456266	456295	456323	28	4. 23
32	10. 456351	456379	456407	456436	456464	456492	456520	456549	456577	456605	456633	456661	27	1 = 6
33	10. 456690	456718	456746	456774	456803	456831	456859	456887	456916	456944	456972	457000	26	2. 11
34	10. 457029	457057	457085	457113	457142	457170	457198	457226	457255	457283	457311	457340	25	3. 17
35	10. 457368	457396	457424	457453	457481	457509	457538	457566	457594	457622	457651	457679	24	4. 23
36	10. 457707	457736	457764	457792	457821	457849	457877	457906	457934	457962	457991	458019	23	1 = 6
37	10. 458047	458076	458104	458132	458161	458189	458217	458246	458274	458302	458331	458359	22	2. 11
38	10. 458387	458416	458444	458472	458501	458529	458558	458586	458614	458643	458671	458699	21	3. 17
39	10. 458728	458756	458785	458813	458841	458870	458898	458927	458955	458983	459012	459040	20	4. 23
40	10. 459069	459097	459125	459154	459182	459211	459239	459268	459296	459324	459353	459381	19	1 = 6
41	10. 459410	459438	459467	459495	459523	459552	459580	459609	459637	459666	459694	459723	18	2. 11
42	10. 459751	459779	459808	459836	459865	459893	459922	459950	459979	460007	460036	460064	17	3. 17
43	10. 460093	460121	460150	460178	460207	460235	460264	460292	460321	460349	460378	460406	16	4. 23
44	10. 460435	460463	460492	460520	460549	460577	460606	460634	460663	460691	460720	460748	15	1 = 6
45	10. 460777	460805	460834	460863	460891	460920	460948	460977	461005	461034	461062	461091	14	2. 11
46	10. 461120	461148	461177	461205	461234	461262	461291	461320	461348	461377	461405	461434	13	3. 17
47	10. 461462	461491	461520	461548	461577	461605	461634	461663	461691	461720	461748	461777	12	4. 23
48	10. 461806	461834	461863	461891	461920	461949	461977	462006	462035	462063	462092	462121	11	1 = 6
49	10. 462149	462178	462206	462235	462264	462292	462321	462350	462378	462407	462436	462464	10	2. 11
50	10. 462493	462522	462550	462579	462608	462636	462665	462694	462722	462751	462780	462808	9	3. 17
51	10. 462837	462866	462894	462923	462952	462981	463009	463038	463067	463095	463124	463153	8	4. 23
52	10. 463182	463210	463239	463268	463296	463325	463354	463383	463411	463440	463469	463498	7	1 = 6
53	10. 463526	463555	463584	463613	463641	463670	463699	463728	463756	463785	463814	463843	6	2. 12
54	10. 463871	463900	463929	463958	463986	464015	464044	464073	464102	464130	464159	464188	5	3. 17
55	10. 464217	464246	464274	464303	464332	464361	464390	464418	464447	464476	464505	464534	4	4. 23
56	10. 464562	464591	464620	464649	464678	464707	464735	464764	464793	464822	464851	464880	3	1 = 6
57	10. 464908	464937	464966	464995	465024	465053	465082	465110	465139	465168	465197	465226	2	2. 12
58	10. 465255	465284	465312	465341	465370	465399	465428	465457	465486	465515	465544	465572	1	3. 17
59	10. 465601	465630	465659	465688	465717	465746	465775	465804	465833	465862	465890	465919	0	4. 23
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.

Co-secant of 20 degrees, or Secant of 110 degrees.

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LOGARITHMIC SECANTS.

Secant of 70 degrees, or Co-secant of 160 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper. parts
0	10. 465948	465977	466006	466035	466064	466093	466122	466151	466180	466209	466238	466267	59	1″ =
1	10. 466296	466325	466354	466382	466411	466440	466469	466498	466527	466556	466585	466614	58	2.
2	10. 466643	466672	466701	466730	466759	466788	466817	466846	466875	466904	466933	466962	57	3.
3	10. 466991	467020	467049	467078	467107	467136	467165	467194	467223	467252	467281	467310	56	4.
4	10. 467339	467368	467397	467426	467455	467484	467513	467542	467571	467601	467630	467659	55	1 =
5	10. 467688	467717	467746	467775	467804	467833	467862	467891	467920	467949	467978	468007	54	2.
6	10. 468036	468066	468095	468124	468153	468182	468211	468240	468269	468298	468327	468357	53	3.
7	10. 468386	468415	468444	468473	468502	468531	468560	468589	468619	468648	468677	468706	52	4.
8	10. 468735	468764	468793	468823	468852	468881	468910	468939	468968	468997	469027	469056	51	1 =
9	10. 469085	469114	469143	469172	469202	469231	469260	469289	469318	469347	469377	469406	50	2.
10	10. 469435	469464	469493	469523	469552	469581	469610	469639	469669	469698	469727	469756	49	3.
11	10. 469785	469815	469844	469873	469902	469931	469961	469990	470019	470048	470078	470107	48	4.
12	10. 470136	470165	470195	470224	470253	470282	470312	470341	470370	470399	470429	470458	47	1 =
13	10. 470487	470516	470546	470575	470604	470634	470663	470692	470721	470751	470780	470809	46	2.
14	10. 470839	470868	470897	470926	470956	470985	471014	471044	471073	471102	471132	471161	45	3.
15	10. 471190	471220	471249	471278	471308	471337	471366	471396	471425	471454	471484	471513	44	4.
16	10. 471542	471572	471601	471630	471660	471689	471718	471748	471777	471807	471836	471865	43	1 =
17	10. 471895	471924	471953	471983	472012	472042	472071	472100	472130	472159	472189	472218	42	2.
18	10. 472247	472277	472306	472336	472365	472394	472424	472453	472483	472512	472541	472571	41	3.
19	10. 472600	472630	472659	472689	472718	472747	472777	472806	472836	472865	472895	472924	40	4.
20	10. 472954	472983	473013	473042	473071	473101	473130	473160	473189	473219	473248	473278	39	1 =
21	10. 473307	473337	473366	473396	473425	473455	473484	473514	473543	473573	473602	473632	38	2.
22	10. 473661	473691	473720	473750	473779	473809	473838	473868	473897	473927	473956	473986	37	3.
23	10. 474016	474045	474075	474104	474134	474163	474193	474222	474252	474281	474311	474341	36	4.
24	10. 474370	474400	474429	474459	474488	474518	474548	474577	474607	474636	474666	474695	35	1 =
25	10. 474725	474755	474784	474814	474843	474873	474903	474932	474962	474991	475021	475051	34	2.
26	10. 475080	475110	475140	475169	475199	475228	475258	475288	475317	475347	475377	475406	33	3.
27	10. 475436	475466	475495	475525	475555	475584	475614	475644	475673	475703	475733	475762	32	4.
28	10. 475792	475822	475851	475881	475911	475940	475970	476000	476029	476059	476089	476118	31	1 =
29	10. 476148	476178	476208	476237	476267	476297	476326	476356	476386	476416	476445	476475	30	2.
30	10. 476505	476534	476564	476594	476624	476653	476683	476713	476743	476772	476802	476832	29	3.
31	10. 476862	476891	476921	476951	476981	477010	477040	477070	477100	477130	477159	477189	28	4.
32	10. 477219	477249	477278	477308	477338	477368	477398	477427	477457	477487	477517	477547	27	1 =
33	10. 477576	477606	477636	477666	477696	477726	477755	477785	477815	477845	477875	477904	26	2.
34	10. 477934	477964	477994	478024	478054	478084	478113	478143	478173	478203	478233	478263	25	3.
35	10. 478293	478322	478352	478382	478412	478442	478472	478502	478532	478561	478591	478621	24	4.
36	10. 478651	478681	478711	478741	478771	478801	478831	478860	478890	478920	478950	478980	23	1 =
37	10. 479010	479040	479070	479100	479130	479160	479190	479220	479249	479279	479309	479339	22	2.
38	10. 479369	479399	479429	479459	479489	479519	479549	479579	479609	479639	479669	479699	21	3.
39	10. 479729	479759	479789	479819	479849	479879	479909	479939	479969	479999	480029	480059	20	4.
40	10. 480089	480119	480149	480179	480209	480239	480269	480299	480329	480359	480389	480419	19	1 =
41	10. 480449	480479	480509	480539	480569	480599	480629	480659	480689	480719	480749	480780	18	2.
42	10. 480810	480840	480870	480900	480930	480960	480990	481020	481050	481080	481110	481140	17	3.
43	10. 481170	481201	481231	481261	481291	481321	481351	481381	481411	481441	481472	481502	16	4.
44	10. 481532	481562	481592	481622	481652	481682	481712	481743	481773	481803	481833	481863	15	1 =
45	10. 481893	481923	481954	481984	482014	482044	482074	482104	482135	482165	482195	482225	14	2.
46	10. 482255	482285	482316	482346	482376	482406	482436	482467	482497	482527	482557	482587	13	3.
47	10. 482618	482648	482678	482708	482738	482769	482799	482829	482859	482889	482920	482950	12	4.
48	10. 483980	483010	483041	483071	483101	483131	483162	483192	483222	483252	483283	483313	11	1 =
49	10. 483343	483373	483404	483434	483464	483494	483525	483555	483585	483615	483646	483676	10	2.
50	10. 483706	483737	483767	483797	483828	483858	483888	483918	483949	483979	484009	484040	9	3.
51	10. 484070	484100	484131	484161	484191	484222	484252	484282	484313	484343	484373	484404	8	4.
52	10. 484434	484464	484495	484525	484555	484586	484616	484646	484677	484707	484738	484768	7	1 =
53	10. 484798	484829	484859	484889	484920	484950	484981	485011	485041	485072	485102	485132	6	2.
54	10. 485163	485193	485224	485254	485285	485315	485345	485376	485406	485437	485467	485497	5	3.
55	10. 485528	485558	485589	485619	485650	485680	485711	485741	485771	485802	485832	485863	4	4.
56	10. 485893	485924	485954	485985	486015	486046	486076	486107	486137	486167	486198	486228	3	1 =
57	10. 486259	486289	486320	486350	486381	486411	486442	486472	486503	486533	486564	486594	2	2.
58	10. 486625	486655	486686	486717	486747	486778	486808	486839	486869	486900	486930	486961	1	3.
59	10. 486991	487022	487052	487083	487114	487144	487175	487205	487236	487266	487297	487327	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts

Co-secant of 19 degrees, or Secant of 109 degrees.

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LOGARITHMIC SECANTS.

Secant of 71 degrees, or Co-secant of 161 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 487358	487389	487419	487450	487480	487511	487542	487572	487603	487633	487664	487694	59	1″ = 6
1	10. 487725	487756	487786	487817	487848	487878	487909	487939	487970	488001	488031	488062	58	2. 12
2	10. 488093	488123	488154	488184	488215	488246	488276	488307	488338	488368	488399	488430	57	3. 18
3	10. 488460	488491	488522	488552	488583	488614	488644	488675	488706	488736	488767	488798	56	4. 25
4	10. 488828	488859	488890	488920	488951	488982	489013	489043	489074	489105	489135	489166	55	1 = 6
5	10. 489197	489228	489258	489289	489320	489350	489381	489412	489443	489473	489504	489535	54	2. 12
6	10. 489566	489596	489627	489658	489689	489719	489750	489781	489812	489842	489873	489904	53	3. 18
7	10. 489935	489966	489996	490027	490058	490089	490120	490150	490181	490212	490243	490274	52	4. 25
8	10. 490304	490335	490366	490397	490428	490458	490489	490520	490551	490582	490613	490643	51	1 = 6
9	10. 490674	490705	490736	490767	490798	490828	490859	490890	490921	490952	490983	491014	50	2. 12
10	10. 491044	491075	491106	491137	491168	491199	491230	491261	491291	491322	491353	491384	49	3. 19
11	10. 491415	491446	491477	491508	491539	491569	491600	491631	491662	491693	491724	491755	48	4. 25
12	10. 491786	491817	491848	491879	491910	491941	491971	492002	492033	492064	492095	492126	47	1 = 6
13	10. 492157	492188	492219	492250	492281	492312	492343	492374	492405	492436	492467	492498	46	2. 12
14	10. 492529	492560	492591	492622	492653	492684	492715	492746	492777	492808	492839	492870	45	3. 19
15	10. 492901	492932	492963	492994	493025	493056	493087	493118	493149	493180	493211	493242	44	4. 25
16	10. 493273	493304	493335	493366	493397	493428	493459	493490	493522	493553	493584	493615	43	1 = 6
17	10. 493646	493677	493708	493739	493770	493801	493832	493863	493894	493926	493957	493988	42	2. 12
18	10. 494019	494050	494081	494112	494143	494174	494205	494237	494268	494299	494330	494361	41	3. 19
19	10. 494392	494423	494455	494486	494517	494548	494579	494610	494641	494673	494704	494735	40	4. 25
20	10. 494766	494797	494828	494860	494891	494922	494953	494984	495015	495047	495078	495109	39	1 = 6
21	10. 495140	495171	495203	495234	495265	495296	495327	495359	495390	495421	495452	495483	38	2. 13
22	10. 495515	495546	495577	495608	495640	495671	495702	495733	495764	495796	495827	495858	37	3. 19
23	10. 495889	495921	495952	495983	496014	496046	496077	496108	496140	496171	496202	496233	36	4. 25
24	10. 496265	496296	496327	496359	496390	496421	496452	496484	496515	496546	496578	496609	35	1 = 6
25	10. 496640	496672	496703	496734	496766	496797	496828	496859	496891	496922	496953	496985	34	2. 13
26	10. 497016	497048	497079	497110	497142	497173	497204	497236	497267	497298	497330	497361	33	3. 19
27	10. 497392	497424	497455	497487	497518	497549	497581	497612	497644	497675	497706	497738	32	4. 25
28	10. 497769	497801	497832	497863	497895	497926	497958	497989	498020	498052	498083	498115	31	1 = 6
29	10. 498146	498178	498209	498240	498272	498303	498335	498366	498398	498429	498461	498492	30	2. 13
30	10. 498524	498555	498586	498618	498649	498681	498712	498744	498775	498807	498838	498870	29	3. 19
31	10. 498901	498933	498964	498996	499027	499059	499090	499122	499153	499185	499216	499248	28	4. 25
32	10. 499279	499311	499342	499374	499405	499437	499469	499500	499532	499563	499595	499626	27	1 = 6
33	10. 499658	499689	499721	499753	499784	499816	499847	499879	499910	499942	499974	500005	26	2. 13
34	10. 500037	500068	500100	500131	500163	500195	500226	500258	500289	500321	500353	500384	25	3. 19
35	10. 500416	500448	500479	500511	500542	500574	500606	500637	500669	500701	500732	500764	24	4. 25
36	10. 500795	500827	500859	500890	500922	500954	500985	501017	501049	501080	501112	501144	23	1 = 6
37	10. 501175	501207	501239	501270	501302	501334	501366	501397	501429	501461	501492	501524	22	2. 13
38	10. 501556	501587	501619	501651	501683	501714	501746	501778	501810	501841	501873	501905	21	3. 19
39	10. 501936	501968	502000	502032	502063	502095	502127	502159	502190	502222	502254	502286	20	4. 25
40	10. 502318	502349	502381	502413	502445	502476	502508	502540	502572	502604	502635	502667	19	1 = 6
41	10. 502699	502731	502763	502794	502826	502858	502890	502922	502953	502985	503017	503049	18	2. 13
42	10. 503081	503113	503144	503176	503208	503240	503272	503304	503335	503367	503399	503431	17	3. 19
43	10. 503463	503495	503527	503559	503590	503622	503654	503686	503718	503750	503782	503814	16	4. 25
44	10. 503845	503877	503909	503941	503973	504005	504037	504069	504101	504133	504165	504196	15	1 = 6
45	10. 504228	504260	504292	504324	504356	504388	504420	504452	504484	504516	504548	504580	14	2. 13
46	10. 504612	504644	504676	504708	504740	504772	504803	504835	504867	504899	504931	504963	13	3. 19
47	10. 504995	505027	505059	505091	505123	505155	505187	505219	505251	505283	505315	505347	12	4. 26
48	10. 505379	505411	505443	505475	505508	505540	505572	505604	505636	505668	505700	505732	11	1 = 6
49	10. 505764	505796	505828	505860	505892	505924	505956	505988	506020	506052	506084	506117	10	2. 13
50	10. 506149	506181	506213	506245	506277	506309	506341	506373	506405	506437	506470	506502	9	3. 19
51	10. 506534	506566	506598	506630	506662	506694	506727	506759	506791	506823	506855	506887	8	4. 26
52	10. 506919	506952	506984	507016	507048	507080	507112	507144	507177	507209	507241	507273	7	1 = 6
53	10. 507305	507338	507370	507402	507434	507466	507498	507531	507563	507595	507627	507659	6	2. 13
54	10. 507692	507724	507756	507788	507821	507853	507885	507917	507949	507982	508014	508046	5	3. 19
55	10. 508078	508111	508143	508175	508207	508240	508272	508304	508336	508369	508401	508433	4	4. 26
56	10. 508465	508498	508530	508562	508595	508627	508659	508691	508724	508756	508788	508821	3	1 = 6
57	10. 508853	508885	508918	508950	508982	509014	509047	509079	509111	509144	509176	509208	2	2. 13
58	10. 509241	509273	509305	509338	509370	509402	509435	509467	509500	509532	509564	509597	1	3. 19
59	10. 509629	509661	509694	509726	509758	509791	509823	509856	509888	509920	509953	509985	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 18 degrees, or Secant of 108 degrees.

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LOGARITHMIC SECANTS

Minutes	Secant of 72 degrees, or Co-secant of 162 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 510018	510050	510082	510115	510147	510180	510212	510244	510277	510309	510342	510374	59	1″ =
1	10. 510407	510439	510471	510504	510536	510569	510601	510634	510666	510699	510731	510764	58	2.
2	10. 510796	510828	510861	510893	510926	510958	510991	511023	511056	511088	511121	511153	57	3.
3	10. 511186	511218	511251	511283	511316	511348	511381	511413	511446	511478	511511	511543	56	4.
4	10. 511576	511608	511641	511674	511706	511739	511771	511804	511836	511869	511901	511934	55	1 =
5	10. 511966	511999	512032	512064	512097	512129	512162	512194	512227	512259	512292	512325	54	2.
6	10. 512357	512390	512423	512455	512488	512520	512553	512586	512618	512651	512683	512716	53	3.
7	10. 512749	512781	512814	512847	512879	512912	512945	512977	513010	513042	513075	513108	52	4.
8	10. 513140	513173	513206	513238	513271	513304	513336	513369	513402	513434	513467	513500	51	1 =
9	10. 513533	513565	513598	513631	513663	513696	513729	513761	513794	513827	513860	513892	50	2.
10	10. 513925	513958	513990	514023	514056	514089	514121	514154	514187	514220	514252	514285	49	3.
11	10. 514318	514351	514383	514416	514449	514482	514514	514547	514580	514613	514646	514678	48	4.
12	10. 514711	514744	514777	514810	514842	514875	514908	514941	514974	515006	515039	515072	47	1 =
13	10. 515105	515138	515171	515203	515236	515269	515302	515335	515368	515400	515433	515466	46	2.
14	10. 515499	515532	515565	515598	515630	515663	515696	515729	515762	515795	515828	515860	45	3.
15	10. 515893	515926	515959	515992	516025	516058	516091	516124	516157	516189	516222	516255	44	4.
16	10. 516288	516321	516354	516387	516420	516453	516486	516519	516552	516585	516618	516651	43	1 =
17	10. 516683	516716	516749	516782	516815	516848	516881	516914	516947	516980	517013	517046	42	2.
18	10. 517079	517112	517145	517178	517211	517244	517277	517310	517343	517376	517409	517442	41	3.
19	10. 517475	517508	517541	517574	517607	517640	517673	517706	517739	517772	517806	517839	40	4.
20	10. 517872	517905	517938	517971	518004	518037	518070	518103	518136	518169	518202	518235	39	1 =
21	10. 518268	518302	518335	518368	518401	518434	518467	518500	518533	518566	518599	518633	38	2.
22	10. 518666	518699	518732	518765	518798	518831	518864	518898	518931	518964	518997	519030	37	3.
23	10. 519063	519097	519130	519163	519196	519229	519262	519296	519329	519362	519395	519428	36	4.
24	10. 519461	519495	519528	519561	519594	519627	519661	519694	519727	519760	519793	519827	35	1 =
25	10. 519860	519893	519926	519960	519993	520026	520059	520092	520126	520159	520192	520225	34	2.
26	10. 520259	520292	520325	520358	520392	520425	520458	520492	520525	520558	520591	520625	33	3.
27	10. 520658	520691	520725	520758	520791	520824	520858	520891	520924	520958	520991	521024	32	4.
28	10. 521058	521091	521124	521158	521191	521224	521258	521291	521324	521358	521391	521424	31	1 =
29	10. 521458	521491	521524	521558	521591	521624	521658	521691	521725	521758	521791	521825	30	2.
30	10. 521858	521892	521925	521958	521992	522025	522059	522092	522125	522159	522192	522226	29	3.
31	10. 522259	522292	522326	522359	522393	522426	522460	522493	522526	522560	522593	522627	28	4.
32	10. 522660	522694	522727	522761	522794	522828	522861	522895	522928	522962	522995	523029	27	1 =
33	10. 523062	523095	523129	523162	523196	523229	523263	523296	523330	523364	523397	523431	26	2.
34	10. 523464	523498	523531	523565	523598	523632	523665	523699	523732	523766	523799	523833	25	3.
35	10. 523867	523900	523934	523967	524001	524034	524068	524102	524135	524169	524202	524236	24	4.
36	10. 524270	524303	524337	524370	524404	524438	524471	524505	524538	524572	524606	524639	23	1 =
37	10. 524673	524706	524740	524774	524807	524841	524875	524908	524942	524976	525009	525043	22	2.
38	10. 525077	525110	525144	525178	525211	525245	525279	525312	525346	525380	525413	525447	21	3.
39	10. 525481	525514	525548	525582	525616	525649	525683	525717	525750	525784	525818	525852	20	4.
40	10. 525885	525919	525953	525987	526020	526054	526088	526121	526155	526189	526223	526257	19	1 =
41	10. 526290	526324	526358	526392	526425	526459	526493	526527	526561	526594	526628	526662	18	2.
42	10. 526696	526729	526763	526797	526831	526865	526899	526932	526966	527000	527034	527068	17	3.
43	10. 527101	527135	527169	527203	527237	527271	527305	527338	527372	527406	527440	527474	16	4.
44	10. 527508	527542	527575	527609	527643	527677	527711	527745	527779	527813	527847	527880	15	1 =
45	10. 527914	527948	527982	528016	528050	528084	528118	528152	528186	528220	528254	528287	14	2.
46	10. 528321	528355	528389	528423	528457	528491	528525	528559	528593	528627	528661	528695	13	3.
47	10. 528729	528763	528797	528831	528865	528899	528933	528967	529001	529035	529069	529103	12	4.
48	10. 529137	529171	529205	529239	529273	529307	529341	529375	529409	529443	529477	529511	11	1 =
49	10. 529545	529579	529613	529647	529681	529715	529749	529784	529818	529852	529886	529920	10	2.
50	10. 529954	529988	530022	530056	530090	530124	530158	530192	530227	530261	530295	530329	9	3.
51	10. 530363	530397	530431	530465	530500	530534	530568	530602	530636	530670	530704	530738	8	4.
52	10. 530773	530807	530841	530875	530909	530943	530978	531012	531046	531080	531114	531148	7	1 =
53	10. 531183	531217	531251	531285	531319	531354	531388	531422	531456	531490	531525	531559	6	2.
54	10. 531593	531627	531662	531696	531730	531764	531798	531833	531867	531901	531935	531970	5	3.
55	10. 532004	532038	532072	532107	532141	532175	532210	532244	532278	532312	532347	532381	4	4.
56	10. 532415	532449	532484	532518	532552	532587	532621	532655	532690	532724	532758	532793	3	1 =
57	10. 532827	532861	532896	532930	532964	532999	533033	533067	533102	533136	533170	533205	2	2.
58	10. 533239	533273	533308	533342	533377	533411	533445	533480	533514	533548	533583	533617	1	3.
59	10. 533652	533686	533720	533755	533789	533824	533858	533892	533927	533961	533996	534030	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 17 degrees, or Secant of 107 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 73 degrees, or Co-secant of 163 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 534065	534099	534133	534168	534202	534237	534271	534306	534340	534375	534409	534444	59	1″ = 7
1	10. 534478	534513	534547	534581	534616	534650	534685	534719	534754	534788	534823	534857	58	2. 14
2	10. 534892	534926	534961	534995	535030	535064	535099	535134	535168	535203	535237	535272	57	3. 21
3	10. 535306	535341	535375	535410	535444	535479	535513	535548	535583	535617	535652	535686	56	4. 28
4	10. 535721	535755	535790	535825	535859	535894	535928	535963	535998	536032	536067	536101	55	1 = 7
5	10. 536136	536171	536205	536240	536275	536309	536344	536378	536413	536448	536482	536517	54	2. 14
6	10. 536552	536586	536621	536656	536690	536725	536760	536794	536829	536864	536898	536933	53	3. 21
7	10. 536968	537002	537037	537072	537107	537141	537176	537211	537245	537280	537315	537349	52	4. 28
8	10. 537384	537419	537454	537488	537523	537558	537593	537627	537662	537697	537732	537766	51	1 = 7
9	10. 537801	537836	537871	537905	537940	537975	538010	538044	538079	538114	538149	538184	50	2. 14
10	10. 538218	538253	538288	538223	538358	538392	538427	538462	538497	538532	538566	538601	49	3. 21
11	10. 538636	538671	538706	538741	538775	538810	538845	538880	538915	538950	538985	539019	48	4. 28
12	10. 539054	539089	539124	539159	539194	539229	539264	539298	539333	539368	539403	539438	47	1 = 7
13	10. 539473	539508	539543	539578	539613	539648	539682	539717	539752	539787	539822	539857	46	2. 14
14	10. 539892	539927	539962	539997	540032	540067	540102	540137	540172	540207	540242	540277	45	3. 21
15	10. 540312	540347	540382	540417	540452	540487	540522	540557	540592	540627	540662	540697	44	4. 28
16	10. 540732	540767	540802	540837	540872	540907	540942	540977	541012	541047	541082	541117	43	1 = 7
17	10. 541152	541187	541222	541257	541292	541327	541362	541397	541433	541468	541503	541538	42	2. 14
18	10. 541573	541608	541643	541678	541713	541748	541783	541819	541854	541889	541924	541959	41	3. 21
19	10. 541994	542029	542064	542100	542135	542170	542205	542240	542275	542310	542346	542381	40	4. 28
20	10. 542416	542451	542486	542521	542557	542592	542627	542662	542697	542733	542768	542803	39	1 = 7
21	10. 542838	542873	542909	542944	542979	543014	543049	543085	543120	543155	543190	543226	38	2. 14
22	10. 543261	543296	543331	543366	543402	543437	543472	543508	543543	543578	543613	543649	37	3. 21
23	10. 543684	543719	543754	543790	543825	543860	543896	543931	543966	544001	544037	544072	36	4. 28
24	10. 544107	544143	544178	544213	544249	544284	544319	544355	544390	544425	544461	544496	35	1 = 7
25	10. 544531	544567	544602	544637	544673	544708	544744	544779	544814	544850	544885	544920	34	2. 14
26	10. 544956	544991	545027	545062	545097	545133	545168	545204	545239	545274	545310	545345	33	3. 21
27	10. 545381	545416	545452	545487	545522	545558	545593	545629	545664	545700	545735	545771	32	4. 28
28	10. 545806	545842	545877	545912	545948	545983	546019	546054	546090	546125	546161	546196	31	1 = 7
29	10. 546232	546267	546303	546338	546374	546409	546445	546480	546516	546552	546587	546623	30	2. 14
30	10. 546658	546694	546729	546765	546800	546836	546871	546907	546943	546978	547014	547049	29	3. 21
31	10. 547085	547120	547156	547192	547227	547263	547298	547334	547370	547405	547441	547476	28	4. 28
32	10. 547512	547548	547583	547619	547655	547690	547726	547761	547797	547833	547868	547904	27	1 = 7
33	10. 547940	547975	548011	548047	548082	548118	548154	548189	548225	548261	548296	548332	26	2. 14
34	10. 548368	548403	548439	548475	548511	548546	548582	548618	548653	548689	548725	548761	25	3. 21
35	10. 548796	548832	548868	548904	548939	548975	549011	549046	549082	549118	549154	549190	24	4. 29
36	10. 549225	549261	549297	549333	549368	549404	549440	549476	549512	549547	549583	549619	23	1 = 7
37	10. 549655	549691	549726	549762	549798	549834	549870	549906	549941	549977	550013	550049	22	2. 14
38	10. 550085	550121	550156	550192	550228	550264	550300	550336	550372	550407	550443	550479	21	3. 22
39	10. 550515	550551	550587	550623	550659	550695	550730	550766	550802	550838	550874	550910	20	4. 29
40	10. 550946	550982	551018	551054	551090	551126	551162	551197	551233	551269	551305	551341	19	1 = 7
41	10. 551377	551413	551449	551485	551521	551557	551593	551629	551665	551701	551737	551773	18	2. 14
42	10. 551809	551845	551881	551917	551953	551989	552025	552061	552097	552133	552169	552205	17	3. 22
43	10. 552241	552273	552313	552349	552385	552422	552458	552494	552530	552566	552602	552638	16	4. 29
44	10. 552674	552710	552746	552782	552818	552854	552891	552927	552963	552999	553035	553071	15	1 = 7
45	10. 553107	553143	553179	553216	553252	553288	553324	553360	553396	553432	553469	553505	14	2. 14
46	10. 553541	553577	553613	553649	553686	553722	553758	553794	553830	553866	553903	553939	13	3. 22
47	10. 553975	554011	554047	554084	554120	554156	554192	554228	554265	554301	554337	554373	12	4. 29
48	10. 554410	554446	554482	554518	554555	554591	554627	554663	554700	554736	554772	554808	11	1 = 7
49	10. 554845	554881	554917	554954	554990	555026	555062	555099	555135	555171	555208	555244	10	2. 15
50	10. 555280	555317	555353	555389	555425	555462	555498	555534	555571	555607	555644	555680	9	3. 22
51	10. 555716	555753	555789	555825	555862	555898	555934	555971	556007	556044	556080	556116	8	4. 29
52	10. 556153	556189	556226	556262	556298	556335	556371	556408	556444	556480	556517	556553	7	1 = 7
53	10. 556590	556626	556663	556699	556735	556772	556808	556845	556881	556918	556954	556991	6	2. 15
54	10. 557027	557064	557100	557137	557173	557210	557246	557283	557319	557356	557392	557429	5	3. 22
55	10. 557465	557502	557538	557575	557611	557648	557684	557721	557757	557794	557830	557867	4	4. 29
56	10. 557903	557940	557977	558013	558050	558086	558123	558159	558196	558233	558269	558306	3	1 = 7
57	10. 558342	558379	558416	558452	558489	558525	558562	558599	558635	558672	558708	558745	2	2. 15
58	10. 558782	558818	558855	558892	558928	558965	559002	559038	559075	559112	559148	559185	1	3. 22
59	10. 559222	559258	559295	559332	559368	559405	559442	559478	559515	559552	559588	559625	0	4. 29
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 16 degrees, or Secant of 106 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 74 degrees, or Co-secant of 164 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 559662	559699	559735	559772	559809	559845	559882	559919	559956	559992	560029	560066	59	1″ =
1	10. 560103	560139	560176	560213	560250	560287	560323	560360	560397	560434	560470	560507	58	2.
2	10. 560544	560581	560618	560654	560691	560728	560765	560802	560838	560875	560912	560949	57	3.
3	10. 560986	561023	561059	561096	561133	561170	561207	561244	561281	561317	561354	561391	56	4.
4	10. 561428	561465	561502	561539	561576	561612	561649	561686	561723	561760	561797	561834	55	1 =
5	10. 561871	561908	561945	561982	562018	562055	562092	562129	562166	562203	562240	562277	54	2.
6	10. 562314	562351	562388	562425	562462	562499	562536	562573	562610	562647	562684	562721	53	3.
7	10. 562758	562795	562832	562869	562906	562943	562980	563017	563054	563091	563128	563165	52	4.
8	10. 563202	563239	563276	563313	563350	563387	563424	563461	563498	563535	563573	563610	51	1 =
9	10. 563647	563684	563721	563758	563795	563832	563869	563906	563943	563981	564018	564055	50	2.
10	10. 564092	564129	564166	564203	564240	564278	564315	564352	564389	564426	564463	564500	49	3.
11	10. 564538	564575	564612	564649	564686	564723	564761	564798	564835	564872	564909	564947	48	4.
12	10. 564984	565021	565058	565095	565133	565170	565207	565244	565282	565319	565356	565393	47	1 =
13	10. 565431	565468	565505	565542	565580	565617	565654	565691	565729	565766	565803	565840	46	2.
14	10. 565878	565915	565952	565990	566027	566064	566101	566139	566176	566213	566251	566288	45	3.
15	10. 566325	566363	566400	566437	566475	566512	566549	566587	566624	566661	566699	566736	44	4.
16	10. 566774	566811	566848	566886	566923	566960	566998	567035	567073	567110	567147	567185	43	1 =
17	10. 567222	567260	567297	567335	567372	567409	567447	567484	567522	567559	567597	567634	42	2.
18	10. 567671	567709	567746	567784	567821	567859	567896	567934	567971	568009	568046	568084	41	3.
19	10. 568121	568159	568196	568234	568271	568309	568346	568384	568421	568459	568496	568534	40	4.
20	10. 568571	568609	568646	568684	568721	568759	568797	568834	568872	568909	568947	568984	39	1 =
21	10. 569022	569060	569097	569135	569172	569210	569248	569285	569323	569360	569398	569436	38	2.
22	10. 569473	569511	569548	569586	569624	569661	569699	569737	569774	569812	569850	569887	37	3.
23	10. 569925	569963	570000	570038	570076	570113	570151	570189	570226	570264	570302	570339	36	4.
24	10. 570377	570415	570453	570490	570528	570566	570603	570641	570679	570717	570754	570792	35	1 =
25	10. 570830	570868	570905	570943	570981	571019	571056	571094	571132	571170	571208	571245	34	2.
26	10. 571283	571321	571359	571396	571434	571472	571510	571548	571586	571623	571661	571699	33	3.
27	10. 571737	571775	571813	571850	571888	571926	571964	572002	572040	572077	572115	572153	32	4.
28	10. 572191	572229	572267	572305	572343	572381	572418	572456	572494	572532	572570	572608	31	1 =
29	10. 572646	572684	572722	572760	572798	572835	572873	572911	572949	572987	573025	573063	30	2.
30	10. 573101	573139	573177	573215	573253	573291	573329	573367	573405	573443	573481	573519	29	3.
31	10. 573557	573595	573633	573671	573709	573747	573785	573823	573861	573899	573937	573975	28	4.
32	10. 574013	574051	574089	574127	574165	574204	574242	574280	574318	574356	574394	574432	27	1 =
33	10. 574470	574508	574546	574584	574622	574661	574699	574737	574775	574813	574851	574889	26	2.
34	10. 574927	574966	575004	575042	575080	575118	575156	575194	575233	575271	575309	575347	25	3.
35	10. 575385	575423	575462	575500	575538	575576	575614	575653	575691	575729	575767	575805	24	4.
36	10. 575844	575882	575920	575958	575997	576035	576073	576111	576150	576188	576226	576264	23	1 =
37	10. 576303	576341	576379	576417	576456	576494	576532	576570	576609	576647	576685	576724	22	2.
38	10. 576762	576800	576839	576877	576915	576954	576992	577030	577069	577107	577145	577184	21	3.
39	10. 577222	577260	577299	577337	577375	577414	577452	577490	577529	577567	577606	577644	20	4.
40	10. 577682	577721	577759	577798	577836	577874	577913	577951	577990	578028	578067	578105	19	1 =
41	10. 578143	578182	578220	578259	578297	578336	578374	578413	578451	578489	578528	578566	18	2.
42	10. 578605	578643	578682	578720	578759	578797	578836	578874	578913	578951	578990	579028	17	3.
43	10. 579067	579105	579144	579183	579221	579260	579298	579337	579375	579414	579452	579491	16	4.
44	10. 579530	579568	579607	579645	579684	579722	579761	579800	579838	579877	579915	579954	15	1 =
45	10. 579993	580031	580070	580109	580147	580186	580224	580263	580302	580340	580379	580418	14	2.
46	10. 580456	580495	580534	580572	580611	580650	580688	580727	580766	580804	580843	580882	13	3.
47	10. 580920	580959	580998	581037	581075	581114	581153	581191	581230	581269	581308	581346	12	4.
48	10. 581385	581424	581463	581501	581540	581579	581618	581657	581695	581734	581773	581812	11	1 =
49	10. 581850	581889	581928	581967	582006	582044	582083	582122	582161	582200	582239	582277	10	2.
50	10. 582316	582355	582394	582433	582472	582510	582549	582588	582627	582666	582705	582744	9	3.
51	10. 582783	582821	582860	582899	582938	582977	583016	583055	583094	583133	583172	583210	8	4.
52	10. 583249	583288	583327	583366	583405	583444	583483	583522	583561	583600	583639	583678	7	1 =
53	10. 583717	583756	583795	583834	583873	583912	583951	583990	584029	584068	584107	584146	6	2.
54	10. 584185	584224	584263	584302	584341	584380	584419	584458	584497	584536	584575	584614	5	3.
55	10. 584653	584692	584731	584770	584809	584849	584888	584927	584966	585005	585044	585083	4	4.
56	10. 585122	585161	585200	585240	585279	585318	585357	585396	585435	585474	585513	585553	3	1 =
57	10. 585592	585631	585670	585709	585748	585788	585827	585866	585905	585944	585983	586023	2	2.
58	10. 586062	586101	586140	586179	586219	586258	586297	586336	586376	586415	586454	586493	1	3.
59	10. 586533	586572	586611	586650	586690	586729	586768	586807	586847	586886	586925	586964	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 15 degrees, or Secant of 105 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 75 degrees, or Co-secant of 165 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 587004	587043	587082	587122	587161	587200	587240	587279	587318	587357	587397	587436	59	1″ = 8
1	10. 587475	587515	587554	587593	587633	587672	587712	587751	587790	587830	587869	587908	58	2. 16
2	10. 587948	587987	588027	588066	588105	588145	588184	588224	588263	588302	588342	588381	57	3. 24
3	10. 588421	588460	588499	588539	588578	588618	588657	588697	588736	588776	588815	588855	56	4. 32
4	10. 588894	588933	588973	589012	589052	589091	589131	589170	589210	589249	589289	589328	55	1 = 8
5	10. 589368	589407	589447	589487	589526	589566	589605	589645	589684	589724	589763	589803	54	2. 16
6	10. 589842	589882	589922	589961	590001	590040	590080	590120	590159	590199	590238	590278	53	3. 24
7	10. 590318	590357	590397	590436	590476	590516	590555	590595	590635	590674	590714	590754	52	4. 32
8	10. 590793	590833	590872	590912	590952	590992	591031	591071	591111	591150	591190	591230	51	1 = 8
9	10. 591269	591309	591349	591388	591428	591468	591508	591547	591587	591627	591667	591706	50	2. 16
10	10. 591746	591786	591826	591865	591905	591945	591985	592024	592064	592104	592144	592184	49	3. 24
11	10. 592223	592263	592303	592343	592383	592422	592462	592502	592542	592582	592622	592661	48	4. 32
12	10. 592701	592741	592781	592821	592861	592901	592940	592980	593020	593060	593100	593140	47	1 = 8
13	10. 593180	593220	593259	593299	593339	593379	593419	593459	593499	593539	593579	593619	46	2. 16
14	10. 593659	593699	593739	593779	593818	593858	593898	593938	593978	594018	594058	594098	45	3. 24
15	10. 594138	594178	594218	594258	594298	594338	594378	594418	594458	594498	594538	594578	44	4. 32
16	10. 594618	594658	594698	594738	594779	594819	594859	594899	594939	594979	595019	595059	43	1 = 8
17	10. 595099	595139	595179	595219	595259	595299	595340	595380	595420	595460	595500	595540	42	2. 16
18	10. 595580	595620	595661	595701	595741	595781	595821	595861	595901	595942	595982	596022	41	3. 24
19	10. 596062	596102	596142	596183	596223	596263	596303	596343	596384	596424	596464	596504	40	4. 32
20	10. 596545	596585	596625	596665	596705	596746	596786	596826	596866	596907	596947	596987	39	1 = 8
21	10. 597028	597068	597108	597148	597189	597229	597269	597310	597350	597390	597430	597471	38	2. 16
22	10. 597511	597551	597592	597632	597672	597713	597753	597793	597834	597874	597914	597955	37	3. 24
23	10. 597995	598036	598076	598116	598157	598197	598237	598278	598318	598359	598399	598439	36	4. 32
24	10. 598480	598520	598561	598601	598642	598682	598722	598763	598803	598844	598884	598925	35	1 = 8
25	10. 598965	599006	599046	599087	599127	599168	599208	599249	599289	599330	599370	599411	34	2. 16
26	10. 599451	599492	599532	599573	599613	599654	599694	599735	599775	599816	599856	599897	33	3. 24
27	10. 599937	599978	600019	600059	600100	600140	600181	600222	600262	600303	600343	600384	32	4. 32
28	10. 600425	600465	600506	600546	600587	600628	600668	600709	600750	600790	600831	600871	31	1 = 8
29	10. 600912	600953	600993	601034	601075	601115	601156	601197	601238	601278	601319	601360	30	2. 16
30	10. 601400	601441	601482	601522	601563	601604	601645	601685	601726	601767	601808	601848	29	3. 24
31	10. 601889	601930	601971	602011	602052	602093	602134	602174	602215	602256	602297	602338	28	4. 33
32	10. 602378	602419	602460	602501	602542	602583	602623	602664	602705	602746	602787	602828	27	1 = 8
33	10. 602868	602909	602950	602991	603032	603073	603114	603154	603195	603236	603277	603318	26	2. 16
34	10. 603359	603400	603441	603482	603523	603564	603604	603645	603686	603727	603768	603809	25	3. 25
35	10. 603850	603891	603932	603973	604014	604055	604096	604137	604178	604219	604260	604301	24	4. 33
36	10. 604342	604383	604424	604465	604506	604547	604588	604629	604670	604711	604752	604793	23	1 = 8
37	10. 604834	604875	604916	604957	604998	605039	605081	605122	605163	605204	605245	605286	22	2. 16
38	10. 605327	605368	605409	605450	605492	605533	605574	605615	605656	605697	605738	605779	21	3. 25
39	10. 605821	605862	605903	605944	605985	606026	606068	606109	606150	606191	606232	606274	20	4. 33
40	10. 606315	606356	606397	606438	606480	606521	606562	606603	606644	606686	606727	606768	19	1 = 8
41	10. 606809	606851	606892	606933	606974	607016	607057	607098	607140	607181	607222	607263	18	2. 17
42	10. 607305	607346	607387	607429	607470	607511	607553	607594	607635	607677	607718	607759	17	3. 25
43	10. 607801	607842	607883	607925	607966	608007	608049	608090	608132	608173	608214	608256	16	4. 33
44	10. 608297	608339	608380	608421	608463	608504	608546	608587	608629	608670	608711	608753	15	1 = 8
45	10. 608794	608836	608877	608919	608960	609002	609043	609085	609126	609168	609209	609251	14	2. 17
46	10. 609292	609334	609375	609417	609458	609500	609541	609583	609624	609666	609707	609749	13	3. 25
47	10. 609790	609832	609873	609915	609957	609998	610040	610081	610123	610165	610206	610248	12	4. 33
48	10. 610289	610331	610373	610414	610456	610497	610539	610581	610622	610664	610706	610747	11	1 = 8
49	10. 610789	610831	610872	610914	610956	610997	611039	611081	611122	611164	611206	611247	10	2. 17
50	10. 611289	611331	611372	611414	611456	611498	611539	611581	611623	611665	611706	611748	9	3. 25
51	10. 611790	611832	611873	611915	611957	611999	612040	612082	612124	612166	612208	612249	8	4. 33
52	10. 612291	612333	612375	612417	612459	612500	612542	612584	612626	612668	612710	612751	7	1 = 8
53	10. 612793	612835	612877	612919	612961	613003	613045	613086	613128	613170	613212	613254	6	2. 17
54	10. 613296	613338	613380	613422	613464	613506	613547	613589	613631	613673	613715	613757	5	3. 25
55	10. 613799	613841	613883	613925	613967	614009	614051	614093	614135	614177	614219	614261	4	4. 34
56	10. 614303	614345	614387	614429	614471	614513	614555	614597	614639	614681	614723	614765	3	1 = 8
57	10. 614808	614850	614892	614934	614976	615018	615060	615102	615144	615186	615228	615271	2	2. 17
58	10. 615313	615355	615397	615439	615481	615523	615565	615608	615650	615692	615734	615776	1	3. 25
59	10. 615818	615861	615903	615945	615987	616029	616072	616114	616156	616198	616240	616283	0	4. 34
Minutes	60′	55″	50′	45″	40′	35″	30″	25″	20′	15′	10′	5″	Minutes	Propor. parts
	Co-secant of 14 degrees, or Secant of 104 degrees.													

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LOGARITHMIC SECANTS.

Secant of 66 degrees, or Co-secant of 156 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 390687	390710	390734	390758	390781	390805	390829	390852	390876	390900	390923	390947	59	1″ =
1	10. 390971	390994	391018	391042	391065	391089	391113	391136	391160	391184	391207	391231	58	2.
2	10. 391255	391278	391302	391326	391349	391373	391397	391420	391444	391468	391491	391515	57	3.
3	10. 391539	391563	391586	391610	391634	391657	391681	391705	391729	391752	391776	391800	56	4.
4	10. 391823	391847	391871	391895	391918	391942	391966	391989	392013	392037	392061	392084	55	1″ =
5	10. 392108	392132	392156	392179	392203	392227	392251	392274	392298	392322	392346	392369	54	2.
6	10. 392393	392417	392441	392464	392488	392512	392536	392559	392583	392607	392631	392655	53	3.
7	10. 392678	392702	392726	392750	392773	392797	392821	392845	392869	392892	392916	392940	52	4.
8	10. 392964	392988	393011	393035	393059	393083	393107	393130	393154	393178	393202	393226	51	1″ =
9	10. 393249	393273	393297	393321	393345	393368	393392	393416	393440	393464	393488	393511	50	2.
10	10. 393535	393559	393583	393607	393631	393654	393678	393702	393726	393750	393774	393797	49	3.
11	10. 393821	393845	393869	393893	393917	393941	393964	393988	394012	394036	394060	394084	48	4.
12	10. 394108	394132	394155	394179	394203	394227	394251	394275	394299	394323	394346	394370	47	1″ =
13	10. 394394	394418	394442	394466	394490	394514	394538	394561	394585	394609	394633	394657	46	2.
14	10. 394681	394705	394729	394753	394777	394801	394824	394848	394872	394896	394920	394944	45	3.
15	10. 394968	394992	395016	395040	395064	395088	395112	395135	395159	395183	395207	395231	44	4.
16	10. 395255	395279	395303	395327	395351	395375	395399	395423	395447	395471	395495	395519	43	1″ =
17	10. 395543	395567	395591	395615	395639	395662	395686	395710	395734	395758	395782	395806	42	2.
18	10. 395830	395854	395878	395902	395926	395950	395974	395998	396022	396046	396070	396094	41	3.
19	10. 396118	396142	396166	396190	396214	396238	396262	396286	396310	396334	396358	396382	40	4.
20	10. 396406	396430	396454	396478	396502	396526	396551	396575	396599	396623	396647	396671	39	1″ =
21	10. 396695	396719	396743	396767	396791	396815	396839	396863	396887	396911	396935	396959	38	2.
22	10. 396983	397007	397031	397055	397080	397104	397128	397152	397176	397200	397224	397248	37	3.
23	10. 397272	397296	397320	397344	397368	397393	397417	397441	397465	397489	397513	397537	36	4.
24	10. 397561	397585	397609	397633	397658	397682	397706	397730	397754	397778	397802	397826	35	1″ =
25	10. 397850	397875	397899	397923	397947	397971	397995	398019	398043	398068	398092	398116	34	2.
26	10. 398140	398164	398188	398212	398236	398261	398285	398309	398333	398357	398381	398406	33	3.
27	10. 398430	398454	398478	398502	398526	398550	398575	398599	398623	398647	398671	398695	32	4.
28	10. 398720	398744	398768	398792	398816	398841	398865	398889	398913	398937	398961	398986	31	1″ =
29	10. 399010	399034	399058	399082	399107	399131	399155	399179	399203	399228	399252	399276	30	2.
30	10. 399300	399324	399349	399373	399397	399421	399446	399470	399494	399518	399542	399567	29	3.
31	10. 399591	399615	399639	399664	399688	399712	399736	399761	399785	399809	399833	399858	28	4.
32	10. 399882	399906	399930	399955	399979	400003	400027	400052	400076	400100	400124	400149	27	1″ =
33	10. 400173	400197	400221	400246	400270	400294	400319	400343	400367	400391	400416	400440	26	2.
34	10. 400464	400489	400513	400537	400561	400586	400610	400634	400659	400683	400707	400732	25	3.
35	10. 400756	400780	400804	400829	400853	400877	400902	400926	400950	400975	400999	401023	24	4.
36	10. 401048	401072	401096	401121	401145	401169	401194	401218	401242	401267	401291	401315	23	1″ =
37	10. 401340	401364	401388	401413	401437	401461	401486	401510	401535	401559	401583	401608	22	2.
38	10. 401632	401656	401681	401705	401730	401754	401778	401803	401827	401851	401876	401900	21	3.
39	10. 401925	401949	401973	401998	402022	402046	402071	402095	402120	402144	402168	402193	20	4.
40	10. 402217	402242	402266	402291	402315	402339	402364	402388	402413	402437	402461	402486	19	1″ =
41	10. 402510	402535	402559	402584	402608	402632	402657	402681	402706	402730	402755	402779	18	2.
42	10. 402803	402828	402852	402877	402901	402926	402950	402975	402999	403024	403048	403072	17	3.
43	10. 403097	403121	403146	403170	403195	403219	403244	403268	403293	403317	403342	403366	16	4.
44	10. 403391	403415	403440	403464	403489	403513	403538	403562	403587	403611	403636	403660	15	1″ =
45	10. 403685	403709	403734	403758	403783	403807	403832	403856	403881	403905	403930	403954	14	2.
46	10. 403979	404003	404028	404052	404077	404101	404126	404150	404175	404200	404224	404249	13	3.
47	10. 404273	404298	404322	404347	404371	404396	404420	404445	404470	404494	404519	404543	12	4.
48	10. 404568	404592	404617	404641	404666	404691	404715	404740	404764	404789	404813	404838	11	1″ =
49	10. 404863	404887	404912	404936	404961	404986	405010	405035	405059	405084	405109	405133	10	2.
50	10. 405158	405182	405207	405232	405256	405281	405305	405330	405355	405379	405404	405428	9	3.
51	10. 405453	405478	405502	405527	405552	405576	405601	405625	405650	405675	405699	405724	8	4.
52	10. 405749	405773	405798	405823	405847	405872	405897	405921	405946	405971	405995	406020	7	1″ =
53	10. 406044	406069	406094	406118	406143	406168	406192	406217	406242	406267	406291	406316	6	2.
54	10. 406341	406365	406390	406415	406439	406464	406489	406513	406538	406563	406587	406612	5	3.
55	10. 406637	406662	406686	406711	406736	406760	406785	406810	406835	406859	406884	406909	4	4.
56	10. 406933	406958	406983	407008	407032	407057	407082	407106	407131	407156	407181	407205	3	1″ =
57	10. 407230	407255	407280	407304	407329	407354	407379	407403	407428	407453	407478	407502	2	2.
58	10. 407527	407552	407577	407601	407626	407651	407676	407701	407725	407750	407775	407800	1	3.
59	10. 407824	407849	407874	407899	407924	407948	407973	407998	408023	408048	408072	408097	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 23 degrees, or Secant of 113 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 67 degrees, or Co-secant of 157 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.408122	408147	408172	408196	408221	408246	408271	408296	408320	408345	408370	408395	59	1″ = 5
1	10.408420	408444	408469	408494	408519	408544	408569	408593	408618	408643	408668	408693	58	2. 10
2	10.408718	408742	408767	408792	408817	408842	408867	408892	408916	408941	408966	408991	57	3. 15
3	10.409016	409041	409066	409090	409115	409140	409165	409190	409215	409240	409265	409289	56	4. 20
4	10.409314	409339	409364	409389	409414	409439	409464	409489	409513	409538	409563	409588	55	1 = 5
5	10.409613	409638	409663	409688	409713	409738	409762	409787	409812	409837	409862	409887	54	2. 10
6	10.409912	409937	409962	409987	410012	410037	410062	410086	410111	410136	410161	410186	53	3. 15
7	10.410211	410236	410261	410286	410311	410336	410361	410386	410411	410436	410461	410486	52	4. 20
8	10.410511	410536	410561	410586	410610	410635	410660	410685	410710	410735	410760	410785	51	1 = 5
9	10.410810	410835	410860	410885	410910	410935	410960	410985	411010	411035	411060	411085	50	2. 10
10	10.411110	411135	411160	411185	411210	411235	411260	411285	411310	411335	411360	411385	49	3. 15
11	10.411410	411435	411460	411485	411510	411536	411561	411586	411611	411636	411661	411686	48	4. 20
12	10.411711	411736	411761	411786	411811	411836	411861	411886	411911	411936	411961	411986	47	1 = 5
13	10.412011	412036	412062	412087	412112	412137	412162	412187	412212	412237	412262	412287	46	2. 10
14	10.412312	412337	412362	412388	412413	412438	412463	412488	412513	412538	412563	412588	45	3. 15
15	10.412613	412639	412664	412689	412714	412739	412764	412789	412814	412839	412865	412890	44	4. 20
16	10.412915	412940	412965	412990	413015	413041	413066	413091	413116	413141	413166	413191	43	1 = 5
17	10.413216	413242	413267	413292	413317	413342	413367	413393	413418	413443	413468	413493	42	2. 10
18	10.413518	413544	413569	413594	413619	413644	413669	413695	413720	413745	413770	413795	41	3. 15
19	10.413820	413846	413871	413896	413921	413946	413972	413997	414022	414047	414072	414098	40	4. 20
20	10.414123	414148	414173	414199	414224	414249	414274	414299	414325	414350	414375	414400	39	1 = 5
21	10.414425	414451	414476	414501	414526	414552	414577	414602	414627	414653	414678	414703	38	2. 10
22	10.414728	414754	414779	414804	414829	414855	414880	414905	414930	414956	414981	415006	37	3. 15
23	10.415031	415057	415082	415107	415133	415158	415183	415208	415234	415259	415284	415310	36	4. 20
24	10.415335	415360	415385	415411	415436	415461	415487	415512	415537	415563	415588	415613	35	1 = 5
25	10.415638	415664	415689	415714	415740	415765	415790	415816	415841	415866	415892	415917	34	2. 10
26	10.415942	415968	415993	416018	416044	416069	416094	416120	416145	416170	416196	416221	33	3. 15
27	10.416246	416272	416297	416323	416348	416373	416399	416424	416449	416475	416500	416525	32	4. 20
28	10.416551	416576	416602	416627	416652	416678	416703	416728	416754	416779	416805	416830	31	1 = 5
29	10.416855	416881	416906	416932	416957	416982	417008	417033	417059	417084	417109	417135	30	2. 10
30	10.417160	417186	417211	417237	417262	417287	417313	417338	417364	417389	417415	417440	29	3. 15
31	10.417465	417491	417516	417542	417567	417593	417618	417644	417669	417694	417720	417745	28	4. 20
32	10.417771	417796	417822	417847	417873	417898	417924	417949	417974	418000	418025	418051	27	1 = 5
33	10.418076	418102	418127	418153	418178	418204	418229	418255	418280	418306	418331	418357	26	2. 10
34	10.418382	418408	418433	418459	418484	418510	418535	418561	418586	418612	418637	418663	25	3. 15
35	10.418688	418714	418739	418765	418790	418816	418842	418867	418893	418918	418944	418969	24	4. 20
36	10.418995	419020	419046	419071	419097	419122	419148	419174	419199	419225	419250	419276	23	1 = 5
37	10.419301	419327	419353	419378	419404	419429	419455	419480	419506	419532	419557	419583	22	2. 10
38	10.419608	419634	419659	419685	419711	419736	419762	419787	419813	419839	419864	419890	21	3. 15
39	10.419915	419941	419967	419992	420018	420043	420069	420095	420120	420146	420172	420197	20	4. 20
40	10.420223	420248	420274	420300	420325	420351	420377	420402	420428	420454	420479	420505	19	1 = 5
41	10.420530	420556	420582	420607	420633	420659	420684	420710	420736	420761	420787	420813	18	2. 10
42	10.420838	420864	420890	420915	420941	420967	420992	421018	421044	421069	421095	421121	17	3. 15
43	10.421146	421172	421198	421224	421249	421275	421301	421326	421352	421378	421403	421429	16	4. 21
44	10.421455	421481	421506	421532	421558	421583	421609	421635	421661	421686	421712	421738	15	1 = 5
45	10.421764	421789	421815	421841	421867	421892	421918	421944	421969	421995	422021	422047	14	2. 10
46	10.422072	422098	422124	422150	422176	422201	422227	422253	422279	422304	422330	422356	13	3. 15
47	10.422382	422407	422433	422459	422485	422511	422536	422562	422588	422614	422640	422665	12	4. 21
48	10.422691	422717	422743	422769	422794	422820	422846	422872	422898	422923	422949	422975	11	1 = 5
49	10.423001	423027	423052	423078	423104	423130	423156	423182	423207	423233	423259	423285	10	2. 10
50	10.423311	423337	423362	423388	423414	423440	423466	423492	423518	423543	423569	423595	9	3. 16
51	10.423621	423647	423673	423699	423724	423750	423776	423802	423828	423854	423880	423906	8	4. 21
52	10.423931	423957	423983	424009	424035	424061	424087	424113	424139	424164	424190	424216	7	1 = 5
53	10.424242	424268	424294	424320	424346	424372	424398	424424	424449	424475	424501	424527	6	2. 10
54	10.424553	424579	424605	424631	424657	424683	424709	424735	424761	424787	424813	424838	5	3. 16
55	10.424864	424890	424916	424942	424968	424994	425020	425046	425072	425098	425124	425150	4	4. 21
56	10.425176	425202	425228	425254	425280	425306	425332	425358	425384	425410	425436	425462	3	1 = 5
57	10.425488	425514	425540	425566	425592	425618	425644	425670	425696	425722	425748	425774	2	2. 10
58	10.425800	425826	425852	425878	425904	425930	425956	425982	426008	426034	426060	426086	1	3. 16
59	10.426112	426138	426164	426190	426216	426242	426268	426294	426320	426346	426372	426398	0	4. 21
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 22 degrees, or Secant of 112 degrees.													

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LOGARITHMIC SECANTS.

Secant of 68 degrees, or Co-secant of 158 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts
0	10. 426425	426451	426477	426503	426529	426555	426581	426607	426633	426659	426685	426711	59	1″ =
1	10. 426737	426763	426790	426816	426842	426868	426894	426920	426946	426972	426998	427024	58	2.
2	10. 427050	427077	427103	427129	427155	427181	427207	427233	427259	427285	427312	427338	57	3.
3	10. 427364	427390	427416	427442	427468	427494	427521	427547	427573	427599	427625	427651	56	4.
4	10. 427677	427703	427730	427756	427782	427808	427834	427860	427887	427913	427939	427965	55	1 =
5	10. 427991	428017	428044	428070	428096	428122	428148	428174	428201	428227	428253	428279	54	2.
6	10. 428305	428332	428358	428384	428410	428436	428463	428489	428515	428541	428567	428594	53	3.
7	10. 428620	428646	428672	428698	428725	428751	428777	428803	428829	428856	428882	428908	52	4.
8	10. 428934	428961	428987	429013	429039	429066	429092	429118	429144	429171	429197	429223	51	1 =
9	10. 429249	429276	429302	429328	429354	429381	429407	429433	429459	429486	429512	429538	50	2.
10	10. 429564	429591	429617	429643	429670	429696	429722	429748	429775	429801	429827	429854	49	3.
11	10. 429880	429906	429933	429959	429985	430011	430038	430064	430090	430117	430143	430169	48	4.
12	10. 430196	430222	430248	430275	430301	430327	430354	430380	430406	430433	430459	430485	47	1 =
13	10. 430512	430538	430564	430591	430617	430643	430670	430696	430722	430749	430775	430802	46	2.
14	10. 430828	430854	430881	430907	430933	430960	430986	431013	431039	431065	431092	431118	45	3.
15	10. 431144	431171	431197	431224	431250	431276	431303	431329	431356	431382	431408	431435	44	4.
16	10. 431461	431488	431514	431540	431567	431593	431620	431646	431673	431699	431725	431752	43	1 =
17	10. 431778	431805	431831	431858	431884	431910	431937	431963	431990	432016	432043	432069	42	2.
18	10. 432096	432122	432148	432175	432201	432228	432254	432281	432307	432334	432360	432387	41	3.
19	10. 432413	432440	432466	432493	432519	432546	432572	432599	432625	432652	432678	432705	40	4.
20	10. 432731	432758	432784	432811	432837	432864	432890	432917	432943	432970	432996	433023	39	1 =
21	10. 433049	433076	433102	433129	433155	433182	433208	433235	433261	433288	433314	433341	38	2.
22	10. 433368	433394	433421	433447	433474	433500	433527	433553	433580	433607	433633	433660	37	3.
23	10. 433686	433713	433739	433766	433793	433819	433846	433872	433899	433925	433952	433979	36	4.
24	10. 434005	434032	434058	434085	434112	434138	434165	434191	434218	434245	434271	434298	35	1 =
25	10. 434324	434351	434378	434404	434431	434457	434484	434511	434537	434564	434591	434617	34	2.
26	10. 434644	434670	434697	434724	434750	434777	434804	434830	434857	434884	434910	434937	33	3.
27	10. 434964	434990	435017	435044	435070	435097	435124	435150	435177	435204	435230	435257	32	4.
28	10. 435284	435310	435337	435364	435390	435417	435444	435470	435497	435524	435551	435577	31	1 =
29	10. 435604	435631	435657	435684	435711	435737	435764	435791	435818	435844	435871	435898	30	2.
30	10. 435925	435951	435978	436005	436031	436058	436085	436112	436138	436165	436192	436219	29	3.
31	10. 436245	436272	436299	436326	436352	436379	436406	436433	436459	436486	436513	436540	28	4.
32	10. 436566	436593	436620	436647	436674	436700	436727	436754	436781	436808	436834	436861	27	1 =
33	10. 436888	436915	436941	436968	436995	437022	437049	437075	437102	437129	437156	437183	26	2.
34	10. 437210	437236	437263	437290	437317	437344	437370	437397	437424	437451	437478	437505	25	3.
35	10. 437531	437558	437585	437612	437639	437666	437693	437719	437746	437773	437800	437827	24	4.
36	10. 437854	437881	437907	437934	437961	437988	438015	438042	438069	438096	438122	438149	23	1 =
37	10. 438176	438203	438230	438257	438284	438311	438338	438364	438391	438418	438445	438472	22	2.
38	10. 438499	438526	438553	438580	438607	438634	438660	438687	438714	438741	438768	438795	21	3.
39	10. 438822	438849	438876	438903	438930	438957	438984	439011	439038	439065	439091	439118	20	4.
40	10. 439145	439172	439199	439226	439253	439280	439307	439334	439361	439388	439415	439442	19	1 =
41	10. 439469	439496	439523	439550	439577	439604	439631	439658	439685	439712	439739	439766	18	2.
42	10. 439793	439820	439847	439874	439901	439928	439955	439982	440009	440036	440063	440090	17	3.
43	10. 440117	440144	440171	440198	440225	440252	440279	440306	440333	440360	440387	440414	16	4.
44	10. 440441	440469	440496	440523	440550	440577	440604	440631	440658	440685	440712	440739	15	1 =
45	10. 440766	440793	440820	440847	440874	440902	440929	440956	440983	441010	441037	441064	14	2.
46	10. 441091	441118	441145	441172	441200	441227	441254	441281	441308	441335	441362	441389	13	3.
47	10. 441416	441444	441471	441498	441525	441552	441579	441606	441633	441661	441688	441715	12	4.
48	10. 441742	441769	441796	441823	441851	441878	441905	441932	441959	441986	442014	442041	11	1 =
49	10. 442068	442095	442122	442149	442177	442204	442231	442258	442285	442312	442340	442367	10	2.
50	10. 442394	442421	442448	442476	442503	442530	442557	442584	442612	442639	442666	442693	9	3.
51	10. 442720	442748	442775	442802	442829	442856	442884	442911	442938	442965	442993	443020	8	4.
52	10. 443047	443074	443102	443129	443156	443183	443211	443238	443265	443292	443320	443347	7	1 =
53	10. 443374	443401	443429	443456	443483	443510	443538	443565	443592	443619	443647	443674	6	2.
54	10. 443701	443729	443756	443783	443810	443838	443865	443892	443920	443947	443974	444002	5	3.
55	10. 444029	444056	444083	444111	444138	444165	444193	444220	444247	444275	444302	444329	4	4.
56	10. 444357	444386	444411	444439	444466	444493	444521	444548	444575	444603	444630	444657	3	1 =
57	10. 444685	444712	444739	444767	444794	444822	444849	444876	444904	444931	444958	444986	2	2.
58	10. 445013	445041	445068	445095	445123	445150	445177	445205	445232	445260	445287	445314	1	3.
59	10. 445342	445369	445397	445424	445451	445479	445506	445534	445561	445589	445616	445643	0	4.
Minutes	60	55″	50″	45″	40	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts

Co-secant of 21 degrees, or Secant of 111 degrees.

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LOGARITHMIC SECANTS.

Secant of 69 degrees, or Co-secant of 159 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 445671	445698	445726	445753	445781	445808	445835	445863	445890	445918	445945	445973	59	1″ = 6
1	10. 446000	446027	446055	446082	446110	446137	446165	446192	446220	446247	446275	446302	58	2. 11
2	10. 446330	446357	446385	446412	446439	446467	446494	446522	446549	446577	446604	446632	57	3. 17
3	10. 446659	446687	446714	446742	446769	446797	446824	446852	446879	446907	446934	446962	56	4. 22
4	10. 446989	447017	447045	447072	447100	447127	447155	447182	447210	447237	447265	447292	55	1 = 6
5	10. 447320	447347	447375	447403	447430	447458	447485	447513	447540	447568	447595	447623	54	2. 11
6	10. 447651	447678	447706	447733	447761	447788	447816	447844	447871	447899	447926	447954	53	3. 17
7	10. 447982	448009	448037	448064	448092	448120	448147	448175	448202	448230	448258	448285	52	4. 22
8	10. 448313	448340	448368	448396	448423	448451	448479	448506	448534	448561	448589	448617	51	1 = 6
9	10. 448644	448672	448700	448727	448755	448783	448810	448838	448866	448893	448921	448949	50	2. 11
10	10. 448976	449004	449032	449059	449087	449115	449142	449170	449198	449225	449253	449281	49	3. 17
11	10. 449308	449336	449364	449391	449419	449447	449475	449502	449530	449558	449585	449613	48	4. 22
12	10. 449641	449668	449696	449724	449752	449779	449807	449835	449863	449890	449918	449946	47	1 = 6
13	10. 449973	450001	450029	450057	450084	450112	450140	450168	450195	450223	450251	450279	46	2. 11
14	10. 450306	450334	450362	450390	450418	450445	450473	450501	450529	450556	450584	450612	45	3. 17
15	10. 450640	450668	450695	450723	450751	450779	450807	450834	450862	450890	450918	450946	44	4. 22
16	10. 450973	451001	451029	451057	451085	451112	451140	451168	451196	451224	451252	451279	43	1 = 6
17	10. 451307	451335	451363	451391	451419	451446	451474	451502	451530	451558	451586	451614	42	2. 11
18	10. 451641	451669	451697	451725	451753	451781	451809	451837	451864	451892	451920	451948	41	3. 17
19	10. 451976	452004	452032	452060	452087	452115	452143	452171	452199	452227	452255	452283	40	4. 22
20	10. 452311	452339	452367	452394	452422	452450	452478	452506	452534	452562	452590	452618	39	1 = 6
21	10. 452646	452674	452702	452730	452757	452785	452813	452841	452869	452897	452925	452953	38	2. 11
22	10. 452981	453009	453037	453065	453093	453121	453149	453177	453205	453233	453261	453289	37	3. 17
23	10. 453317	453345	453373	453401	453429	453457	453485	453513	453541	453569	453597	453625	36	4. 22
24	10. 453653	453681	453709	453737	453765	453793	453821	453849	453877	453905	453933	453961	35	1 = 6
25	10. 453989	454017	454045	454073	454101	454129	454157	454185	454213	454241	454269	454297	34	2. 11
26	10. 454325	454354	454382	454410	454438	454466	454494	454522	454550	454578	454606	454634	33	3. 17
27	10. 454662	454690	454719	454747	454775	454803	454831	454859	454887	454915	454943	454971	32	4. 22
28	10. 454999	455028	455056	455084	455112	455140	455168	455196	455224	455253	455281	455309	31	1 = 6
29	10. 455337	455365	455393	455421	455449	455478	455506	455534	455562	455590	455618	455646	30	2. 11
30	10. 455675	455703	455731	455759	455787	455815	455844	455872	455900	455928	455956	455985	29	3. 17
31	10. 456013	456041	456069	456097	456125	456154	456182	456210	456238	456266	456295	456323	28	4. 23
32	10. 456351	456379	456407	456436	456464	456492	456520	456549	456577	456605	456633	456661	27	1 = 6
33	10. 456690	456718	456746	456774	456803	456831	456859	456887	456916	456944	456972	457000	26	2. 11
34	10. 457029	457057	457085	457113	457142	457170	457198	457226	457255	457283	457311	457340	25	3. 17
35	10. 457368	457396	457424	457453	457481	457509	457538	457566	457594	457622	457651	457679	24	4. 23
36	10. 457707	457736	457764	457792	457821	457849	457877	457906	457934	457962	457991	458019	23	1 = 6
37	10. 458047	458076	458104	458132	458161	458189	458217	458246	458274	458302	458331	458359	22	2. 11
38	10. 458387	458416	458444	458472	458501	458529	458558	458586	458614	458643	458671	458699	21	3. 17
39	10. 458728	458756	458785	458813	458841	458870	458898	458927	458955	458983	459012	459040	20	4. 23
40	10. 459069	459097	459125	459154	459182	459211	459239	459268	459296	459324	459353	459381	19	1 = 6
41	10. 459410	459438	459467	459495	459523	459552	459580	459609	459637	459666	459694	459723	18	2. 11
42	10. 459751	459779	459808	459836	459865	459893	459922	459950	459979	460007	460036	460064	17	3. 17
43	10. 460093	460121	460150	460178	460207	460235	460264	460292	460321	460349	460378	460406	16	4. 23
44	10. 460435	460463	460492	460520	460549	460577	460606	460634	460663	460691	460720	460748	15	1 = 6
45	10. 460777	460805	460834	460863	460891	460920	460948	460977	461005	461034	461062	461091	14	2. 11
46	10. 461120	461148	461177	461205	461234	461262	461291	461320	461348	461377	461405	461434	13	3. 17
47	10. 461462	461491	461520	461548	461577	461605	461634	461663	461691	461720	461748	461777	12	4. 23
48	10. 461806	461834	461863	461891	461920	461949	461977	462006	462035	462063	462092	462121	11	1 = 6
49	10. 462149	462178	462206	462235	462264	462292	462321	462350	462378	462407	462436	462464	10	2. 11
50	10. 462493	462522	462550	462579	462608	462636	462665	462694	462722	462751	462780	462808	9	3. 17
51	10. 462837	462866	462894	462923	462952	462981	463009	463038	463067	463095	463124	463153	8	4. 23
52	10. 463182	463210	463239	463268	463296	463325	463354	463383	463411	463440	463469	463498	7	1 = 6
53	10. 463526	463555	463584	463613	463641	463670	463699	463728	463756	463785	463814	463843	6	2. 12
54	10. 463871	463900	463929	463958	463986	464015	464044	464073	464102	464130	464159	464188	5	3. 17
55	10. 464217	464246	464274	464303	464332	464361	464390	464418	464447	464476	464505	464534	4	4. 23
56	10. 464562	464591	464620	464649	464678	464707	464735	464764	464793	464822	464851	464880	3	1 = 6
57	10. 464908	464937	464966	464995	465024	465053	465082	465110	465139	465168	465197	465226	2	2. 12
58	10. 465255	465284	465312	465341	465370	465399	465428	465457	465486	465515	465544	465572	1	3. 17
59	10. 465601	465630	465659	465688	465717	465746	465775	465804	465833	465862	465890	465919	0	4. 23
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 20 degrees, or Secant of 110 degrees.

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LOGARITHMIC SECANTS.

Secant of 70 degrees, or Co-secant of 160 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
0	10. 465948	465977	466006	466035	466064	466093	466122	466151	466180	466209	466238	466267	59	1″ = 0
1	10. 466296	466325	466354	466382	466411	466440	466469	466498	466527	466556	466585	466614	58	2. 1
2	10. 466643	466672	466701	466730	466759	466788	466817	466846	466875	466904	466933	466962	57	3. 1
3	10. 466991	467020	467049	467078	467107	467136	467165	467194	467223	467252	467281	467310	56	4. 2
4	10. 467339	467368	467397	467426	467455	467484	467513	467542	467571	467601	467630	467659	55	1 = 0
5	10. 467688	467717	467746	467775	467804	467833	467862	467891	467920	467949	467978	468007	54	2. 1
6	10. 468036	468066	468095	468124	468153	468182	468211	468240	468269	468298	468327	468357	53	3. 1
7	10. 468386	468415	468444	468473	468502	468531	468560	468589	468619	468648	468677	468706	52	4. 2
8	10. 468735	468764	468793	468823	468852	468881	468910	468939	468968	468997	469027	469056	51	1 = 0
9	10. 469085	469114	469143	469172	469202	469231	469260	469289	469318	469347	469377	469406	50	2. 1
10	10. 469435	469464	469493	469523	469552	469581	469610	469639	469669	469698	469727	469756	49	3. 1
11	10. 469785	469815	469844	469873	469902	469931	469961	469990	470019	470048	470078	470107	48	4. 2
12	10. 470136	470165	470195	470224	470253	470282	470312	470341	470370	470399	470429	470458	47	1 = 0
13	10. 470487	470516	470546	470575	470604	470634	470663	470692	470721	470751	470780	470809	46	2. 1
14	10. 470839	470868	470897	470926	470956	470985	471014	471044	471073	471102	471132	471161	45	3. 1
15	10. 471190	471220	471249	471278	471308	471337	471366	471396	471425	471454	471484	471513	44	4. 2
16	10. 471542	471572	471601	471630	471660	471689	471718	471748	471777	471807	471836	471865	43	1 = 0
17	10. 471895	471924	471953	471983	472012	472042	472071	472100	472130	472159	472189	472218	42	2. 1
18	10. 472247	472277	472306	472336	472365	472394	472424	472453	472483	472512	472541	472571	41	3. 1
19	10. 472600	472630	472659	472689	472718	472747	472777	472806	472836	472865	472895	472924	40	4. 2
20	10. 472954	472983	473013	473042	473071	473101	473130	473160	473189	473219	473248	473278	39	1 = 0
21	10. 473307	473337	473366	473396	473425	473455	473484	473514	473543	473573	473602	473632	38	2. 1
22	10. 473661	473691	473720	473750	473779	473809	473838	473868	473897	473927	473956	473986	37	3. 1
23	10. 474016	474045	474075	474104	474134	474163	474193	474222	474252	474281	474311	474341	36	4. 2
24	10. 474370	474400	474429	474459	474488	474518	474548	474577	474607	474636	474666	474695	35	1 = 0
25	10. 474725	474755	474784	474814	474843	474873	474903	474932	474962	474991	475021	475051	34	2. 1
26	10. 475080	475110	475140	475169	475199	475228	475258	475288	475317	475347	475377	475406	33	3. 1
27	10. 475436	475466	475495	475525	475555	475584	475614	475644	475673	475703	475733	475762	32	4. 2
28	10. 475792	475822	475851	475881	475911	475940	475970	476000	476029	476059	476089	476118	31	1 = 0
29	10. 476148	476178	476208	476237	476267	476297	476326	476356	476386	476416	476445	476475	30	2. 1
30	10. 476505	476534	476564	476594	476624	476653	476683	476713	476743	476772	476802	476832	29	3. 1
31	10. 476862	476891	476921	476951	476981	477010	477040	477070	477100	477130	477159	477189	28	4. 2
32	10. 477219	477249	477278	477308	477338	477368	477398	477427	477457	477487	477517	477547	27	1 = 0
33	10. 477576	477606	477636	477666	477696	477726	477755	477785	477815	477845	477875	477904	26	2. 1
34	10. 477934	477964	477994	478024	478054	478084	478113	478143	478173	478203	478233	478263	25	3. 1
35	10. 478293	478322	478352	478382	478412	478442	478472	478502	478532	478561	478591	478621	24	4. 2
36	10. 478651	478681	478711	478741	478771	478801	478831	478860	478890	478920	478950	478980	23	1 = 0
37	10. 479010	479040	479070	479100	479130	479160	479190	479220	479249	479279	479309	479339	22	2. 1
38	10. 479369	479399	479429	479459	479489	479519	479549	479579	479609	479639	479669	479699	21	3. 1
39	10. 479729	479759	479789	479819	479849	479879	479909	479939	479969	479999	480029	480059	20	4. 2
40	10. 480089	480119	480149	480179	480209	480239	480269	480299	480329	480359	480389	480419	19	1 = 0
41	10. 480449	480479	480509	480539	480569	480599	480629	480659	480689	480719	480749	480780	18	2. 1
42	10. 480810	480840	480870	480900	480930	480960	480990	481020	481050	481080	481110	481140	17	3. 1
43	10. 481170	481201	481231	481261	481291	481321	481351	481381	481411	481441	481472	481502	16	4. 2
44	10. 481532	481562	481592	481622	481652	481682	481712	481743	481773	481803	481833	481863	15	1 = 0
45	10. 481893	481923	481954	481984	482014	482044	482074	482104	482135	482165	482195	482225	14	2. 1
46	10. 482255	482285	482316	482346	482376	482406	482436	482467	482497	482527	482557	482587	13	3. 1
47	10. 482618	482648	482678	482708	482738	482769	482799	482829	482859	482889	482920	482950	12	4. 2
48	10. 482980	483010	483041	483071	483101	483131	483162	483192	483222	483252	483283	483313	11	1 = 0
49	10. 483343	483373	483404	483434	483464	483494	483525	483555	483585	483615	483646	483676	10	2. 1
50	10. 483706	483737	483767	483797	483828	483858	483888	483918	483949	483979	484009	484040	9	3. 1
51	10. 484070	484100	484131	484161	484191	484222	484252	484282	484313	484343	484373	484404	8	4. 2
52	10. 484434	484464	484495	484525	484555	484586	484616	484646	484677	484707	484738	484768	7	1 = 0
53	10. 484798	484829	484859	484889	484920	484950	484981	485011	485041	485072	485102	485132	6	2. 1
54	10. 485163	485193	485224	485254	485285	485315	485345	485376	485406	485437	485467	485497	5	3. 1
55	10. 485528	485558	485589	485619	485650	485680	485711	485741	485771	485802	485832	485863	4	4. 2
56	10. 485893	485924	485954	485985	486015	486046	486076	486107	486137	486167	486198	486228	3	1 = 0
57	10. 486259	486289	486320	486350	486381	486411	486442	486472	486503	486533	486564	486594	2	2. 1
58	10. 486625	486655	486686	486717	486747	486778	486808	486839	486869	486900	486930	486961	1	3. 1
59	10. 486991	487022	487052	487083	487114	487144	487175	487205	487236	487266	487297	487327	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts

Co-secant of 19 degrees, or Secant of 109 degrees.

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LOGARITHMIC SECANTS.

Secant of 71 degrees, or Co-secant of 161 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 487358	487389	487419	487450	487480	487511	487542	487572	487603	487633	487664	487694	59	1″ = 6
1	10. 487725	487756	487786	487817	487848	487878	487909	487939	487970	488001	488031	488062	58	2. 12
2	10. 488093	488123	488154	488184	488215	488246	488276	488307	488338	488368	488399	488430	57	3. 18
3	10. 488460	488491	488522	488552	488583	488614	488644	488675	488706	488736	488767	488798	56	4. 25
4	10. 488828	488859	488890	488920	488951	488982	489013	489043	489074	489105	489135	489166	55	1 = 6
5	10. 489197	489228	489258	489289	489320	489350	489381	489412	489443	489473	489504	489535	54	2. 12
6	10. 489566	489596	489627	489658	489689	489719	489750	489781	489812	489842	489873	489904	53	3. 18
7	10. 489935	489966	489996	490027	490058	490089	490120	490150	490181	490212	490243	490274	52	4. 25
8	10. 490304	490335	490366	490397	490428	490458	490489	490520	490551	490582	490613	490643	51	1 = 6
9	10. 490674	490705	490736	490767	490798	490828	490859	490890	490921	490952	490983	491014	50	2. 12
10	10. 491044	491075	491106	491137	491168	491199	491230	491261	491291	491322	491353	491384	49	3. 19
11	10. 491415	491446	491477	491508	491539	491569	491600	491631	491662	491693	491724	491755	48	4. 25
12	10. 491786	491817	491848	491879	491910	491941	491971	492002	492033	492064	492095	492126	47	1 = 6
13	10. 492157	492188	492219	492250	492281	492312	492343	492374	492405	492436	492467	492498	46	2. 12
14	10. 492529	492560	492591	492622	492653	492684	492715	492746	492777	492808	492839	492870	45	3. 19
15	10. 492901	492932	492963	492994	493025	493056	493087	493118	493149	493180	493211	493242	44	4. 25
16	10. 493273	493304	493335	493366	493397	493428	493459	493490	493522	493553	493584	493615	43	1 = 6
17	10. 493646	493677	493708	493739	493770	493801	493832	493863	493894	493926	493957	493988	42	2. 12
18	10. 494019	494050	494081	494112	494143	494174	494205	494237	494268	494299	494330	494361	41	3. 19
19	10. 494392	494423	494455	494486	494517	494548	494579	494610	494641	494673	494704	494735	40	4. 25
20	10. 494766	494797	494828	494860	494891	494922	494953	494984	495015	495047	495078	495109	39	1 = 6
21	10. 495140	495171	495203	495234	495265	495296	495327	495359	495390	495421	495452	495483	38	2. 13
22	10. 495515	495546	495577	495608	495640	495671	495702	495733	495764	495796	495827	495858	37	3. 19
23	10. 495889	495921	495952	495983	496014	496046	496077	496108	496140	496171	496202	496233	36	4. 25
24	10. 496265	496296	496327	496359	496390	496421	496452	496484	496515	496546	496578	496609	35	1 = 6
25	10. 496640	496672	496703	496734	496766	496797	496828	496859	496891	496922	496953	496985	34	2. 13
26	10. 497016	497048	497079	497110	497142	497173	497204	497236	497267	497298	497330	497361	33	3. 19
27	10. 497392	497424	497455	497487	497518	497549	497581	497612	497644	497675	497706	497738	32	4. 25
28	10. 497769	497801	497832	497863	497895	497926	497958	497989	498020	498052	498083	498115	31	1 = 6
29	10. 498146	498178	498209	498240	498272	498303	498335	498366	498398	498429	498461	498492	30	2. 13
30	10. 498524	498555	498586	498618	498649	498681	498712	498744	498775	498807	498838	498870	29	3. 19
31	10. 498901	498933	498964	498996	499027	499059	499090	499122	499153	499185	499216	499248	28	4. 25
32	10. 499279	499311	499342	499374	499405	499437	499469	499500	499532	499563	499595	499626	27	1 = 6
33	10. 499658	499689	499721	499753	499784	499816	499847	499879	499910	499942	499974	500005	26	2. 13
34	10. 500037	500068	500100	500131	500163	500195	500226	500258	500289	500321	500353	500384	25	3. 19
35	10. 500416	500448	500479	500511	500542	500574	500606	500637	500669	500701	500732	500764	24	4. 25
36	10. 500795	500827	500859	500890	500922	500954	500985	501017	501049	501080	501112	501144	23	1 = 6
37	10. 501175	501207	501239	501270	501302	501334	501366	501397	501429	501461	501492	501524	22	2. 13
38	10. 501556	501587	501619	501651	501683	501714	501746	501778	501810	501841	501873	501905	21	3. 19
39	10. 501936	501968	502000	502032	502063	502095	502127	502159	502190	502222	502254	502286	20	4. 25
40	10. 502318	502349	502381	502413	502445	502476	502508	502540	502572	502604	502635	502667	19	1 = 6
41	10. 502699	502731	502763	502794	502826	502858	502890	502922	502953	502985	503017	503049	18	2. 13
42	10. 503081	503113	503144	503176	503208	503240	503272	503304	503335	503367	503399	503431	17	3. 19
43	10. 503463	503495	503527	503559	503590	503622	503654	503686	503718	503750	503782	503814	16	4. 25
44	10. 503845	503877	503909	503941	503973	504005	504037	504069	504101	504133	504165	504196	15	1 = 6
45	10. 504228	504260	504292	504324	504356	504388	504420	504452	504484	504516	504548	504580	14	2. 13
46	10. 504612	504644	504676	504708	504740	504772	504803	504835	504867	504899	504931	504963	13	3. 19
47	10. 504995	505027	505059	505091	505123	505155	505187	505219	505251	505283	505315	505347	12	4. 26
48	10. 505379	505411	505443	505475	505508	505540	505572	505604	505636	505668	505700	505732	11	1 = 6
49	10. 505764	505796	505828	505860	505892	505924	505956	505988	506020	506052	506084	506117	10	2. 13
50	10. 506149	506181	506213	506245	506277	506309	506341	506373	506405	506437	506470	506502	9	3. 19
51	10. 506534	506566	506598	506630	506662	506694	506727	506759	506791	506823	506855	506887	8	4. 26
52	10. 506919	506952	506984	507016	507048	507080	507112	507144	507177	507209	507241	507273	7	1 = 6
53	10. 507305	507338	507370	507402	507434	507466	507498	507531	507563	507595	507627	507659	6	2. 13
54	10. 507692	507724	507756	507788	507821	507853	507885	507917	507949	507982	508014	508046	5	3. 19
55	10. 508078	508111	508143	508175	508207	508240	508272	508304	508336	508369	508401	508433	4	4. 26
56	10. 508465	508498	508530	508562	508595	508627	508659	508691	508724	508756	508788	508821	3	1 = 6
57	10. 508853	508885	508918	508950	508982	509014	509047	509079	509111	509144	509176	509208	2	2. 13
58	10. 509241	509273	509305	509338	509370	509402	509435	509467	509500	509532	509564	509597	1	3. 19
59	10. 509629	509661	509694	509726	509758	509791	509823	509856	509888	509920	509953	509985	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 18 degrees, or Secant of 108 degrees.

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Secant of 72 degrees, or Co-secant of 162 degrees.

0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
10. 510018	510050	510082	510115	510147	510180	510212	510244	510277	510309	510342	510374	59	1″ =
10. 510407	510439	510471	510504	510536	510569	510601	510634	510666	510699	510731	510764	58	2.
10. 510796	510828	510861	510893	510926	510958	510991	511023	511056	511088	511121	511153	57	3.
10. 511186	511218	511251	511283	511316	511348	511381	511413	511446	511478	511511	511543	56	4.
10. 511576	511608	511641	511674	511706	511739	511771	511804	511836	511869	511901	511934	55	1 =
10. 511966	511999	512032	512064	512097	512129	512162	512194	512227	512260	512292	512325	54	2.
10. 512357	512390	512423	512455	512488	512520	512553	512586	512618	512651	512683	512716	53	3.
10. 512749	512781	512814	512847	512879	512912	512945	512977	513010	513042	513075	513108	52	4.
10. 513140	513173	513206	513238	513271	513304	513336	513369	513402	513434	513467	513500	51	1 =
10. 513533	513565	513598	513631	513663	513696	513729	513761	513794	513827	513860	513892	50	2.
10. 513925	513958	513990	514023	514056	514089	514121	514154	514187	514220	514252	514285	49	3.
10. 514318	514351	514383	514416	514449	514482	514514	514547	514580	514613	514646	514678	48	4.
10. 514711	514744	514777	514810	514842	514875	514908	514941	514974	515006	515039	515072	47	1 =
10. 515105	515138	515171	515203	515236	515269	515302	515335	515368	515400	515433	515466	46	2.
10. 515499	515532	515565	515598	515630	515663	515696	515729	515762	515795	515828	515860	45	3.
10. 515893	515926	515959	515992	516025	516058	516091	516124	516157	516189	516222	516255	44	4.
10. 516288	516321	516354	516387	516420	516453	516486	516519	516552	516585	516618	516651	43	1 =
10. 516683	516716	516749	516782	516815	516848	516881	516914	516947	516980	517013	517046	42	2.
10. 517079	517112	517145	517178	517211	517244	517277	517310	517343	517376	517409	517442	41	3.
10. 517475	517508	517541	517574	517607	517640	517673	517706	517739	517772	517806	517839	40	4.
10. 517872	517905	517938	517971	518004	518037	518070	518103	518136	518169	518202	518235	39	1 =
10. 518268	518302	518335	518368	518401	518434	518467	518500	518533	518566	518599	518633	38	2.
10. 518666	518699	518732	518765	518798	518831	518864	518898	518931	518964	518997	519030	37	3.
10. 519063	519097	519130	519163	519196	519229	519262	519296	519329	519362	519395	519428	36	4.
10. 519461	519495	519528	519561	519594	519627	519661	519694	519727	519760	519793	519827	35	1 =
10. 519860	519893	519926	519960	519993	520026	520059	520092	520126	520159	520192	520225	34	2.
10. 520259	520292	520325	520358	520392	520425	520458	520492	520525	520558	520591	520625	33	3.
10. 520658	520691	520725	520758	520791	520824	520858	520891	520924	520958	520991	521024	32	4.
10. 521058	521091	521124	521158	521191	521224	521258	521291	521324	521358	521391	521424	31	1 =
10. 521458	521491	521524	521558	521591	521624	521658	521691	521725	521758	521791	521825	30	2.
10. 521858	521892	521925	521958	521992	522025	522059	522092	522125	522159	522192	522226	29	3.
10. 522259	522292	522326	522359	522393	522426	522460	522493	522526	522560	522593	522627	28	4.
10. 522660	522694	522727	522761	522794	522828	522861	522895	522928	522962	522995	523029	27	1 =
10. 523062	523095	523129	523162	523196	523229	523263	523296	523330	523364	523397	523431	26	2.
10. 523464	523498	523531	523565	523598	523632	523665	523699	523732	523766	523799	523833	25	3.
10. 523867	523900	523934	523967	524001	524034	524068	524102	524135	524169	524202	524236	24	4.
10. 524270	524303	524337	524370	524404	524438	524471	524505	524538	524572	524606	524639	23	1 =
10. 524673	524706	524740	524774	524807	524841	524875	524908	524942	524976	525009	525043	22	2.
10. 525077	525110	525144	525178	525211	525245	525279	525312	525346	525380	525413	525447	21	3.
10. 525481	525514	525548	525582	525616	525649	525683	525717	525750	525784	525818	525852	20	4.
10. 525885	525919	525953	525987	526020	526054	526088	526121	526155	526189	526223	526257	19	1 =
10. 526290	526324	526358	526392	526425	526459	526493	526527	526561	526594	526628	526662	18	2.
10. 526696	526729	526763	526797	526831	526865	526899	526932	526966	527000	527034	527068	17	3.
10. 527101	527135	527169	527203	527237	527271	527305	527338	527372	527406	527440	527474	16	4.
10. 527508	527542	527575	527609	527643	527677	527711	527745	527779	527813	527847	527880	15	1 =
10. 527914	527948	527982	528016	528050	528084	528118	528152	528186	528220	528254	528287	14	2.
10. 528321	528355	528389	528423	528457	528491	528525	528559	528593	528627	528661	528695	13	3.
10. 528729	528763	528797	528831	528865	528899	528933	528967	529001	529035	529069	529103	12	4.
10. 529137	529171	529205	529239	529273	529307	529341	529375	529409	529443	529477	529511	11	1 =
10. 529545	529579	529613	529647	529681	529715	529749	529784	529818	529852	529886	529920	10	2.
10. 529954	529988	530022	530056	530090	530124	530158	530192	530227	530261	530295	530329	9	3.
10. 530363	530397	530431	530465	530500	530534	530568	530602	530636	530670	530704	530738	8	4.
10. 530773	530807	530841	530875	530909	530943	530978	531012	531046	531080	531114	531148	7	1 =
10. 531183	531217	531251	531285	531319	531354	531388	531422	531456	531490	531525	531559	6	2.
10. 531593	531627	531662	531696	531730	531764	531798	531833	531867	531901	531935	531970	5	3.
10. 532004	532038	532072	532107	532141	532175	532210	532244	532278	532312	532347	532381	4	4.
10. 532415	532449	532484	532518	532552	532587	532621	532655	532690	532724	532758	532793	3	1 =
10. 532827	532861	532896	532930	532964	532999	533033	533067	533102	533136	533170	533205	2	2.
10. 533239	533273	533308	533342	533377	533411	533445	533480	533514	533548	533583	533617	1	3.
10. 533652	533686	533720	533755	533789	533824	533858	533892	533927	533961	533996	534030	0	4.
60′	55″	50″	45″	40″	35″	30″	25″	20″	15′	10″	5″	Minutes	Proportional parts

Co-secant of 17 degrees, or Secant of 107 degrees.

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Minutes	Secant of 73 degrees, or Co-secant of 163 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts.
0	10. 534065	534099	534133	534168	534202	534237	534271	534306	534340	534375	534409	534444	59	1″ = 7
1	10. 534478	534513	534547	534581	534616	534650	534685	534719	534754	534788	534823	534857	58	2. 14
2	10. 534892	534926	534961	534995	535030	535064	535099	535134	535168	535203	535237	535272	57	3. 21
3	10. 535306	535341	535375	535410	535444	535479	535513	535548	535583	535617	535652	535686	56	4. 28
4	10. 535721	535755	535790	535825	535859	535894	535928	535963	535998	536032	536067	536101	55	1 = 7
5	10. 536136	536171	536205	536240	536275	536309	536344	536378	536413	536448	536482	536517	54	2. 14
6	10. 536552	536586	536621	536656	536690	536725	536760	536794	536829	536864	536898	536933	53	3. 21
7	10. 536968	537002	537037	537072	537107	537141	537176	537211	537245	537280	537315	537349	52	4. 28
8	10. 537384	537419	537454	537488	537523	537558	537593	537627	537662	537697	537732	537766	51	1 = 7
9	10. 537801	537836	537871	537905	537940	537975	538010	538044	538079	538114	538149	538184	50	2. 14
10	10. 538218	538253	538288	538223	538358	538392	538427	538462	538497	538532	538566	538601	49	3. 21
11	10. 538636	538671	538706	538741	538775	538810	538845	538880	538915	538950	538985	539019	48	4. 28
12	10. 539054	539089	539124	539159	539194	539229	539264	539298	539333	539368	539403	539438	47	1 = 7
13	10. 539473	539508	539543	539578	539613	539648	539682	539717	539752	539787	539822	539857	46	2. 14
14	10. 539892	539927	539962	539997	540032	540067	540102	540137	540172	540207	540242	540277	45	3. 21
15	10. 540312	540347	540382	540417	540452	540487	540522	540557	540592	540627	540662	540697	44	4. 28
16	10. 540732	540767	540802	540837	540872	540907	540942	540977	541012	541047	541082	541117	43	1 = 7
17	10. 541152	541187	541222	541257	541292	541327	541362	541397	541433	541468	541503	541538	42	2. 14
18	10. 541573	541608	541643	541678	541713	541748	541783	541819	541854	541889	541924	541959	41	3. 21
19	10. 541994	542029	542064	542100	542135	542170	542205	542240	542275	542310	542346	542381	40	4. 28
20	10. 542416	542451	542486	542521	542557	542592	542627	542662	542697	542733	542768	542803	39	1 = 7
21	10. 542838	542873	542909	542944	542979	543014	543049	543085	543120	543155	543190	543226	38	2. 14
22	10. 543261	543296	543331	543366	543402	543437	543472	543508	543543	543578	543613	543649	37	3. 21
23	10. 543684	543719	543754	543790	543825	543860	543896	543931	543966	544001	544037	544072	36	4. 28
24	10. 544107	544143	544178	544213	544249	544284	544319	544355	544390	544425	544461	544496	35	1 = 7
25	10. 544531	544567	544602	544637	544673	544708	544744	544779	544814	544850	544885	544920	34	2. 14
26	10. 544956	544991	545027	545062	545097	545133	545168	545204	545239	545274	545310	545345	33	3. 21
27	10. 545381	545416	545452	545487	545522	545558	545593	545629	545664	545700	545735	545771	32	4. 28
28	10. 545806	545842	545877	545912	545948	545983	546019	546054	546090	546125	546161	546196	31	1 = 7
29	10. 546232	546267	546303	546338	546374	546409	546445	546480	546516	546552	546587	546623	30	2. 14
30	10. 546658	546694	546729	546765	546800	546836	546871	546907	546943	546978	547014	547049	29	3. 21
31	10. 547085	547120	547156	547192	547227	547263	547298	547334	547370	547405	547441	547476	28	4. 28
32	10. 547512	547548	547583	547619	547655	547690	547726	547761	547797	547833	547868	547904	27	1 = 7
33	10. 547940	547975	548011	548047	548082	548118	548154	548189	548225	548261	548296	548332	26	2. 14
34	10. 548368	548403	548439	548475	548511	548546	548582	548618	548653	548689	548725	548761	25	3. 21
35	10. 548796	548832	548868	548904	548939	548975	549011	549046	549082	549118	549154	549190	24	4. 29
36	10. 549225	549261	549297	549333	549368	549404	549440	549476	549512	549547	549583	549619	23	1 = 7
37	10. 549655	549691	549726	549762	549798	549834	549870	549906	549941	549977	550013	550049	22	2. 14
38	10. 550085	550121	550156	550192	550228	550264	550300	550336	550372	550407	550443	550479	21	3. 22
39	10. 550515	550551	550587	550623	550659	550695	550730	550766	550802	550838	550874	550910	20	4. 29
40	10. 550946	550982	551018	551054	551090	551126	551162	551197	551233	551269	551305	551341	19	1 = 7
41	10. 551377	551413	551449	551485	551521	551557	551593	551629	551665	551701	551737	551773	18	2. 14
42	10. 551809	551845	551881	551917	551953	551989	552025	552061	552097	552133	552169	552205	17	3. 22
43	10. 552241	552273	552313	552349	552385	552422	552458	552494	552530	552566	552602	552638	16	4. 29
44	10. 552674	552710	552746	552782	552818	552854	552891	552927	552963	552999	553035	553071	15	1 = 7
45	10. 553107	553143	553179	553216	553252	553288	553324	553360	553396	553432	553469	553505	14	2. 14
46	10. 553541	553577	553613	553649	553686	553722	553758	553794	553830	553866	553903	553939	13	3. 22
47	10. 553975	554011	554047	554084	554120	554156	554192	554228	554265	554301	554337	554373	12	4. 29
48	10. 554410	554446	554482	554518	554555	554591	554627	554663	554700	554736	554772	554808	11	1 = 7
49	10. 554845	554881	554917	554954	554990	555026	555062	555099	555135	555171	555208	555244	10	2. 15
50	10. 555280	555317	555353	555389	555425	555462	555498	555534	555571	555607	555644	555680	9	3. 22
51	10. 555716	555753	555789	555825	555862	555898	555934	555971	556007	556044	556080	556116	8	4. 29
52	10. 556153	556189	556226	556262	556298	556335	556371	556408	556444	556480	556517	556553	7	1 = 7
53	10. 556590	556626	556663	556699	556735	556772	556808	556845	556881	556918	556954	556991	6	2. 15
54	10. 557027	557064	557100	557137	557173	557210	557246	557283	557319	557356	557392	557429	5	3. 22
55	10. 557465	557502	557538	557575	557611	557648	557684	557721	557757	557794	557830	557867	4	4. 29
56	10. 557903	557940	557977	558013	558050	558086	558123	558159	558196	558233	558269	558306	3	1 = 7
57	10. 558342	558379	558416	558452	558489	558525	558562	558599	558635	558672	558708	558745	2	2. 15
58	10. 558782	558818	558855	558892	558928	558965	559002	559038	559075	559112	559148	559185	1	3. 22
59	10. 559222	559258	559295	559332	559368	559405	559442	559478	559515	559552	559588	559625	0	4. 29
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-secant of 16 degrees, or Secant of 106 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 74 degrees, or Co-secant of 164 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 559662	559699	559735	559772	559809	559845	559882	559919	559956	559992	560029	560066	59	1″ =
1	10. 560103	560139	560176	560213	560250	560287	560323	560360	560397	560434	560470	560507	58	2.
2	10. 560544	560581	560618	560654	560691	560728	560765	560802	560838	560875	560912	560949	57	3.
3	10. 560986	561023	561059	561096	561133	561170	561207	561244	561281	561317	561354	561391	56	4.
4	10. 561428	561465	561502	561539	561576	561612	561649	561686	561723	561760	561797	561834	55	1 =
5	10. 561871	561908	561945	561982	562018	562055	562092	562129	562166	562203	562240	562277	54	2.
6	10. 562314	562351	562388	562425	562462	562499	562536	562573	562610	562647	562684	562721	53	3.
7	10. 562758	562795	562832	562869	562906	562943	562980	563017	563054	563091	563128	563165	52	4.
8	10. 563202	563239	563276	563313	563350	563387	563424	563461	563498	563535	563573	563610	51	1 =
9	10. 563647	563684	563721	563758	563795	563832	563869	563906	563943	563981	564018	564055	50	2.
10	10. 564092	564129	564166	564203	564240	564278	564315	564352	564389	564426	564463	564500	49	3.
11	10. 564538	564575	564612	564649	564686	564723	564761	564798	564835	564872	564909	564947	48	4.
12	10. 564984	565021	565058	565095	565133	565170	565207	565244	565282	565319	565356	565393	47	1 =
13	10. 565431	565468	565505	565542	565580	565617	565654	565691	565729	565766	565803	565840	46	2.
14	10. 565878	565915	565952	565990	566027	566064	566101	566139	566176	566213	566251	566288	45	3.
15	10. 566325	566363	566400	566437	566475	566512	566549	566587	566624	566661	566699	566736	44	4.
16	10. 566774	566811	566848	566886	566923	566960	566998	567035	567073	567110	567147	567185	43	1 =
17	10. 567222	567260	567297	567335	567372	567409	567447	567484	567522	567559	567597	567634	42	2.
18	10. 567671	567709	567746	567784	567821	567859	567896	567934	567971	568009	568046	568084	41	3.
19	10. 568121	568159	568196	568234	568271	568309	568346	568384	568421	568459	568496	568534	40	4.
20	10. 568571	568609	568646	568684	568721	568759	568797	568834	568872	568909	568947	568984	39	1 =
21	10. 569022	569060	569097	569135	569172	569210	569248	569285	569323	569360	569398	569436	38	2.
22	10. 569473	569511	569548	569586	569624	569661	569699	569737	569774	569812	569850	569887	37	3.
23	10. 569925	569963	570000	570038	570076	570113	570151	570189	570226	570264	570302	570339	36	4.
24	10. 570377	570415	570453	570490	570528	570566	570603	570641	570679	570717	570754	570792	35	1 =
25	10. 570830	570868	570905	570943	570981	571019	571056	571094	571132	571170	571208	571245	34	2.
26	10. 571283	571321	571359	571396	571434	571472	571510	571548	571586	571623	571661	571699	33	3.
27	10. 571737	571775	571813	571850	571888	571926	571964	572002	572040	572077	572115	572153	32	4.
28	10. 572191	572229	572267	572305	572343	572381	572418	572456	572494	572532	572570	572608	31	1 =
29	10. 572646	572684	572722	572760	572798	572835	572873	572911	572949	572987	573025	573063	30	2.
30	10. 573101	573139	573177	573215	573253	573291	573329	573367	573405	573443	573481	573519	29	3.
31	10. 573557	573595	573633	573671	573709	573747	573785	573823	573861	573899	573937	573975	28	4.
32	10. 574013	574051	574089	574127	574165	574204	574242	574280	574318	574356	574394	574432	27	1 =
33	10. 574470	574508	574546	574584	574622	574661	574699	574737	574775	574813	574851	574889	26	2.
34	10. 574927	574966	575004	575042	575080	575118	575156	575194	575233	575271	575309	575347	25	3.
35	10. 575385	575423	575462	575500	575538	575576	575614	575653	575691	575729	575767	575805	24	4.
36	10. 575844	575882	575920	575958	575997	576035	576073	576111	576150	576188	576226	576264	23	1 =
37	10. 576303	576341	576379	576417	576456	576494	576532	576570	576609	576647	576685	576724	22	2.
38	10. 576762	576800	576839	576877	576915	576954	576992	577030	577069	577107	577145	577184	21	3.
39	10. 577222	577260	577299	577337	577375	577414	577452	577490	577529	577567	577606	577644	20	4.
40	10. 577682	577721	577759	577798	577836	577874	577913	577951	577990	578028	578067	578105	19	1 =
41	10. 578143	578182	578220	578259	578297	578336	578374	578413	578451	578489	578528	578566	18	2.
42	10. 578605	578643	578682	578720	578759	578797	578836	578874	578913	578951	578990	579028	17	3.
43	10. 579067	579105	579144	579183	579221	579260	579298	579337	579375	579414	579452	579491	16	4.
44	10. 579530	579568	579607	579645	579684	579722	579761	579800	579838	579877	579915	579954	15	1 =
45	10. 579993	580031	580070	580109	580147	580186	580224	580263	580302	580340	580379	580418	14	2.
46	10. 580456	580495	580534	580572	580611	580650	580688	580727	580766	580804	580843	580882	13	3.
47	10. 580920	580959	580998	581037	581075	581114	581153	581191	581230	581269	581308	581346	12	4.
48	10. 581385	581424	581463	581501	581540	581579	581618	581657	581695	581734	581773	581812	11	1 =
49	10. 581850	581889	581928	581967	582006	582044	582083	582122	582161	582200	582239	582277	10	2.
50	10. 582316	582355	582394	582433	582472	582510	582549	582588	582627	582666	582705	582744	9	3.
51	10. 582783	582821	582860	582899	582938	582977	583016	583055	583094	583133	583172	583210	8	4.
52	10. 583249	583288	583327	583366	583405	583444	583483	583522	583561	583600	583639	583678	7	1 =
53	10. 583717	583756	583795	583834	583873	583912	583951	583990	584029	584068	584107	584146	6	2.
54	10. 584185	584224	584263	584302	584341	584380	584419	584458	584497	584536	584575	584614	5	3.
55	10. 584653	584692	584731	584770	584809	584849	584888	584927	584966	585005	585044	585083	4	4.
56	10. 585122	585161	585200	585240	585279	585318	585357	585396	585435	585474	585513	585553	3	1 =
57	10. 585592	585631	585670	585709	585748	585788	585827	585866	585905	585944	585983	586023	2	2.
58	10. 586062	586101	586140	586179	586219	586258	586297	586336	586376	586415	586454	586493	1	3.
59	10. 586533	586572	586611	586650	586690	586729	586768	586807	586847	586886	586925	586964	0	4.
Minutes	60′	55″	50′	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Proportional parts.
	Co-secant of 15 degrees, or Secant of 105 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 75 degrees, or Co-secant of 165 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.587004	587043	587082	587122	587161	587200	587240	587279	587318	587357	587397	587436	59	1″ = 8
1	10.587475	587515	587554	587593	587633	587672	587712	587751	587790	587830	587869	587908	58	2. 16
2	10.587948	587987	588027	588066	588105	588145	588184	588224	588263	588302	588342	588381	57	3. 24
3	10.588421	588460	588499	588539	588578	588618	588657	588697	588736	588776	588815	588855	56	4. 32
4	10.588894	588933	588973	589012	589052	589091	589131	589170	589210	589249	589289	589328	55	1 = 8
5	10.589368	589407	589447	589487	589526	589566	589605	589645	589684	589724	589763	589803	54	2. 16
6	10.589842	589882	589922	589961	590001	590040	590080	590120	590159	590199	590238	590278	53	3. 24
7	10.590318	590357	590397	590436	590476	590516	590555	590595	590635	590674	590714	590754	52	4. 32
8	10.590793	590833	590872	590912	590952	590992	591031	591071	591111	591150	591190	591230	51	1 = 8
9	10.591269	591309	591349	591388	591428	591468	591508	591547	591587	591627	591667	591706	50	2. 16
10	10.591746	591786	591826	591865	591905	591945	591985	592024	592064	592104	592144	592184	49	3. 24
11	10.592223	592263	592303	592343	592383	592422	592462	592502	592542	592582	592622	592661	48	4. 32
12	10.592701	592741	592781	592821	592861	592901	592940	592980	593020	593060	593100	593140	47	1 = 8
13	10.593180	593220	593259	593299	593339	593379	593419	593459	593499	593539	593579	593619	46	2. 16
14	10.593659	593699	593739	593779	593818	593858	593898	593938	593978	594018	594058	594098	45	3. 24
15	10.594138	594178	594218	594258	594298	594338	594378	594418	594458	594498	594538	594578	44	4. 32
16	10.594618	594658	594698	594738	594779	594819	594859	594899	594939	594979	595019	595059	43	1 = 8
17	10.595099	595139	595179	595219	595259	595299	595340	595380	595420	595460	595500	595540	42	2. 16
18	10.595580	595620	595661	595701	595741	595781	595821	595861	595901	595942	595982	596022	41	3. 24
19	10.596062	596102	596142	596183	596223	596263	596303	596343	596384	596424	596464	596504	40	4. 32
20	10.596545	596585	596625	596665	596705	596746	596786	596826	596866	596907	596947	596987	39	1 = 8
21	10.597028	597068	597108	597148	597189	597229	597269	597310	597350	597390	597430	597471	38	2. 16
22	10.597511	597551	597592	597632	597672	597713	597753	597793	597834	597874	597914	597955	37	3. 24
23	10.597995	598036	598076	598116	598157	598197	598237	598278	598318	598359	598399	598439	36	4. 32
24	10.598480	598520	598561	598601	598642	598682	598722	598763	598803	598844	598884	598925	35	1 = 8
25	10.598965	599006	599046	599087	599127	599168	599208	599249	599289	599330	599370	599411	34	2. 16
26	10.599451	599492	599532	599573	599613	599654	599694	599735	599775	599816	599856	599897	33	3. 24
27	10.599937	599978	600019	600059	600100	600140	600181	600222	600262	600303	600343	600384	32	4. 32
28	10.600425	600465	600506	600546	600587	600628	600668	600709	600750	600790	600831	600871	31	1 = 8
29	10.600912	600953	600993	601034	601075	601115	601156	601197	601238	601278	601319	601360	30	2. 16
30	10.601400	601441	601482	601522	601563	601604	601645	601685	601726	601767	601808	601848	29	3. 24
31	10.601889	601930	601971	602011	602052	602093	602134	602174	602215	602256	602297	602338	28	4. 33
32	10.602378	602419	602460	602501	602542	602583	602623	602664	602705	602746	602787	602828	27	1 = 8
33	10.602868	602909	602950	602991	603032	603073	603114	603154	603195	603236	603277	603318	26	2. 16
34	10.603359	603400	603441	603482	603523	603564	603604	603645	603686	603727	603768	603809	25	3. 25
35	10.603850	603891	603932	603973	604014	604055	604096	604137	604178	604219	604260	604301	24	4. 33
36	10.604342	604383	604424	604465	604506	604547	604588	604629	604670	604711	604752	604793	23	1 = 8
37	10.604834	604875	604916	604957	604998	605039	605081	605122	605163	605204	605245	605286	22	2. 16
38	10.605327	605368	605409	605450	605492	605533	605574	605615	605656	605697	605738	605779	21	3. 25
39	10.605821	605862	605903	605944	605985	606026	606068	606109	606150	606191	606232	606274	20	4. 33
40	10.606315	606356	606397	606438	606480	606521	606562	606603	606644	606686	606727	606768	19	1 = 8
41	10.606809	606851	606892	606933	606974	607016	607057	607098	607140	607181	607222	607263	18	2. 17
42	10.607305	607346	607387	607429	607470	607511	607553	607594	607635	607677	607718	607759	17	3. 25
43	10.607801	607842	607883	607925	607966	608007	608049	608090	608132	608173	608214	608256	16	4. 33
44	10.608297	608339	608380	608421	608463	608504	608546	608587	608629	608670	608711	608753	15	1 = 8
45	10.608794	608836	608877	608919	608960	609002	609043	609085	609126	609168	609209	609251	14	2. 17
46	10.609292	609334	609375	609417	609458	609500	609541	609583	609624	609666	609707	609749	13	3. 25
47	10.609790	609832	609873	609915	609957	609998	610040	610081	610123	610165	610206	610248	12	4. 33
48	10.610289	610331	610373	610414	610456	610497	610539	610581	610622	610664	610706	610747	11	1 = 8
49	10.610789	610831	610872	610914	610956	610997	611039	611081	611122	611164	611206	611247	10	2. 17
50	10.611289	611331	611372	611414	611456	611498	611539	611581	611623	611665	611706	611748	9	3. 25
51	10.611790	611832	611873	611915	611957	611999	612040	612082	612124	612166	612208	612249	8	4. 33
52	10.612291	612333	612375	612417	612459	612500	612542	612584	612626	612668	612710	612751	7	1 = 8
53	10.612793	612835	612877	612919	612961	613003	613045	613086	613128	613170	613212	613254	6	2. 17
54	10.613296	613338	613380	613422	613464	613506	613547	613589	613631	613673	613715	613757	5	3. 25
55	10.613799	613841	613883	613925	613967	614009	614051	614093	614135	614177	614219	614261	4	4. 34
56	10.614303	614345	614387	614429	614471	614513	614555	614597	614639	614681	614723	614765	3	1 = 8
57	10.614808	614850	614892	614934	614976	615018	615060	615102	615144	615186	615228	615271	2	2. 17
58	10.615313	615355	615397	615439	615481	615523	615565	615608	615650	615692	615734	615776	1	3. 25
59	10.615818	615861	615903	615945	615987	616029	616072	616114	616156	616198	616240	616283	0	4. 34
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 14 degrees, or Secant of 104 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 76 degrees, or Co-secant of 166 degrees.												Minutes	Proportional
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 616325	616367	616409	616451	616494	616536	616578	616620	616663	616705	616747	616789	59	1″ =
1	10. 616832	616874	616916	616959	617001	617043	617086	617128	617170	617212	617255	617297	58	2.
2	10. 617339	617382	617424	617466	617509	617551	617593	617636	617678	617721	617763	617805	57	3.
3	10. 617848	617890	617932	617975	618017	618060	618102	618144	618187	618229	618272	618314	56	4.
4	10. 618357	618399	618441	618484	618526	618569	618611	618654	618696	618739	618781	618824	55	1 =
5	10. 618866	618909	618951	618994	619036	619079	619121	619164	619206	619249	619291	619334	54	2.
6	10. 619376	619419	619461	619504	619546	619589	619632	619674	619717	619759	619802	619844	53	3.
7	10. 619887	619930	619972	620015	620057	620100	620143	620185	620228	620271	620313	620356	52	4.
8	10. 620398	620441	620484	620526	620569	620612	620654	620697	620740	620782	620825	620868	51	1 =
9	10. 620911	620953	620996	621039	621081	621124	621167	621210	621252	621295	621338	621381	50	2.
10	10. 621423	621466	621509	621552	621594	621637	621680	621723	621765	621808	621851	621894	49	3.
11	10. 621937	621979	622022	622065	622108	622151	622194	622236	622279	622322	622365	622408	48	4.
12	10. 622451	622494	622536	622579	622622	622665	622708	622751	622794	622837	622879	622922	47	1 =
13	10. 622965	623008	623051	623094	623137	623180	623223	623266	623309	623352	623395	623438	46	2.
14	10. 623481	623524	623567	623610	623653	623695	623738	623781	623824	623867	623911	623954	45	3.
15	10. 623997	624040	624083	624126	624169	624212	624255	624298	624341	624384	624427	624470	44	4.
16	10. 624513	624556	624599	624642	624685	624729	624772	624815	624858	624901	624944	624987	43	1 =
17	10. 625030	625074	625117	625160	625203	625246	625289	625332	625376	625419	625462	625505	42	2.
18	10. 625548	625591	625635	625678	625721	625764	625807	625851	625894	625937	625980	626024	41	3.
19	10. 626067	626110	626153	626197	626240	626283	626326	626370	626413	626456	626499	626543	40	4.
20	10. 626586	626629	626673	626716	626759	626803	626846	626889	626933	626976	627019	627063	39	1 =
21	10. 627106	627149	627193	627236	627279	627323	627366	627410	627453	627496	627540	627583	38	2.
22	10. 627626	627670	627713	627757	627800	627844	627887	627930	627974	628017	628061	628104	37	3.
23	10. 628148	628191	628235	628278	628322	628365	628409	628452	628496	628539	628583	628626	36	4.
24	10. 628670	628713	628757	628800	628844	628887	628931	628974	629018	629061	629105	629148	35	1 =
25	10. 629192	629236	629279	629323	629366	629410	629454	629497	629541	629584	629628	629672	34	2.
26	10. 629715	629759	629803	629846	629890	629933	629977	630021	630064	630108	630152	630195	33	3.
27	10. 630239	630283	630326	630370	630414	630458	630501	630545	630589	630632	630676	630720	32	4.
28	10. 630764	630807	630851	630895	630939	630982	631026	631070	631114	631157	631201	631245	31	1 =
29	10. 631289	631333	631376	631420	631464	631508	631552	631596	631639	631683	631727	631771	30	2.
30	10. 631815	631859	631903	631946	631990	632034	632078	632122	632166	632210	632253	632297	29	3.
31	10. 632341	632385	632429	632473	632517	632561	632605	632649	632693	632737	632781	632825	28	4.
32	10. 632868	632912	632956	633000	633044	633088	633132	633176	633220	633264	633308	633352	27	1 =
33	10. 633396	633440	633484	633528	633572	633617	633661	633705	633749	633793	633837	633881	26	2.
34	10. 633925	633969	634013	634057	634101	634145	634189	634234	634278	634322	634366	634410	25	3.
35	10. 634454	634498	634542	634587	634631	634675	634719	634763	634807	634852	634896	634940	24	4.
36	10. 634984	635028	635073	635117	635161	635205	635249	635294	635338	635382	635426	635471	23	1 =
37	10. 635515	635559	635603	635648	635692	635736	635780	635825	635869	635913	635957	636002	22	2.
38	10. 636046	636090	636135	636179	636223	636268	636312	636356	636401	636445	636489	636534	21	3.
39	10. 636578	636622	636667	636711	636756	636800	636844	636889	636933	636978	637022	637066	20	4.
40	10. 637111	637155	637200	637244	637288	637333	637377	637422	637466	637511	637555	637600	19	1 =
41	10. 637644	637689	637733	637778	637822	637867	637911	637956	638000	638045	638089	638134	18	2.
42	10. 638178	638223	638267	638312	638356	638401	638446	638490	638535	638579	638624	638668	17	3.
43	10. 638713	638758	638802	638847	638891	638936	638981	639025	639070	639115	639159	639204	16	4.
44	10. 639248	639293	639338	639382	639427	639472	639516	639561	639606	639650	639695	639740	15	1 =
45	10. 639785	639829	639874	639919	639963	640008	640053	640098	640142	640187	640232	640277	14	2.
46	10. 640321	640366	640411	640456	640501	640545	640590	640635	640680	640725	640769	640814	13	3.
47	10. 640859	640904	640949	640994	641038	641083	641128	641173	641218	641263	641308	641352	12	4.
48	10. 641397	641442	641487	641532	641577	641622	641667	641712	641757	641801	641846	641891	11	1 =
49	10. 641936	641981	642026	642071	642116	642161	642206	642251	642296	642341	642386	642431	10	2.
50	10. 642476	642521	642566	642611	642656	642701	642746	642791	642836	642881	642926	642971	9	3.
51	10. 643016	643061	643106	643152	643197	643242	643287	643332	643377	643422	643467	643512	8	4.
52	10. 643557	643603	643648	643693	643738	643783	643828	643873	643919	643964	644009	644054	7	1 =
53	10. 644099	644144	644190	644235	644280	644325	644370	644416	644461	644506	644551	644596	6	2.
54	10. 644642	644687	644732	644777	644823	644868	644913	644959	645004	645049	645094	645140	5	3.
55	10. 645185	645230	645276	645321	645366	645412	645457	645502	645548	645593	645638	645684	4	4.
56	10. 645729	645774	645820	645865	645910	645956	646001	646047	646092	646137	646183	646228	3	1 =
57	10. 646274	646319	646364	646410	646455	646501	646546	646592	646637	646683	646728	646773	2	2.
58	10. 646819	646864	646910	646955	647001	647046	647092	647137	647183	647228	647274	647320	1	3.
59	10. 647365	647411	647456	647502	647547	647593	647638	647684	647730	647775	647821	647866	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional
	Co-secant of 13 degrees, or Secant of 103 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 77 degrees, or Co-secant of 167 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 647912	647958	648003	648049	648094	648140	648186	648231	648277	648323	648368	648414	59	1″ = 9
1	10. 648459	648505	648551	648596	648642	648688	648734	648779	648825	648871	648916	648962	58	2. 18
2	10. 649008	649053	649099	649145	649191	649236	649282	649328	649374	649419	649465	649511	57	3. 27
3	10. 649557	649603	649648	649694	649740	649786	649832	649877	649923	649969	650015	650061	56	4. 37
4	10. 650107	650152	650198	650244	650290	650336	650382	650428	650473	650519	650565	650611	55	1 = 9
5	10. 650657	650703	650749	650795	650841	650887	650933	650978	651024	651070	651116	651162	54	2. 18
6	10. 651208	651254	651300	651346	651392	651438	651484	651530	651576	651622	651668	651714	53	3. 28
7	10. 651760	651806	651852	651898	651944	651990	652036	652083	652129	652175	652221	652267	52	4. 37
8	10. 652313	652359	652405	652451	652497	652543	652590	652636	652682	652728	652774	652820	51	1 = 9
9	10. 652866	652913	652959	653005	653051	653097	653143	653190	653236	653282	653328	653374	50	2. 19
10	10. 653421	653467	653513	653559	653605	653652	653698	653744	653790	653837	653883	653929	49	3. 28
11	10. 653975	654022	654068	654114	654161	654207	654253	654300	654346	654392	654438	654485	48	4. 37
12	10. 654531	654577	654624	654670	654717	654763	654809	654856	654902	654948	654995	655041	47	1 = 9
13	10. 655088	655134	655180	655227	655273	655320	655366	655412	655459	655505	655552	655598	46	2. 19
14	10. 655645	655691	655738	655784	655831	655877	655924	655970	656017	656063	656110	656156	45	3. 28
15	10. 656203	656249	656296	656342	656389	656435	656482	656528	656575	656622	656668	656715	44	4. 37
16	10. 656761	656808	656855	656901	656948	656994	657041	657088	657134	657181	657227	657274	43	1 = 9
17	10. 657321	657367	657414	657461	657507	657554	657601	657647	657694	657741	657788	657834	42	2. 19
18	10. 657881	657928	657974	658021	658068	658115	658161	658208	658255	658302	658348	658395	41	3. 28
19	10. 658442	658489	658536	658582	658629	658676	658723	658770	658816	658863	658910	658957	40	4. 37
20	10. 659004	659050	659097	659144	659191	659238	659285	659332	659379	659425	659472	659519	39	1 = 9
21	10. 659566	659613	659660	659707	659754	659801	659848	659895	659942	659988	660035	660082	38	2. 19
22	10. 660129	660176	660223	660270	660317	660364	660411	660458	660505	660552	660599	660646	37	3. 28
23	10. 660693	660740	660787	660835	660882	660929	660976	661023	661070	661117	661164	661211	36	4. 38
24	10. 661258	661305	661352	661400	661447	661494	661541	661588	661635	661682	661729	661777	35	1 = 9
25	10. 661824	661871	661918	661965	662012	662060	662107	662154	662201	662248	662296	662343	34	2. 19
26	10. 662390	662437	662485	662532	662579	662626	662674	662721	662768	662815	662863	662910	33	3. 28
27	10. 662957	663004	663052	663099	663146	663194	663241	663288	663336	663383	663430	663478	32	4. 38
28	10. 663525	663572	663620	663667	663715	663762	663809	663857	663904	663952	663999	664046	31	1 = 10
29	10. 664094	664141	664189	664236	664283	664331	664378	664426	664473	664521	664568	664616	30	2. 19
30	10. 664663	664711	664758	664806	664853	664901	664948	664996	665043	665091	665138	665186	29	3. 29
31	10. 665233	665281	665329	665376	665424	665471	665519	665566	665614	665662	665709	665757	28	4. 38
32	10. 665804	665852	665900	665947	665995	666043	666090	666138	666186	666233	666281	666329	27	1 = 10
33	10. 666376	666424	666472	666519	666567	666615	666662	666710	666758	666806	666853	666901	26	2. 19
34	10. 666949	666997	667044	667092	667140	667188	667235	667283	667331	667379	667427	667474	25	3. 29
35	10. 667522	667570	667618	667666	667714	667761	667809	667857	667905	667953	668001	668049	24	4. 38
36	10. 668096	668144	668192	668240	668288	668336	668384	668432	668480	668528	668576	668623	23	1 = 10
37	10. 668671	668719	668767	668815	668863	668911	668959	669007	669055	669103	669151	669199	22	2. 19
38	10. 669247	669295	669343	669391	669439	669487	669535	669583	669632	669680	669728	669776	21	3. 29
39	10. 669824	669872	669920	669968	670016	670064	670112	670161	670209	670257	670305	670353	20	4. 38
40	10. 670401	670449	670498	670546	670594	670642	670690	670738	670787	670835	670883	670931	19	1 = 10
41	10. 670979	671028	671076	671124	671172	671221	671269	671317	671365	671414	671462	671510	18	2. 19
42	10. 671558	671607	671655	671703	671752	671800	671848	671897	671945	671993	672042	672090	17	3. 29
43	10. 672138	672187	672235	672283	672332	672380	672428	672477	672525	672574	672622	672670	16	4. 39
44	10. 672719	672767	672816	672864	672913	672961	673009	673058	673106	673155	673203	673252	15	1 = 10
45	10. 673300	673349	673397	673446	673494	673543	673591	673640	673688	673737	673785	673834	14	2. 19
46	10. 673883	673931	673980	674028	674077	674125	674174	674223	674271	674320	674368	674417	13	3. 29
47	10. 674466	674514	674563	674611	674660	674709	674757	674806	674855	674903	674952	675001	12	4. 39
48	10. 675049	675098	675147	675196	675244	675293	675342	675390	675439	675488	675537	675585	11	1 = 10
49	10. 675634	675683	675732	675781	675829	675878	675927	675976	676024	676073	676122	676171	10	2. 20
50	10. 676220	676269	676317	676366	676415	676464	676513	676562	676611	676659	676708	676757	9	3. 29
51	10. 676806	676855	676904	676953	677002	677051	677100	677149	677197	677246	677295	677344	8	4. 39
52	10. 677393	677442	677491	677540	677589	677638	677687	677736	677785	677834	677883	677932	7	1 = 10
53	10. 677981	678030	678079	678128	678178	678227	678276	678325	678374	678423	678472	678521	6	2. 20
54	10. 678570	678619	678668	678718	678767	678816	678865	678914	678963	679012	679062	679111	5	3. 30
55	10. 679160	679209	679258	679307	679357	679406	679455	679504	679554	679603	679652	679701	4	4. 39
56	10. 679750	679800	679849	679898	679947	679997	680046	680095	680145	680194	680243	680293	3	1 = 10
57	10. 680342	680391	680440	680490	680539	680588	680638	680687	680737	680786	680835	680885	2	2. 20
58	10. 680934	680983	681033	681082	681132	681181	681230	681280	681329	681379	681428	681478	1	3. 30
59	10. 681527	681577	681626	681676	681725	681774	681824	681873	681923	681972	682022	682072	0	4. 40
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 12 degrees, or Secant of 102 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 76 degrees, or Co-secant of 166 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 616325	616367	616409	616451	616494	616536	616578	616620	616663	616705	616747	616789	59	1″ =
1	10. 616832	616874	616916	616959	617001	617043	617086	617128	617170	617212	617255	617297	58	2.
2	10. 617339	617382	617424	617466	617509	617551	617593	617636	617678	617721	617763	617805	57	3.
3	10. 617848	617890	617932	617975	618017	618060	618102	618144	618187	618229	618272	618314	56	4.
4	10. 618357	618399	618441	618484	618526	618569	618611	618654	618696	618739	618781	618824	55	1 =
5	10. 618866	618909	618951	618994	619036	619079	619121	619164	619206	619249	619291	619334	54	2.
6	10. 619376	619419	619461	619504	619546	619589	619632	619674	619717	619759	619802	619844	53	3.
7	10. 619887	619930	619972	620015	620057	620100	620143	620185	620228	620271	620313	620356	52	4.
8	10. 620398	620441	620484	620526	620569	620612	620654	620697	620740	620782	620825	620868	51	1 =
9	10. 620911	620953	620996	621039	621081	621124	621167	621210	621252	621295	621338	621381	50	2.
10	10. 621423	621466	621509	621552	621594	621637	621680	621723	621765	621808	621851	621894	49	3.
11	10. 621937	621979	622022	622065	622108	622151	622194	622236	622279	622322	622365	622408	48	4.
12	10. 622451	622494	622536	622579	622622	622665	622708	622751	622794	622837	622879	622922	47	1 =
13	10. 622965	623008	623051	623094	623137	623180	623223	623266	623309	623352	623395	623438	46	2.
14	10. 623481	623524	623567	623610	623653	623695	623738	623781	623824	623867	623911	623954	45	3.
15	10. 623997	624040	624083	624126	624169	624212	624255	624298	624341	624384	624427	624470	44	4.
16	10. 624513	624556	624599	624642	624685	624729	624772	624815	624858	624901	624944	624987	43	1 =
17	10. 625030	625074	625117	625160	625203	625246	625289	625332	625376	625419	625462	625505	42	2.
18	10. 625548	625591	625635	625678	625721	625764	625807	625851	625894	625937	625980	626024	41	3.
19	10. 626067	626110	626153	626197	626240	626283	626326	626370	626413	626456	626499	626543	40	4.
20	10. 626586	626629	626673	626716	626759	626803	626846	626889	626933	626976	627019	627063	39	1 =
21	10. 627106	627149	627193	627236	627279	627323	627366	627410	627453	627496	627540	627583	38	2.
22	10. 627626	627670	627713	627757	627800	627844	627887	627930	627974	628017	628061	628104	37	3.
23	10. 628148	628191	628235	628278	628322	628365	628409	628452	628496	628539	628583	628626	36	4.
24	10. 628670	628713	628757	628800	628844	628887	628931	628974	629018	629061	629105	629148	35	1 =
25	10. 629192	629236	629279	629323	629366	629410	629454	629497	629541	629584	629628	629672	34	2.
26	10. 629715	629759	629803	629846	629890	629933	629977	630021	630064	630108	630152	630195	33	3.
27	10. 630239	630283	630326	630370	630414	630458	630501	630545	630589	630632	630676	630720	32	4.
28	10. 630764	630807	630851	630895	630939	630982	631026	631070	631114	631157	631201	631245	31	1 =
29	10. 631289	631333	631376	631420	631464	631508	631552	631596	631639	631683	631727	631771	30	2.
30	10. 631815	631859	631903	631946	631990	632034	632078	632122	632166	632210	632253	632297	29	3.
31	10. 632341	632385	632429	632473	632517	632561	632605	632649	632693	632737	632781	632825	28	4.
32	10. 632868	632912	632956	633000	633044	633088	633132	633176	633220	633264	633308	633352	27	1 =
33	10. 633396	633440	633484	633528	633572	633617	633661	633705	633749	633793	633837	633881	26	2.
34	10. 633925	633969	634013	634057	634101	634145	634189	634234	634278	634322	634366	634410	25	3.
35	10. 634454	634498	634542	634587	634631	634675	634719	634763	634807	634852	634896	634940	24	4.
36	10. 634984	635028	635073	635117	635161	635205	635249	635294	635338	635382	635426	635471	23	1 =
37	10. 635515	635559	635603	635648	635692	635736	635780	635825	635869	635913	635957	636002	22	2.
38	10. 636046	636090	636135	636179	636223	636268	636312	636356	636401	636445	636489	636534	21	3.
39	10. 636578	636622	636667	636711	636756	636800	636844	636889	636933	636978	637022	637066	20	4.
40	10. 637111	637155	637200	637244	637288	637333	637377	637422	637466	637511	637555	637600	19	1 =
41	10. 637644	637689	637733	637778	637822	637867	637911	637956	638000	638045	638089	638134	18	2.
42	10. 638178	638223	638267	638312	638356	638401	638446	638490	638535	638579	638624	638668	17	3.
43	10. 638713	638758	638802	638847	638891	638936	638981	639025	639070	639115	639159	639204	16	4.
44	10. 639248	639293	639338	639382	639427	639472	639516	639561	639606	639650	639695	639740	15	1 =
45	10. 639785	639829	639874	639919	639963	640008	640053	640098	640142	640187	640232	640277	14	2.
46	10. 640321	640366	640411	640456	640501	640545	640590	640635	640680	640725	640769	640814	13	3.
47	10. 640859	640904	640949	640994	641038	641083	641128	641173	641218	641263	641308	641352	12	4.
48	10. 641397	641442	641487	641532	641577	641622	641667	641712	641757	641801	641846	641891	11	1 =
49	10. 641936	641981	642026	642071	642116	642161	642206	642251	642296	642341	642386	642431	10	2.
50	10. 642476	642521	642566	642611	642656	642701	642746	642791	642836	642881	642926	642971	9	3.
51	10. 643016	643061	643106	643152	643197	643242	643287	643332	643377	643422	643467	643512	8	4.
52	10. 643557	643603	643648	643693	643738	643783	643828	643873	643919	643964	644009	644054	7	1 =
53	10. 644099	644144	644190	644235	644280	644325	644370	644416	644461	644506	644551	644596	6	2.
54	10. 644642	644687	644732	644777	644823	644868	644913	644959	645004	645049	645094	645140	5	3.
55	10. 645185	645230	645276	645321	645366	645412	645457	645502	645548	645593	645638	645684	4	4.
56	10. 645729	645774	645820	645865	645910	645956	646001	646047	646092	646137	646183	646228	3	1 =
57	10. 646274	646319	646364	646410	646455	646501	646546	646592	646637	646683	646728	646773	2	2.
58	10. 646819	646864	646910	646955	647001	647046	647092	647137	647183	647228	647274	647320	1	3.
59	10. 647365	647411	647456	647502	647547	647593	647638	647684	647730	647775	647821	647866	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-secant of 13 degrees, or Secant of 103 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 77 degrees, or Co-secant of 167 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.647912	647958	648003	648049	648094	648140	648186	648231	648277	648323	648368	648414	59	1″ = 9
1	10.648459	648505	648551	648596	648642	648688	648734	648779	648825	648871	648916	648962	58	2. 18
2	10.649008	649053	649099	649145	649191	649236	649282	649328	649374	649419	649465	649511	57	3. 27
3	10.649557	649603	649648	649694	649740	649786	649832	649877	649923	649969	650015	650061	56	4. 37
4	10.650107	650152	650198	650244	650290	650336	650382	650428	650473	650519	650565	650611	55	1 = 9
5	10.650657	650703	650749	650795	650841	650887	650933	650978	651024	651070	651116	651162	54	2. 18
6	10.651208	651254	651300	651346	651392	651438	651484	651530	651576	651622	651668	651714	53	3. 28
7	10.651760	651806	651852	651898	651944	651990	652036	652083	652129	652175	652221	652267	52	4. 37
8	10.652313	652359	652405	652451	652497	652543	652590	652636	652682	652728	652774	652820	51	1 = 9
9	10.652866	652913	652959	653005	653051	653097	653143	653190	653236	653282	653328	653374	50	2. 19
10	10.653421	653467	653513	653559	653605	653652	653698	653744	653790	653837	653883	653929	49	3. 28
11	10.653975	654022	654068	654114	654161	654207	654253	654300	654346	654392	654438	654485	48	4. 37
12	10.654531	654577	654624	654670	654717	654763	654809	654856	654902	654948	654995	655041	47	1 = 9
13	10.655088	655134	655180	655227	655273	655320	655366	655412	655459	655505	655552	655598	46	2. 19
14	10.655645	655691	655738	655784	655831	655877	655924	655970	656017	656063	656110	656156	45	3. 28
15	10.656203	656249	656296	656342	656389	656435	656482	656528	656575	656622	656668	656715	44	4. 37
16	10.656761	656808	656855	656901	656948	656994	657041	657088	657134	657181	657227	657274	43	1 = 9
17	10.657321	657367	657414	657461	657507	657554	657601	657647	657694	657741	657788	657834	42	2. 19
18	10.657881	657928	657974	658021	658068	658115	658161	658208	658255	658302	658348	658395	41	3. 28
19	10.658442	658489	658536	658582	658629	658676	658723	658770	658816	658863	658910	658957	40	4. 37
20	10.659004	659050	659097	659144	659191	659238	659285	659332	659379	659425	659472	659519	39	1 = 9
21	10.659566	659613	659660	659707	659754	659801	659848	659895	659942	659988	660035	660082	38	2. 19
22	10.660129	660176	660223	660270	660317	660364	660411	660458	660505	660552	660599	660646	37	3. 28
23	10.660693	660740	660787	660835	660882	660929	660976	661023	661070	661117	661164	661211	36	4. 38
24	10.661258	661305	661352	661400	661447	661494	661541	661588	661635	661682	661729	661777	35	1 = 9
25	10.661824	661871	661918	661965	662012	662060	662107	662154	662201	662248	662296	662343	34	2. 19
26	10.662390	662437	662485	662532	662579	662626	662674	662721	662768	662815	662863	662910	33	3. 28
27	10.662957	663004	663052	663099	663146	663194	663241	663288	663336	663383	663430	663478	32	4. 38
28	10.663525	663572	663620	663667	663715	663762	663809	663857	663904	663952	663999	664046	31	1 = 10
29	10.664094	664141	664189	664236	664283	664331	664378	664426	664473	664521	664568	664616	30	2. 19
30	10.664663	664711	664758	664806	664853	664901	664948	664996	665043	665091	665138	665186	29	3. 29
31	10.665233	665281	665329	665376	665424	665471	665519	665566	665614	665662	665709	665757	28	4. 38
32	10.665804	665852	665900	665947	665995	666043	666090	666138	666186	666233	666281	666329	27	1 = 10
33	10.666376	666424	666472	666519	666567	666615	666662	666710	666758	666806	666853	666901	26	2. 19
34	10.666949	666997	667044	667092	667140	667188	667235	667283	667331	667379	667427	667474	25	3. 29
35	10.667522	667570	667618	667666	667714	667761	667809	667857	667905	667953	668001	668049	24	4. 38
36	10.668096	668144	668192	668240	668288	668336	668384	668432	668480	668528	668576	668623	23	1 = 10
37	10.668671	668719	668767	668815	668863	668911	668959	669007	669055	669103	669151	669199	22	2. 19
38	10.669247	669295	669343	669391	669439	669487	669535	669583	669632	669680	669728	669776	21	3. 29
39	10.669824	669872	669920	669968	670016	670064	670112	670161	670209	670257	670305	670353	20	4. 38
40	10.670401	670449	670498	670546	670594	670642	670690	670738	670787	670835	670883	670931	19	1 = 10
41	10.670979	671028	671076	671124	671172	671221	671269	671317	671365	671414	671462	671510	18	2. 19
42	10.671558	671607	671655	671703	671752	671800	671848	671897	671945	671993	672042	672090	17	3. 29
43	10.672138	672187	672235	672283	672332	672380	672428	672477	672525	672574	672622	672670	16	4. 39
44	10.672719	672767	672816	672864	672913	672961	673009	673058	673106	673155	673203	673252	15	1 = 10
45	10.673300	673349	673397	673446	673494	673543	673591	673640	673688	673737	673785	673834	14	2. 19
46	10.673883	673931	673980	674028	674077	674125	674174	674223	674271	674320	674368	674417	13	3. 29
47	10.674466	674514	674563	674611	674660	674709	674757	674806	674855	674903	674952	675001	12	4. 39
48	10.675049	675098	675147	675196	675244	675293	675342	675390	675439	675488	675537	675585	11	1 = 10
49	10.675634	675683	675732	675781	675829	675878	675927	675976	676024	676073	676122	676171	10	2. 20
50	10.676220	676269	676317	676366	676415	676464	676513	676562	676611	676659	676708	676757	9	3. 29
51	10.676806	676855	676904	676953	677002	677051	677100	677149	677197	677246	677295	677344	8	4. 39
52	10.677393	677442	677491	677540	677589	677638	677687	677736	677785	677834	677883	677932	7	1 = 10
53	10.677981	678030	678079	678128	678178	678227	678276	678325	678374	678423	678472	678521	6	2. 20
54	10.678570	678619	678668	678718	678767	678816	678865	678914	678963	679012	679062	679111	5	3. 30
55	10.679160	679209	679258	679307	679357	679406	679455	679504	679554	679603	679652	679701	4	4. 39
56	10.679750	679800	679849	679898	679947	679997	680046	680095	680145	680194	680243	680293	3	1 = 10
57	10.680342	680391	680440	680490	680539	680588	680638	680687	680737	680786	680835	680885	2	2. 20
58	10.680934	680983	681033	681082	681132	681181	681230	681280	681329	681379	681428	681478	1	3. 30
59	10.681527	681577	681626	681676	681725	681774	681824	681873	681923	681972	682022	682072	0	4. 40
	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-secant of 12 degrees, or Secant of 102 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 76 degrees, or Co-secant of 166 degrees.												Minutes	Proper-parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 616325	616367	616409	616451	616494	616536	616578	616620	616663	616705	616747	616789	59	1″ =
1	10. 616832	616874	616916	616959	617001	617043	617086	617128	617170	617212	617255	617297	58	2.
2	10. 617339	617382	617424	617466	617509	617551	617593	617636	617678	617721	617763	617805	57	3.
3	10. 617848	617890	617932	617975	618017	618060	618102	618144	618187	618229	618272	618314	56	4.
4	10. 618357	618399	618441	618484	618526	618569	618611	618654	618696	618739	618781	618824	55	1 =
5	10. 618866	618909	618951	618994	619036	619079	619121	619164	619206	619249	619291	619334	54	2.
6	10. 619376	619419	619461	619504	619546	619589	619632	619674	619717	619759	619802	619844	53	3.
7	10. 619887	619930	619972	620015	620057	620100	620143	620185	620228	620271	620313	620356	52	4.
8	10. 620398	620441	620484	620526	620569	620612	620654	620697	620740	620782	620825	620868	51	1 =
9	10. 620911	620953	620996	621039	621081	621124	621167	621210	621252	621295	621338	621381	50	2.
10	10. 621423	621466	621509	621552	621594	621637	621680	621723	621765	621808	621851	621894	49	3.
11	10. 621937	621979	622022	622065	622108	622151	622194	622236	622279	622322	622365	622408	48	4.
12	10. 622451	622494	622536	622579	622622	622665	622708	622751	622794	622837	622879	622922	47	1 =
13	10. 622965	623008	623051	623094	623137	623180	623223	623266	623309	623352	623395	623438	46	2.
14	10. 623481	623524	623567	623610	623653	623695	623738	623781	623824	623867	623911	623954	45	3.
15	10. 623997	624040	624083	624126	624169	624212	624255	624298	624341	624384	624427	624470	44	4.
16	10. 624513	624556	624599	624642	624685	624729	624772	624815	624858	624901	624944	624987	43	1 =
17	10. 625030	625074	625117	625160	625203	625246	625289	625332	625376	625419	625462	625505	42	2.
18	10. 625548	625591	625635	625678	625721	625764	625807	625851	625894	625937	625980	626024	41	3.
19	10. 626067	626110	626153	626197	626240	626283	626326	626370	626413	626456	626499	626543	40	4.
20	10. 626586	626629	626673	626716	626759	626803	626846	626889	626933	626976	627019	627063	39	1 =
21	10. 627106	627149	627193	627236	627279	627323	627366	627410	627453	627496	627540	627583	38	2.
22	10. 627626	627670	627713	627757	627800	627844	627887	627930	627974	628017	628061	628104	37	3.
23	10. 628148	628191	628235	628278	628322	628365	628409	628452	628496	628539	628583	628626	36	4.
24	10. 628670	628713	628757	628800	628844	628887	628931	628974	629018	629061	629105	629148	35	1 =
25	10. 629192	629236	629279	629323	629366	629410	629454	629497	629541	629584	629628	629672	34	2.
26	10. 629715	629759	629803	629846	629890	629933	629977	630021	630064	630108	630152	630195	33	3.
27	10. 630239	630283	630326	630370	630414	630458	630501	630545	630589	630632	630676	630720	32	4.
28	10. 630764	630807	630851	630895	630939	630982	631026	631070	631114	631157	631201	631245	31	1 =
29	10. 631289	631333	631376	631420	631464	631508	631552	631596	631639	631683	631727	631771	30	2.
30	10. 631815	631859	631903	631946	631990	632034	632078	632122	632166	632210	632253	632297	29	3.
31	10. 632341	632385	632429	632473	632517	632561	632605	632649	632693	632737	632781	632825	28	4.
32	10. 632868	632912	632956	633000	633044	633088	633132	633176	633220	633264	633308	633352	27	1 =
33	10. 633396	633440	633484	633528	633572	633617	633661	633705	633749	633793	633837	633881	26	2.
34	10. 633925	633969	634013	634057	634101	634145	634189	634234	634278	634322	634366	634410	25	3.
35	10. 634454	634498	634542	634587	634631	634675	634719	634763	634807	634852	634896	634940	24	4.
36	10. 634984	635028	635073	635117	635161	635205	635249	635294	635338	635382	635426	635471	23	1 =
37	10. 635515	635559	635603	635648	635692	635736	635780	635825	635869	635913	635957	636002	22	2.
38	10. 636046	636090	636135	636179	636223	636268	636312	636356	636401	636445	636489	636534	21	3.
39	10. 636578	636622	636667	636711	636756	636800	636844	636889	636933	636978	637022	637066	20	4.
40	10. 637111	637155	637200	637244	637288	637333	637377	637422	637466	637511	637555	637600	19	1 =
41	10. 637644	637689	637733	637778	637822	637867	637911	637956	638000	638045	638089	638134	18	2.
42	10. 638178	638223	638267	638312	638356	638401	638446	638490	638535	638579	638624	638668	17	3.
43	10. 638713	638758	638802	638847	638891	638936	638981	639025	639070	639115	639159	639204	16	4.
44	10. 639248	639293	639338	639382	639427	639472	639516	639561	639606	639650	639695	639740	15	1 =
45	10. 639785	639829	639874	639919	639963	640008	640053	640098	640142	640187	640232	640277	14	2.
46	10. 640321	640366	640411	640456	640501	640545	640590	640635	640680	640725	640769	640814	13	3.
47	10. 640859	640904	640949	640994	641038	641083	641128	641173	641218	641263	641308	641352	12	4.
48	10. 641397	641442	641487	641532	641577	641622	641667	641712	641757	641801	641846	641891	11	1 =
49	10. 641936	641981	642026	642071	642116	642161	642206	642251	642296	642341	642386	642431	10	2.
50	10. 642476	642521	642566	642611	642656	642701	642746	642791	642836	642881	642926	642971	9	3.
51	10. 643016	643061	643106	643152	643197	643242	643287	643332	643377	643422	643467	643512	8	4.
52	10. 643557	643603	643648	643693	643738	643783	643828	643873	643919	643964	644009	644054	7	1 =
53	10. 644099	644144	644190	644235	644280	644325	644370	644416	644461	644506	644551	644596	6	2.
54	10. 644642	644687	644732	644777	644823	644868	644913	644959	645004	645049	645094	645140	5	3.
55	10. 645185	645230	645276	645321	645366	645412	645457	645502	645548	645593	645638	645684	4	4.
56	10. 645729	645774	645820	645865	645910	645956	646001	646047	646092	646137	646183	646228	3	1 =
57	10. 646274	646319	646364	646410	646455	646501	646546	646592	646637	646683	646728	646773	2	2.
58	10. 646819	646864	646910	646955	647001	647046	647092	647137	647183	647228	647274	647320	1	3.
59	10. 647365	647411	647456	647502	647547	647593	647638	647684	647730	647775	647821	647866	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper-parts.
	Co-secant of 13 degrees, or Secant of 103 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 77 degrees, or Co-secant of 167 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 647912	647958	648003	648049	648094	648140	648186	648231	648277	648323	648368	648414	59	1″ = 9
1	10. 648459	648505	648551	648596	648642	648688	648734	648779	648825	648871	648916	648962	58	2. 18
2	10. 649008	649053	649099	649145	649191	649236	649282	649328	649374	649419	649465	649511	57	3. 27
3	10. 649557	649603	649648	649694	649740	649786	649832	649877	649923	649969	650015	650061	56	4. 37
4	10. 650107	650152	650198	650244	650290	650336	650382	650428	650473	650519	650565	650611	55	1 = 9
5	10. 650657	650703	650749	650795	650841	650887	650933	650978	651024	651070	651116	651162	54	2. 18
6	10. 651208	651254	651300	651346	651392	651438	651484	651530	651576	651622	651668	651714	53	3. 28
7	10. 651760	651806	651852	651898	651944	651990	652036	652083	652129	652175	652221	652267	52	4. 37
8	10. 652313	652359	652405	652451	652497	652543	652590	652636	652682	652728	652774	652820	51	1 = 9
9	10. 652866	652913	652959	653005	653051	653097	653143	653190	653236	653282	653328	653374	50	2. 19
10	10. 653421	653467	653513	653559	653605	653652	653698	653744	653790	653837	653883	653929	49	3. 28
11	10. 653975	654022	654068	654114	654161	654207	654253	654300	654346	654392	654438	654485	48	4. 37
12	10. 654531	654577	654624	654670	654717	654763	654809	654856	654902	654948	654995	655041	47	1 = 9
13	10. 655088	655134	655180	655227	655273	655320	655366	655412	655459	655505	655552	655598	46	2. 19
14	10. 655645	655691	655738	655784	655831	655877	655924	655970	656017	656063	656110	656156	45	3. 28
15	10. 656203	656249	656296	656342	656389	656435	656482	656528	656575	656622	656668	656715	44	4. 37
16	10. 656761	656808	656855	656901	656948	656994	657041	657088	657134	657181	657227	657274	43	1 = 9
17	10. 657321	657367	657414	657461	657507	657554	657601	657647	657694	657741	657788	657834	42	2. 19
18	10. 657881	657928	657974	658021	658068	658115	658161	658208	658255	658302	658348	658395	41	3. 28
19	10. 658442	658489	658536	658582	658629	658676	658723	658770	658816	658863	658910	658957	40	4. 37
20	10. 659004	659050	659097	659144	659191	659238	659285	659332	659379	659425	659472	659519	39	1 = 9
21	10. 659566	659613	659660	659707	659754	659801	659848	659895	659942	659988	660035	660082	38	2. 19
22	10. 660129	660176	660223	660270	660317	660364	660411	660458	660505	660552	660599	660646	37	3. 28
23	10. 660693	660740	660787	660835	660882	660929	660976	661023	661070	661117	661164	661211	36	4. 38
24	10. 661258	661305	661352	661400	661447	661494	661541	661588	661635	661682	661729	661777	35	1 = 9
25	10. 661824	661871	661918	661965	662012	662060	662107	662154	662201	662248	662296	662343	34	2. 19
26	10. 662390	662437	662485	662532	662579	662626	662674	662721	662768	662815	662863	662910	33	3. 28
27	10. 662957	663004	663052	663099	663146	663194	663241	663288	663336	663383	663430	663478	32	4. 38
28	10. 663525	663572	663620	663667	663715	663762	663809	663857	663904	663952	663999	664046	31	1 = 10
29	10. 664094	664141	664189	664236	664283	664331	664378	664426	664473	664521	664568	664616	30	2. 19
30	10. 664663	664711	664758	664806	664853	664901	664948	664996	665043	665091	665138	665186	29	3. 29
31	10. 665233	665281	665329	665376	665424	665471	665519	665566	665614	665662	665709	665757	28	4. 38
32	10. 665804	665852	665900	665947	665995	666043	666090	666138	666186	666233	666281	666329	27	1 = 10
33	10. 666376	666424	666472	666519	666567	666615	666662	666710	666758	666806	666853	666901	26	2. 19
34	10. 666949	666997	667044	667092	667140	667188	667235	667283	667331	667379	667427	667474	25	3. 29
35	10. 667522	667570	667618	667666	667714	667761	667809	667857	667905	667953	668001	668049	24	4. 38
36	10. 668096	668144	668192	668240	668288	668336	668384	668432	668480	668528	668576	668623	23	1 = 10
37	10. 668671	668719	668767	668815	668863	668911	668959	669007	669055	669103	669151	669199	22	2. 19
38	10. 669247	669295	669343	669391	669439	669487	669535	669583	669632	669680	669728	669776	21	3. 29
39	10. 669824	669872	669920	669968	670016	670064	670112	670161	670209	670257	670305	670353	20	4. 38
40	10. 670401	670449	670498	670546	670594	670642	670690	670738	670787	670835	670883	670931	19	1 = 10
41	10. 670979	671028	671076	671124	671172	671221	671269	671317	671365	671414	671462	671510	18	2. 19
42	10. 671558	671607	671655	671703	671752	671800	671848	671897	671945	671993	672042	672090	17	3. 29
43	10. 672138	672187	672235	672283	672332	672380	672428	672477	672525	672574	672622	672670	16	4. 39
44	10. 672719	672767	672816	672864	672913	672961	673009	673058	673106	673155	673203	673252	15	1 = 10
45	10. 673300	673349	673397	673446	673494	673543	673591	673640	673688	673737	673785	673834	14	2. 19
46	10. 673883	673931	673980	674028	674077	674125	674174	674223	674271	674320	674368	674417	13	3. 29
47	10. 674466	674514	674563	674611	674660	674709	674757	674806	674855	674903	674952	675001	12	4. 39
48	10. 675049	675098	675147	675196	675244	675293	675342	675390	675439	675488	675537	675585	11	1 = 10
49	10. 675634	675683	675732	675781	675829	675878	675927	675976	676024	676073	676122	676171	10	2. 20
50	10. 676220	676269	676317	676366	676415	676464	676513	676562	676611	676659	676708	676757	9	3. 29
51	10. 676806	676855	676904	676953	677002	677051	677100	677149	677197	677246	677295	677344	8	4. 39
52	10. 677393	677442	677491	677540	677589	677638	677687	677736	677785	677834	677883	677932	7	1 = 10
53	10. 677981	678030	678079	678128	678178	678227	678276	678325	678374	678423	678472	678521	6	2. 20
54	10. 678570	678619	678668	678718	678767	678816	678865	678914	678963	679012	679062	679111	5	3. 30
55	10. 679160	679209	679258	679307	679357	679406	679455	679504	679554	679603	679652	679701	4	4. 39
56	10. 679750	679800	679849	679898	679947	679997	680046	680095	680145	680194	680243	680293	3	1 = 10
57	10. 680342	680391	680440	680490	680539	680588	680638	680687	680737	680786	680835	680885	2	2. 20
58	10. 680934	680983	681033	681082	681132	681181	681230	681280	681329	681379	681428	681478	1	3. 30
59	10. 681527	681577	681626	681676	681725	681774	681824	681873	681923	681972	682022	682072	0	4. 40
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 12 degrees, or Secant of 102 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 70 degrees, or Co-secant of 160 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 465948	465977	466006	466035	466064	466093	466122	466151	466180	466209	466238	466267	59	1″ =
1	10. 466296	466325	466354	466382	466411	466440	466469	466498	466527	466556	466585	466614	58	2.
2	10. 466643	466672	466701	466730	466759	466788	466817	466846	466875	466904	466933	466962	57	3.
3	10. 466991	467020	467049	467078	467107	467136	467165	467194	467223	467252	467281	467310	56	4.
4	10. 467339	467368	467397	467426	467455	467484	467513	467542	467571	467601	467630	467659	55	1″ =
5	10. 467688	467717	467746	467775	467804	467833	467862	467891	467920	467949	467978	468007	54	2.
6	10. 468036	468066	468095	468124	468153	468182	468211	468240	468269	468298	468327	468357	53	3.
7	10. 468386	468415	468444	468473	468502	468531	468560	468589	468619	468648	468677	468706	52	4.
8	10. 468735	468764	468793	468823	468852	468881	468910	468939	468968	468997	469027	469056	51	1″ =
9	10. 469085	469114	469143	469172	469202	469231	469260	469289	469318	469347	469377	469406	50	2.
10	10. 469435	469464	469493	469523	469552	469581	469610	469639	469669	469698	469727	469756	49	3.
11	10. 469785	469815	469844	469873	469902	469931	469961	469990	470019	470048	470078	470107	48	4.
12	10. 470136	470165	470195	470224	470253	470282	470312	470341	470370	470399	470429	470458	47	1″ =
13	10. 470487	470516	470546	470575	470604	470634	470663	470692	470721	470751	470780	470809	46	2.
14	10. 470839	470868	470897	470926	470956	470985	471014	471044	471073	471102	471132	471161	45	3.
15	10. 471190	471220	471249	471278	471308	471337	471366	471396	471425	471454	471484	471513	44	4.
16	10. 471542	471572	471601	471630	471660	471689	471718	471748	471777	471807	471836	471865	43	1″ =
17	10. 471895	471924	471953	471983	472012	472042	472071	472100	472130	472159	472189	472218	42	2.
18	10. 472247	472277	472306	472336	472365	472394	472424	472453	472483	472512	472541	472571	41	3.
19	10. 472600	472630	472659	472689	472718	472747	472777	472806	472836	472865	472895	472924	40	4.
20	10. 472954	472983	473013	473042	473071	473101	473130	473160	473189	473219	473248	473278	39	1″ =
21	10. 473307	473337	473366	473396	473425	473455	473484	473514	473543	473573	473602	473632	38	2.
22	10. 473661	473691	473720	473750	473779	473809	473838	473868	473897	473927	473956	473986	37	3.
23	10. 474016	474045	474075	474104	474134	474163	474193	474222	474252	474281	474311	474341	36	4.
24	10. 474370	474400	474429	474459	474488	474518	474548	474577	474607	474636	474666	474695	35	1″ =
25	10. 474725	474755	474784	474814	474843	474873	474903	474932	474962	474991	475021	475051	34	2.
26	10. 475080	475110	475140	475169	475199	475228	475258	475288	475317	475347	475377	475406	33	3.
27	10. 475436	475466	475495	475525	475555	475584	475614	475644	475673	475703	475733	475762	32	4.
28	10. 475792	475822	475851	475881	475911	475940	475970	476000	476029	476059	476089	476118	31	1″ =
29	10. 476148	476178	476208	476237	476267	476297	476326	476356	476386	476416	476445	476475	30	2.
30	10. 476505	476534	476564	476594	476624	476653	476683	476713	476743	476772	476802	476832	29	3.
31	10. 476862	476891	476921	476951	476981	477010	477040	477070	477100	477130	477159	477189	28	4.
32	10. 477219	477249	477278	477308	477338	477368	477398	477427	477457	477487	477517	477547	27	1″ =
33	10. 477576	477606	477636	477666	477696	477726	477755	477785	477815	477845	477875	477904	26	2.
34	10. 477934	477964	477994	478024	478054	478084	478113	478143	478173	478203	478233	478263	25	3.
35	10. 478293	478322	478352	478382	478412	478442	478472	478502	478532	478561	478591	478621	24	4.
36	10. 478651	478681	478711	478741	478771	478801	478831	478860	478890	478920	478950	478980	23	1″ =
37	10. 479010	479040	479070	479100	479130	479160	479190	479220	479249	479279	479309	479339	22	2.
38	10. 479369	479399	479429	479459	479489	479519	479549	479579	479609	479639	479669	479699	21	3.
39	10. 479729	479759	479789	479819	479849	479879	479909	479939	479969	479999	480029	480059	20	4.
40	10. 480089	480119	480149	480179	480209	480239	480269	480299	480329	480359	480389	480419	19	1″ =
41	10. 480449	480479	480509	480539	480569	480599	480629	480659	480689	480719	480749	480780	18	2.
42	10. 480810	480840	480870	480900	480930	480960	480990	481020	481050	481080	481110	481140	17	3.
43	10. 481170	481201	481231	481261	481291	481321	481351	481381	481411	481441	481472	481502	16	4.
44	10. 481532	481562	481592	481622	481652	481682	481712	481743	481773	481803	481833	481863	15	1″ =
45	10. 481893	481923	481954	481984	482014	482044	482074	482104	482135	482165	482195	482225	14	2.
46	10. 482255	482285	482316	482346	482376	482406	482436	482467	482497	482527	482557	482587	13	3.
47	10. 482618	482648	482678	482708	482738	482769	482799	482829	482859	482889	482920	482950	12	4.
48	10. 482980	483010	483041	483071	483101	483131	483162	483192	483222	483252	483283	483313	11	1″ =
49	10. 483343	483373	483404	483434	483464	483494	483525	483555	483585	483615	483646	483676	10	2.
50	10. 483706	483737	483767	483797	483828	483858	483888	483918	483949	483979	484009	484040	9	3.
51	10. 484070	484100	484131	484161	484191	484222	484252	484282	484313	484343	484373	484404	8	4.
52	10. 484434	484464	484495	484525	484555	484586	484616	484646	484677	484707	484738	484768	7	1″ =
53	10. 484798	484829	484859	484889	484920	484950	484981	485011	485041	485072	485102	485132	6	2.
54	10. 485163	485193	485224	485254	485285	485315	485345	485376	485406	485437	485467	485497	5	3.
55	10. 485528	485558	485589	485619	485650	485680	485711	485741	485771	485802	485832	485863	4	4.
56	10. 485893	485924	485954	485985	486015	486046	486076	486107	486137	486167	486198	486228	3	1″ =
57	10. 486259	486289	486320	486350	486381	486411	486442	486472	486503	486533	486564	486594	2	2.
58	10. 486625	486655	486686	486717	486747	486778	486808	486839	486869	486900	486930	486961	1	3.
59	10. 486991	487022	487052	487083	487114	487144	487175	487205	487236	487266	487297	487327	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-secant of 19 degrees, or Secant of 109 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 71 degrees, or Co-secant of 161 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 487358	487389	487419	487450	487480	487511	487542	487572	487603	487633	487664	487694	59	1″ = 6
1	10. 487725	487756	487786	487817	487848	487878	487909	487939	487970	488001	488031	488062	58	2. 12
2	10. 488093	488123	488154	488184	488215	488246	488276	488307	488338	488368	488399	488430	57	3. 18
3	10. 488460	488491	488522	488552	488583	488614	488644	488675	488706	488736	488767	488798	56	4. 25
4	10. 488828	488859	488890	488920	488951	488982	489013	489043	489074	489105	489135	489166	55	1 = 6
5	10. 489197	489228	489258	489289	489320	489350	489381	489412	489443	489473	489504	489535	54	2. 12
6	10. 489566	489596	489627	489658	489689	489719	489750	489781	489812	489842	489873	489904	53	3. 18
7	10. 489935	489966	489996	490027	490058	490089	490120	490150	490181	490212	490243	490274	52	4. 25
8	10. 490304	490335	490366	490397	490428	490458	490489	490520	490551	490582	490613	490643	51	1 = 6
9	10. 490674	490705	490736	490767	490798	490828	490859	490890	490921	490952	490983	491014	50	2. 12
10	10. 491044	491075	491106	491137	491168	491199	491230	491261	491291	491322	491353	491384	49	3. 19
11	10. 491415	491446	491477	491508	491539	491569	491600	491631	491662	491693	491724	491755	48	4. 25
12	10. 491786	491817	491848	491879	491910	491941	491971	492002	492033	492064	492095	492126	47	1 = 6
13	10. 492157	492188	492219	492250	492281	492312	492343	492374	492405	492436	492467	492498	46	2. 12
14	10. 492529	492560	492591	492622	492653	492684	492715	492746	492777	492808	492839	492870	45	3. 19
15	10. 492901	492932	492963	492994	493025	493056	493087	493118	493149	493180	493211	493242	44	4. 25
16	10. 493273	493304	493335	493366	493397	493428	493459	493490	493522	493553	493584	493615	43	1 = 6
17	10. 493646	493677	493708	493739	493770	493801	493832	493863	493894	493926	493957	493988	42	2. 12
18	10. 494019	494050	494081	494112	494143	494174	494205	494237	494268	494299	494330	494361	41	3. 19
19	10. 494392	494423	494455	494486	494517	494548	494579	494610	494641	494673	494704	494735	40	4. 25
20	10. 494766	494797	494828	494860	494891	494922	494953	494984	495015	495047	495078	495109	39	1 = 6
21	10. 495140	495171	495203	495234	495265	495296	495327	495359	495390	495421	495452	495483	38	2. 13
22	10. 495515	495546	495577	495608	495640	495671	495702	495733	495764	495796	495827	495858	37	3. 19
23	10. 495889	495921	495952	495983	496014	496046	496077	496108	496140	496171	496202	496233	36	4. 25
24	10. 496265	496296	496327	496359	496390	496421	496452	496484	496515	496546	496578	496609	35	1 = 6
25	10. 496640	496672	496703	496734	496766	496797	496828	496859	496891	496922	496953	496985	34	2. 13
26	10. 497016	497048	497079	497110	497142	497173	497204	497236	497267	497298	497330	497361	33	3. 19
27	10. 497392	497424	497455	497487	497518	497549	497581	497612	497644	497675	497706	497738	32	4. 25
28	10. 497769	497801	497832	497863	497895	497926	497958	497989	498020	498052	498083	498115	31	1 = 6
29	10. 498146	498178	498209	498240	498272	498303	498335	498366	498398	498429	498461	498492	30	2. 13
30	10. 498524	498555	498586	498618	498649	498681	498712	498744	498775	498807	498838	498870	29	3. 19
31	10. 498901	498933	498964	498996	499027	499059	499090	499122	499153	499185	499216	499248	28	4. 25
32	10. 499279	499311	499342	499374	499405	499437	499469	499500	499532	499563	499595	499626	27	1 = 6
33	10. 499658	499689	499721	499753	499784	499816	499847	499879	499910	499942	499974	500005	26	2. 13
34	10. 500037	500068	500100	500131	500163	500195	500226	500258	500289	500321	500353	500384	25	3. 19
35	10. 500416	500448	500479	500511	500542	500574	500606	500637	500669	500701	500732	500764	24	4. 25
36	10. 500795	500827	500859	500890	500922	500954	500985	501017	501049	501080	501112	501144	23	1 = 6
37	10. 501175	501207	501239	501270	501302	501334	501366	501397	501429	501461	501492	501524	22	2. 13
38	10. 501556	501587	501619	501651	501683	501714	501746	501778	501810	501841	501873	501905	21	3. 19
39	10. 501936	501968	502000	502032	502063	502095	502127	502159	502190	502222	502254	502286	20	4. 25
40	10. 502318	502349	502381	502413	502445	502476	502508	502540	502572	502604	502635	502667	19	1 = 6
41	10. 502699	502731	502763	502794	502826	502858	502890	502922	502953	502985	503017	503049	18	2. 13
42	10. 503081	503113	503144	503176	503208	503240	503272	503304	503335	503367	503399	503431	17	3. 19
43	10. 503463	503495	503527	503559	503590	503622	503654	503686	503718	503750	503782	503814	16	4. 25
44	10. 503845	503877	503909	503941	503973	504005	504037	504069	504101	504133	504165	504196	15	1 = 6
45	10. 504228	504260	504292	504324	504356	504388	504420	504452	504484	504516	504548	504580	14	2. 13
46	10. 504612	504644	504676	504708	504740	504772	504803	504835	504867	504899	504931	504963	13	3. 19
47	10. 504995	505027	505059	505091	505123	505155	505187	505219	505251	505283	505315	505347	12	4. 26
48	10. 505379	505411	505443	505475	505508	505540	505572	505604	505636	505668	505700	505732	11	1 = 6
49	10. 505764	505796	505828	505860	505892	505924	505956	505988	506020	506052	506084	506117	10	2. 13
50	10. 506149	506181	506213	506245	506277	506309	506341	506373	506405	506437	506470	506502	9	3. 19
51	10. 506534	506566	506598	506630	506662	506694	506727	506759	506791	506823	506855	506887	8	4. 26
52	10. 506919	506952	506984	507016	507048	507080	507112	507144	507177	507209	507241	507273	7	1 = 6
53	10. 507305	507338	507370	507402	507434	507466	507498	507531	507563	507595	507627	507659	6	2. 13
54	10. 507692	507724	507756	507788	507821	507853	507885	507917	507949	507982	508014	508046	5	3. 19
55	10. 508078	508111	508143	508175	508207	508240	508272	508304	508336	508369	508401	508433	4	4. 26
56	10. 508465	508498	508530	508562	508595	508627	508659	508691	508724	508756	508788	508821	3	1 = 6
57	10. 508853	508885	508918	508950	508982	509014	509047	509079	509111	509144	509176	509208	2	2. 13
58	10. 509241	509273	509305	509338	509370	509402	509435	509467	509500	509532	509564	509597	1	3. 19
59	10. 509629	509661	509694	509726	509758	509791	509823	509856	509888	509920	509953	509985	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 18 degrees, or Secant of 108 degrees.													

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LOGARITHMIC SECANTS

Minutes	Secant of 72 degrees, or Co-secant of 162 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 510018	510050	510082	510115	510147	510180	510212	510244	510277	510309	510342	510374	59	1″ =
1	10. 510407	510439	510471	510504	510536	510569	510601	510634	510666	510699	510731	510764	58	2.
2	10. 510796	510828	510861	510893	510926	510958	510991	511023	511056	511088	511121	511153	57	3.
3	10. 511186	511218	511251	511283	511316	511348	511381	511413	511446	511478	511511	511543	56	4.
4	10. 511576	511608	511641	511674	511706	511739	511771	511804	511836	511869	511901	511934	55	1 =
5	10. 511966	511999	512032	512064	512097	512129	512162	512194	512227	512260	512292	512325	54	2.
6	10. 512357	512390	512423	512455	512488	512520	512553	512586	512618	512651	512683	512716	53	3.
7	10. 512749	512781	512814	512847	512879	512912	512945	512977	513010	513042	513075	513108	52	4.
8	10. 513140	513173	513206	513238	513271	513304	513336	513369	513402	513434	513467	513500	51	1 =
9	10. 513533	513565	513598	513631	513663	513696	513729	513761	513794	513827	513860	513892	50	2.
10	10. 513925	513958	513990	514023	514056	514089	514121	514154	514187	514220	514252	514285	49	3.
11	10. 514318	514351	514383	514416	514449	514482	514514	514547	514580	514613	514646	514678	48	4.
12	10. 514711	514744	514777	514810	514842	514875	514908	514941	514974	515006	515039	515072	47	1 =
13	10. 515105	515138	515171	515203	515236	515269	515302	515335	515368	515400	515433	515466	46	2.
14	10. 515499	515532	515565	515598	515630	515663	515696	515729	515762	515795	515828	515860	45	3.
15	10. 515893	515926	515959	515992	516025	516058	516091	516124	516157	516189	516222	516255	44	4.
16	10. 516288	516321	516354	516387	516420	516453	516486	516519	516552	516585	516618	516651	43	1 =
17	10. 516683	516716	516749	516782	516815	516848	516881	516914	516947	516980	517013	517046	42	2.
18	10. 517079	517112	517145	517178	517211	517244	517277	517310	517343	517376	517409	517442	41	3.
19	10. 517475	517508	517541	517574	517607	517640	517673	517706	517739	517772	517806	517839	40	4.
20	10. 517872	517905	517938	517971	518004	518037	518070	518103	518136	518169	518202	518235	39	1 =
21	10. 518268	518302	518335	518368	518401	518434	518467	518500	518533	518566	518599	518633	38	2.
22	10. 518666	518699	518732	518765	518798	518831	518864	518898	518931	518964	518997	519030	37	3.
23	10. 519063	519097	519130	519163	519196	519229	519262	519296	519329	519362	519395	519428	36	4.
24	10. 519461	519495	519528	519561	519594	519627	519661	519694	519727	519760	519793	519827	35	1 =
25	10. 519860	519893	519926	519960	519993	520026	520059	520092	520126	520159	520192	520225	34	2.
26	10. 520259	520292	520325	520358	520392	520425	520458	520492	520525	520558	520591	520625	33	3.
27	10. 520658	520691	520725	520758	520791	520824	520858	520891	520924	520958	520991	521024	32	4.
28	10. 521058	521091	521124	521158	521191	521224	521258	521291	521324	521358	521391	521424	31	1 =
29	10. 521458	521491	521524	521558	521591	521624	521658	521691	521725	521758	521791	521825	30	2.
30	10. 521858	521892	521925	521958	521992	522025	522059	522092	522125	522159	522192	522226	29	3.
31	10. 522259	522292	522326	522359	522393	522426	522460	522493	522526	522560	522593	522627	28	4.
32	10. 522660	522694	522727	522761	522794	522828	522861	522895	522928	522962	522995	523029	27	1 =
33	10. 523062	523095	523129	523162	523196	523229	523263	523296	523330	523364	523397	523431	26	2.
34	10. 523464	523498	523531	523565	523598	523632	523665	523699	523732	523766	523799	523833	25	3.
35	10. 523867	523900	523934	523967	524001	524034	524068	524102	524135	524169	524202	524236	24	4.
36	10. 524270	524303	524337	524370	524404	524438	524471	524505	524538	524572	524606	524639	23	1 =
37	10. 524673	524706	524740	524774	524807	524841	524875	524908	524942	524976	525009	525043	22	2.
38	10. 525077	525110	525144	525178	525211	525245	525279	525312	525346	525380	525413	525447	21	3.
39	10. 525481	525514	525548	525582	525616	525649	525683	525717	525750	525784	525818	525852	20	4.
40	10. 525885	525919	525953	525987	526020	526054	526088	526121	526155	526189	526223	526257	19	1 =
41	10. 526290	526324	526358	526392	526425	526459	526493	526527	526561	526594	526628	526662	18	2.
42	10. 526696	526729	526763	526797	526831	526865	526899	526932	526966	527000	527034	527068	17	3.
43	10. 527101	527135	527169	527203	527237	527271	527305	527338	527372	527406	527440	527474	16	4.
44	10. 527508	527542	527575	527609	527643	527677	527711	527745	527779	527813	527847	527880	15	1 =
45	10. 527914	527948	527982	528016	528050	528084	528118	528152	528186	528220	528254	528287	14	2.
46	10. 528321	528355	528389	528423	528457	528491	528525	528559	528593	528627	528661	528695	13	3.
47	10. 528729	528763	528797	528831	528865	528899	528933	528967	529001	529035	529069	529103	12	4.
48	10. 529137	529171	529205	529239	529273	529307	529341	529375	529409	529443	529477	529511	11	1 =
49	10. 529545	529579	529613	529647	529681	529715	529749	529784	529818	529852	529886	529920	10	2.
50	10. 529954	529988	530022	530056	530090	530124	530158	530192	530227	530261	530295	530329	9	3.
51	10. 530363	530397	530431	530465	530500	530534	530568	530602	530636	530670	530704	530738	8	4.
52	10. 530773	530807	530841	530875	530909	530943	530978	531012	531046	531080	531114	531148	7	1 =
53	10. 531183	531217	531251	531285	531319	531354	531388	531422	531456	531490	531525	531559	6	2.
54	10. 531593	531627	531662	531696	531730	531764	531798	531833	531867	531901	531935	531970	5	3.
55	10. 532004	532038	532072	532107	532141	532175	532210	532244	532278	532312	532347	532381	4	4.
56	10. 532415	532449	532484	532518	532552	532587	532621	532655	532690	532724	532758	532793	3	1 =
57	10. 532827	532861	532896	532930	532964	532999	533033	533067	533102	533136	533170	533205	2	2.
58	10. 533239	533273	533308	533342	533377	533411	533445	533480	533514	533548	533583	533617	1	3.
59	10. 533652	533686	533720	533755	533789	533824	533858	533892	533927	533961	533996	534030	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 17 degrees, or Secant of 107 degrees.													

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LOGARITHMIC SECANTS.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
	Secant of 73 degrees, or Co-secant of 163 degrees.													
0	10. 534065	534099	534133	534168	534202	534237	534271	534306	534340	534375	534409	534444	59	1″ = 7
1	10. 534478	534513	534547	534581	534616	534650	534685	534719	534754	534788	534823	534857	58	2. 14
2	10. 534892	534926	534961	534995	535030	535064	535099	535134	535168	535203	535237	535272	57	3. 21
3	10. 535306	535341	535375	535410	535444	535479	535513	535548	535583	535617	535652	535686	56	4. 28
4	10. 535721	535755	535790	535825	535859	535894	535928	535963	535998	536032	536067	536101	55	1 = 7
5	10. 536136	536171	536205	536240	536275	536309	536344	536378	536413	536448	536482	536517	54	2. 14
6	10. 536552	536586	536621	536656	536690	536725	536760	536794	536829	536864	536898	536933	53	3. 21
7	10. 536968	537002	537037	537072	537107	537141	537176	537211	537245	537280	537315	537349	52	4. 28
8	10. 537384	537419	537454	537488	537523	537558	537593	537627	537662	537697	537732	537766	51	1 = 7
9	10. 537801	537836	537871	537905	537940	537975	538010	538044	538079	538114	538149	538184	50	2. 14
10	10. 538218	538253	538288	538223	538358	538392	538427	538462	538497	538532	538566	538601	49	3. 21
11	10. 538636	538671	538706	538741	538775	538810	538845	538880	538915	538950	538985	539019	48	4. 28
12	10. 539054	539089	539124	539159	539194	539229	539264	539298	539333	539368	539403	539438	47	1 = 7
13	10. 539473	539508	539543	539578	539613	539648	539682	539717	539752	539787	539822	539857	46	2. 14
14	10. 539892	539927	539962	539997	540032	540067	540102	540137	540172	540207	540242	540277	45	3. 21
15	10. 540312	540347	540382	540417	540452	540487	540522	540557	540592	540627	540662	540697	44	4. 28
16	10. 540732	540767	540802	540837	540872	540907	540942	540977	541012	541047	541082	541117	43	1 = 7
17	10. 541152	541187	541222	541257	541292	541327	541362	541397	541433	541468	541503	541538	42	2. 14
18	10. 541573	541608	541643	541678	541713	541748	541783	541819	541854	541889	541924	541959	41	3. 21
19	10. 541994	542029	542064	542100	542135	542170	542205	542240	542275	542310	542346	542381	40	4. 28
20	10. 542416	542451	542486	542521	542557	542592	542627	542662	542697	542733	542768	542803	39	1 = 7
21	10. 542838	542873	542909	542944	542979	543014	543049	543085	543120	543155	543190	543226	38	2. 14
22	10. 543261	543296	543331	543366	543402	543437	543472	543508	543543	543578	543613	543649	37	3. 21
23	10. 543684	543719	543754	543790	543825	543860	543896	543931	543966	544001	544037	544072	36	4. 28
24	10. 544107	544143	544178	544213	544249	544284	544319	544355	544390	544425	544461	544496	35	1 = 7
25	10. 544531	544567	544602	544637	544673	544708	544744	544779	544814	544850	544885	544920	34	2. 14
26	10. 544956	544991	545027	545062	545097	545133	545168	545204	545239	545274	545310	545345	33	3. 21
27	10. 545381	545416	545452	545487	545522	545558	545593	545629	545664	545700	545735	545771	32	4. 28
28	10. 545806	545842	545877	545912	545948	545983	546019	546054	546090	546125	546161	546196	31	1 = 7
29	10. 546232	546267	546303	546338	546374	546409	546445	546480	546516	546552	546587	546623	30	2. 14
30	10. 546658	546694	546729	546765	546800	546836	546871	546907	546943	546978	547014	547049	29	3. 21
31	10. 547085	547120	547156	547192	547227	547263	547298	547334	547370	547405	547441	547476	28	4. 28
32	10. 547512	547548	547583	547619	547655	547690	547726	547761	547797	547833	547868	547904	27	1 = 7
33	10. 547940	547975	548011	548047	548082	548118	548154	548189	548225	548261	548296	548332	26	2. 14
34	10. 548368	548403	548439	548475	548511	548546	548582	548618	548653	548689	548725	548761	25	3. 21
35	10. 548796	548832	548868	548904	548939	548975	549011	549046	549082	549118	549154	549190	24	4. 29
36	10. 549225	549261	549297	549333	549368	549404	549440	549476	549512	549547	549583	549619	23	1 = 7
37	10. 549655	549691	549726	549762	549798	549834	549870	549906	549941	549977	550013	550049	22	2. 14
38	10. 550085	550121	550156	550192	550228	550264	550300	550336	550372	550407	550443	550479	21	3. 22
39	10. 550515	550551	550587	550623	550659	550695	550730	550766	550802	550838	550874	550910	20	4. 29
40	10. 550946	550982	551018	551054	551090	551126	551162	551197	551233	551269	551305	551341	19	1 = 7
41	10. 551377	551413	551449	551485	551521	551557	551593	551629	551665	551701	551737	551773	18	2. 14
42	10. 551809	551845	551881	551917	551953	551989	552025	552061	552097	552133	552169	552205	17	3. 22
43	10. 552241	552273	552313	552349	552385	552422	552458	552494	552530	552566	552602	552638	16	4. 29
44	10. 552674	552710	552746	552782	552818	552854	552891	552927	552963	552999	553035	553071	15	1 = 7
45	10. 553107	553143	553179	553216	553252	553288	553324	553360	553396	553432	553469	553505	14	2. 14
46	10. 553541	553577	553613	553649	553686	553722	553758	553794	553830	553866	553903	553939	13	3. 22
47	10. 553975	554011	554047	554084	554120	554156	554192	554228	554265	554301	554337	554373	12	4. 29
48	10. 554410	554446	554482	554518	554555	554591	554627	554663	554700	554736	554772	554808	11	1 = 7
49	10. 554845	554881	554917	554954	554990	555026	555062	555099	555135	555171	555208	555244	10	2. 15
50	10. 555280	555317	555353	555389	555425	555462	555498	555534	555571	555607	555644	555680	9	3. 22
51	10. 555716	555753	555789	555825	555862	555898	555934	555971	556007	556044	556080	556116	8	4. 29
52	10. 556153	556189	556226	556262	556298	556335	556371	556408	556444	556480	556517	556553	7	1 = 7
53	10. 556590	556626	556663	556699	556735	556772	556808	556845	556881	556918	556954	556991	6	2. 15
54	10. 557027	557064	557100	557137	557173	557210	557246	557283	557319	557356	557392	557429	5	3. 22
55	10. 557465	557502	557538	557575	557611	557648	557684	557721	557757	557794	557830	557867	4	4. 29
56	10. 557903	557940	557977	558013	558050	558086	558123	558159	558196	558233	558269	558306	3	1 = 7
57	10. 558342	558379	558416	558452	558489	558525	558562	558599	558635	558672	558708	558745	2	2. 15
58	10. 558782	558818	558855	558892	558928	558965	559002	559038	559075	559112	559148	559185	1	3. 22
59	10. 559222	559258	559295	559332	559368	559405	559442	559478	559515	559552	559588	559625	0	4. 29
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-secant of 16 degrees, or Secant of 106 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 74 degrees, or Co-secant of 164 degrees.												Minutes	Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	10. 559662	559699	559735	559772	559809	559845	559882	559919	559956	559992	560029	560066	59	1″ =
1	10. 560103	560139	560176	560213	560250	560287	560323	560360	560397	560434	560470	560507	58	2.
2	10. 560544	560581	560618	560654	560691	560728	560765	560802	560838	560875	560912	560949	57	3.
3	10. 560986	561023	561059	561096	561133	561170	561207	561244	561281	561317	561354	561391	56	4.
4	10. 561428	561465	561502	561539	561576	561612	561649	561686	561723	561760	561797	561834	55	1″ =
5	10. 561871	561908	561945	561982	562018	562055	562092	562129	562166	562203	562240	562277	54	2.
6	10. 562314	562351	562388	562425	562462	562499	562536	562573	562610	562647	562684	562721	53	3.
7	10. 562758	562795	562832	562869	562906	562943	562980	563017	563054	563091	563128	563165	52	4.
8	10. 563202	563239	563276	563313	563350	563387	563424	563461	563498	563535	563573	563610	51	1″ =
9	10. 563647	563684	563721	563758	563795	563832	563869	563906	563943	563981	564018	564055	50	2.
10	10. 564092	564129	564166	564203	564240	564278	564315	564352	564389	564426	564463	564500	49	3.
11	10. 564538	564575	564612	564649	564686	564723	564761	564798	564835	564872	564909	564947	48	4.
12	10. 564984	565021	565058	565095	565133	565170	565207	565244	565282	565319	565356	565393	47	1″ =
13	10. 565431	565468	565505	565542	565580	565617	565654	565691	565729	565766	565803	565840	46	2.
14	10. 565878	565915	565952	565990	566027	566064	566101	566139	566176	566213	566251	566288	45	3.
15	10. 566325	566363	566400	566437	566475	566512	566549	566587	566624	566661	566699	566736	44	4.
16	10. 566774	566811	566848	566886	566923	566960	566998	567035	567073	567110	567147	567185	43	1″ =
17	10. 567222	567260	567297	567335	567372	567409	567447	567484	567522	567559	567597	567634	42	2.
18	10. 567671	567709	567746	567784	567821	567859	567896	567934	567971	568009	568046	568084	41	3.
19	10. 568121	568159	568196	568234	568271	568309	568346	568384	568421	568459	568496	568534	40	4.
20	10. 568571	568609	568646	568684	568721	568759	568797	568834	568872	568909	568947	568984	39	1″ =
21	10. 569022	569060	569097	569135	569172	569210	569248	569285	569323	569360	569398	569436	38	2.
22	10. 569473	569511	569548	569586	569624	569661	569699	569737	569774	569812	569850	569887	37	3.
23	10. 569925	569963	570000	570038	570076	570113	570151	570189	570226	570264	570302	570339	36	4.
24	10. 570377	570415	570453	570490	570528	570566	570603	570641	570679	570717	570754	570792	35	1″ =
25	10. 570830	570868	570905	570943	570981	571019	571056	571094	571132	571170	571208	571245	34	2.
26	10. 571283	571321	571359	571396	571434	571472	571510	571548	571586	571623	571661	571699	33	3.
27	10. 571737	571775	571813	571850	571888	571926	571964	572002	572040	572077	572115	572153	32	4.
28	10. 572191	572229	572267	572305	572343	572381	572418	572456	572494	572532	572570	572608	31	1″ =
29	10. 572646	572684	572722	572760	572798	572835	572873	572911	572949	572987	573025	573063	30	2.
30	10. 573101	573139	573177	573215	573253	573291	573329	573367	573405	573443	573481	573519	29	3.
31	10. 573557	573595	573633	573671	573709	573747	573785	573823	573861	573899	573937	573975	28	4.
32	10. 574013	574051	574089	574127	574165	574204	574242	574280	574318	574356	574394	574432	27	1″ =
33	10. 574470	574508	574546	574584	574622	574661	574699	574737	574775	574813	574851	574889	26	2.
34	10. 574927	574966	575004	575042	575080	575118	575156	575194	575233	575271	575309	575347	25	3.
35	10. 575385	575423	575462	575500	575538	575576	575614	575653	575691	575729	575767	575805	24	4.
36	10. 575844	575882	575920	575958	575997	576035	576073	576111	576150	576188	576226	576264	23	1″ =
37	10. 576303	576341	576379	576417	576456	576494	576532	576570	576609	576647	576685	576724	22	2.
38	10. 576762	576800	576839	576877	576915	576954	576992	577030	577069	577107	577145	577184	21	3.
39	10. 577222	577260	577299	577337	577375	577414	577452	577490	577529	577567	577606	577644	20	4.
40	10. 577682	577721	577759	577798	577836	577874	577913	577951	577990	578028	578067	578105	19	1″ =
41	10. 578143	578182	578220	578259	578297	578336	578374	578413	578451	578489	578528	578566	18	2.
42	10. 578605	578643	578682	578720	578759	578797	578836	578874	578913	578951	578990	579028	17	3.
43	10. 579067	579105	579144	579183	579221	579260	579298	579337	579375	579414	579452	579491	16	4.
44	10. 579530	579568	579607	579645	579684	579722	579761	579800	579838	579877	579915	579954	15	1″ =
45	10. 579993	580031	580070	580109	580147	580186	580224	580263	580302	580340	580379	580418	14	2.
46	10. 580456	580495	580534	580572	580611	580650	580688	580727	580766	580804	580843	580882	13	3.
47	10. 580920	580959	580998	581037	581075	581114	581153	581191	581230	581269	581308	581346	12	4.
48	10. 581385	581424	581463	581501	581540	581579	581618	581657	581695	581734	581773	581812	11	1″ =
49	10. 581850	581889	581928	581967	582006	582044	582083	582122	582161	582200	582239	582277	10	2.
50	10. 582316	582355	582394	582433	582472	582510	582549	582588	582627	582666	582705	582744	9	3.
51	10. 582783	582821	582860	582899	582938	582977	583016	583055	583094	583133	583172	583210	8	4.
52	10. 583249	583288	583327	583366	583405	583444	583483	583522	583561	583600	583639	583678	7	1″ =
53	10. 583717	583756	583795	583834	583873	583912	583951	583990	584029	584068	584107	584146	6	2.
54	10. 584185	584224	584263	584302	584341	584380	584419	584458	584497	584536	584575	584614	5	3.
55	10. 584653	584692	584731	584770	584809	584849	584888	584927	584966	585005	585044	585083	4	4.
56	10. 585122	585161	585200	585240	585279	585318	585357	585396	585435	585474	585513	585553	3	1″ =
57	10. 585592	585631	585670	585709	585748	585788	585827	585866	585905	585944	585983	586023	2	2.
58	10. 586062	586101	586140	586179	586219	586258	586297	586336	586376	586415	586454	586493	1	3.
59	10. 586533	586572	586611	586650	586690	586729	586768	586807	586847	586886	586925	586964	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5	Minutes	Propor. parts.
	Co-secant of 15 degrees, or Secant of 105 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 75 degrees, or Co-secant of 165 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 587004	587043	587082	587122	587161	587200	587240	587279	587318	587357	587397	587436	59	1″ = 8
1	10. 587475	587515	587554	587593	587633	587672	587712	587751	587790	587830	587869	587908	58	2. 16
2	10. 587948	587987	588027	588066	588105	588145	588184	588224	588263	588302	588342	588381	57	3. 24
3	10. 588421	588460	588499	588539	588578	588618	588657	588697	588736	588776	588815	588855	56	4. 32
4	10. 588894	588933	588973	589012	589052	589091	589131	589170	589210	589249	589289	589328	55	1 = 8
5	10. 589368	589407	589447	589487	589526	589566	589605	589645	589684	589724	589763	589803	54	2. 16
6	10. 589842	589882	589922	589961	590001	590040	590080	590120	590159	590199	590238	590278	53	3. 24
7	10. 590318	590357	590397	590436	590476	590516	590555	590595	590635	590674	590714	590754	52	4. 32
8	10. 590793	590833	590872	590912	590952	590992	591031	591071	591111	591150	591190	591230	51	1 = 8
9	10. 591269	591309	591349	591388	591428	591468	591508	591547	591587	591627	591667	591706	50	2. 16
10	10. 591746	591786	591826	591865	591905	591945	591985	592024	592064	592104	592144	592184	49	3. 24
11	10. 592223	592263	592303	592343	592383	592422	592462	592502	592542	592582	592622	592661	48	4. 32
12	10. 592701	592741	592781	592821	592861	592901	592940	592980	593020	593060	593100	593140	47	1 = 8
13	10. 593180	593220	593259	593299	593339	593379	593419	593459	593499	593539	593579	593619	46	2. 16
14	10. 593659	593699	593739	593779	593818	593858	593898	593938	593978	594018	594058	594098	45	3. 24
15	10. 594138	594178	594218	594258	594298	594338	594378	594418	594458	594498	594538	594578	44	4. 32
16	10. 594618	594658	594698	594738	594779	594819	594859	594899	594939	594979	595019	595059	43	1 = 8
17	10. 595099	595139	595179	595219	595259	595299	595340	595380	595420	595460	595500	595540	42	2. 16
18	10. 595580	595620	595661	595701	595741	595781	595821	595861	595901	595942	595982	596022	41	3. 24
19	10. 596062	596102	596142	596183	596223	596263	596303	596343	596384	596424	596464	596504	40	4. 32
20	10. 596545	596585	596625	596665	596705	596746	596786	596826	596866	596907	596947	596987	39	1 = 8
21	10. 597028	597068	597108	597148	597189	597229	597269	597310	597350	597390	597430	597471	38	2. 16
22	10. 597511	597551	597592	597632	597672	597713	597753	597793	597834	597874	597914	597955	37	3. 24
23	10. 597995	598036	598076	598116	598157	598197	598237	598278	598318	598359	598399	598439	36	4. 32
24	10. 598480	598520	598561	598601	598642	598682	598722	598763	598803	598844	598884	598925	35	1 = 8
25	10. 598965	599006	599046	599087	599127	599168	599208	599249	599289	599330	599370	599411	34	2. 16
26	10. 599451	599492	599532	599573	599613	599654	599694	599735	599775	599816	599856	599897	33	3. 24
27	10. 599937	599978	600019	600059	600100	600140	600181	600222	600262	600303	600343	600384	32	4. 32
28	10. 600425	600465	600506	600546	600587	600628	600668	600709	600750	600790	600831	600871	31	1 = 8
29	10. 600912	600953	600993	601034	601075	601115	601156	601197	601238	601278	601319	601360	30	2. 16
30	10. 601400	601441	601482	601522	601563	601604	601645	601685	601726	601767	601808	601848	29	3. 24
31	10. 601889	601930	601971	602011	602052	602093	602134	602174	602215	602256	602297	602338	28	4. 33
32	10. 602378	602419	602460	602501	602542	602583	602623	602664	602705	602746	602787	602828	27	1 = 8
33	10. 602868	602909	602950	602991	603032	603073	603114	603154	603195	603236	603277	603318	26	2. 16
34	10. 603359	603400	603441	603482	603523	603564	603604	603645	603686	603727	603768	603809	25	3. 25
35	10. 603850	603891	603932	603973	604014	604055	604096	604137	604178	604219	604260	604301	24	4. 33
36	10. 604342	604383	604424	604465	604506	604547	604588	604629	604670	604711	604752	604793	23	1 = 8
37	10. 604834	604875	604916	604957	604998	605039	605081	605122	605163	605204	605245	605286	22	2. 16
38	10. 605327	605368	605409	605450	605492	605533	605574	605615	605656	605697	605738	605779	21	3. 25
39	10. 605821	605862	605903	605944	605985	606026	606068	606109	606150	606191	606232	606274	20	4. 33
40	10. 606315	606356	606397	606438	606480	606521	606562	606603	606644	606686	606727	606768	19	1 = 8
41	10. 606809	606851	606892	606933	606974	607016	607057	607098	607140	607181	607222	607263	18	2. 17
42	10. 607305	607346	607387	607429	607470	607511	607553	607594	607635	607677	607718	607759	17	3. 25
43	10. 607801	607842	607883	607925	607966	608007	608049	608090	608132	608173	608214	608256	16	4. 33
44	10. 608297	608339	608380	608421	608463	608504	608546	608587	608629	608670	608711	608753	15	1 = 8
45	10. 608794	608836	608877	608919	608960	609002	609043	609085	609126	609168	609209	609251	14	2. 17
46	10. 609292	609334	609375	609417	609458	609500	609541	609583	609624	609666	609707	609749	13	3. 25
47	10. 609790	609832	609873	609915	609957	609998	610040	610081	610123	610165	610206	610248	12	4. 33
48	10. 610289	610331	610373	610414	610456	610497	610539	610581	610622	610664	610706	610747	11	1 = 8
49	10. 610789	610831	610872	610914	610956	610997	611039	611081	611122	611164	611206	611247	10	2. 17
50	10. 611289	611331	611372	611414	611456	611498	611539	611581	611623	611665	611706	611748	9	3. 25
51	10. 611790	611832	611873	611915	611957	611999	612040	612082	612124	612166	612208	612249	8	4. 33
52	10. 612291	612333	612375	612417	612459	612500	612542	612584	612626	612668	612710	612751	7	1 = 8
53	10. 612793	612835	612877	612919	612961	613003	613045	613086	613128	613170	613212	613254	6	2. 17
54	10. 613296	613338	613380	613422	613464	613506	613547	613589	613631	613673	613715	613757	5	3. 25
55	10. 613799	613841	613883	613925	613967	614009	614051	614093	614135	614177	614219	614261	4	4. 34
56	10. 614303	614345	614387	614429	614471	614513	614555	614597	614639	614681	614723	614765	3	1 = 8
57	10. 614808	614850	614892	614934	614976	615018	615060	615102	615144	615186	615228	615271	2	2. 17
58	10. 615313	615355	615397	615439	615481	615523	615565	615608	615650	615692	615734	615776	1	3. 25
59	10. 615818	615861	615903	615945	615987	616029	616072	616114	616156	616198	616240	616283	0	4. 34
Minutes	60′	55″	50′	45″	40′	35″	30′	25′	20′	15′	10′	5″	Minutes	Propor. parts.
	Co-secant of 14 degrees, or Secant of 104 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 76 degrees, or Co-secant of 166 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 616325	616367	616409	616451	616494	616536	616578	616620	616663	616705	616747	616789	59	1″ =
1	10. 616832	616874	616916	616959	617001	617043	617086	617128	617170	617212	617255	617297	58	2.
2	10. 617339	617382	617424	617466	617509	617551	617593	617636	617678	617721	617763	617805	57	3.
3	10. 617848	617890	617932	617975	618017	618060	618102	618144	618187	618229	618272	618314	56	4.
4	10. 618357	618399	618441	618484	618526	618569	618611	618654	618696	618739	618781	618824	55	1 =
5	10. 618866	618909	618951	618994	619036	619079	619121	619164	619206	619249	619291	619334	54	2.
6	10. 619376	619419	619461	619504	619546	619589	619632	619674	619717	619759	619802	619844	53	3.
7	10. 619887	619930	619972	620015	620057	620100	620143	620185	620228	620271	620313	620356	52	4.
8	10. 620398	620441	620484	620526	620569	620612	620654	620697	620740	620782	620825	620868	51	1 =
9	10. 620911	620953	620996	621039	621081	621124	621167	621210	621252	621295	621338	621381	50	2.
10	10. 621423	621466	621509	621552	621594	621637	621680	621723	621765	621808	621851	621894	49	3.
11	10. 621937	621979	622022	622065	622108	622151	622194	622236	622279	622322	622365	622408	48	4.
12	10. 622451	622494	622536	622579	622622	622665	622708	622751	622794	622837	622879	622922	47	1 =
13	10. 622965	623008	623051	623094	623137	623180	623223	623266	623309	623352	623395	623438	46	2.
14	10. 623481	623524	623567	623610	623653	623695	623738	623781	623824	623867	623911	623954	45	3.
15	10. 623997	624040	624083	624126	624169	624212	624255	624298	624341	624384	624427	624470	44	4.
16	10. 624513	624556	624599	624642	624685	624729	624772	624815	624858	624901	624944	624987	43	1 =
17	10. 625030	625074	625117	625160	625203	625246	625289	625332	625376	625419	625462	625505	42	2.
18	10. 625548	625591	625635	625678	625721	625764	625807	625851	625894	625937	625980	626024	41	3.
19	10. 626067	626110	626153	626197	626240	626283	626326	626370	626413	626456	626499	626543	40	4.
20	10. 626586	626629	626673	626716	626759	626803	626846	626889	626933	626976	627019	627063	39	1 =
21	10. 627106	627149	627193	627236	627279	627323	627366	627410	627453	627496	627540	627583	38	2.
22	10. 627626	627670	627713	627757	627800	627844	627887	627930	627974	628017	628061	628104	37	3.
23	10. 628148	628191	628235	628278	628322	628365	628409	628452	628496	628539	628583	628626	36	4.
24	10. 628670	628713	628757	628800	628844	628887	628931	628974	629018	629061	629105	629148	35	1 =
25	10. 629192	629236	629279	629323	629366	629410	629454	629497	629541	629584	629628	629672	34	2.
26	10. 629715	629759	629803	629846	629890	629933	629977	630021	630064	630108	630152	630195	33	3.
27	10. 630239	630283	630326	630370	630414	630458	630501	630545	630589	630632	630676	630720	32	4.
28	10. 630764	630807	630851	630895	630939	630982	631026	631070	631114	631157	631201	631245	31	1 =
29	10. 631289	631333	631376	631420	631464	631508	631552	631596	631639	631683	631727	631771	30	2.
30	10. 631815	631859	631903	631946	631990	632034	632078	632122	632166	632210	632253	632297	29	3.
31	10. 632341	632385	632429	632473	632517	632561	632605	632649	632693	632737	632781	632825	28	4.
32	10. 632868	632912	632956	633000	633044	633088	633132	633176	633220	633264	633308	633352	27	1 =
33	10. 633396	633440	633484	633528	633572	633617	633661	633705	633749	633793	633837	633881	26	2.
34	10. 633925	633969	634013	634057	634101	634145	634189	634234	634278	634322	634366	634410	25	3.
35	10. 634454	634498	634542	634587	634631	634675	634719	634763	634807	634852	634896	634940	24	4.
36	10. 634984	635028	635073	635117	635161	635205	635249	635294	635338	635382	635426	635471	23	1 =
37	10. 635515	635559	635603	635648	635692	635736	635780	635825	635869	635913	635957	636002	22	2.
38	10. 636046	636090	636135	636179	636223	636268	636312	636356	636401	636445	636489	636534	21	3.
39	10. 636578	636622	636667	636711	636756	636800	636844	636889	636933	636978	637022	637066	20	4.
40	10. 637111	637155	637200	637244	637288	637333	637377	637422	637466	637511	637555	637600	19	1 =
41	10. 637644	637689	637733	637778	637822	637867	637911	637956	638000	638045	638089	638134	18	2.
42	10. 638178	638223	638267	638312	638356	638401	638446	638490	638535	638579	638624	638668	17	3.
43	10. 638713	638758	638802	638847	638891	638936	638981	639025	639070	639115	639159	639204	16	4.
44	10. 639248	639293	639338	639382	639427	639472	639516	639561	639606	639650	639695	639740	15	1 =
45	10. 639785	639829	639874	639919	639963	640008	640053	640098	640142	640187	640232	640277	14	2.
46	10. 640321	640366	640411	640456	640501	640545	640590	640635	640680	640725	640769	640814	13	3.
47	10. 640859	640904	640949	640994	641038	641083	641128	641173	641218	641263	641308	641352	12	4.
48	10. 641397	641442	641487	641532	641577	641622	641667	641712	641757	641801	641846	641891	11	1 =
49	10. 641936	641981	642026	642071	642116	642161	642206	642251	642296	642341	642386	642431	10	2.
50	10. 642476	642521	642566	642611	642656	642701	642746	642791	642836	642881	642926	642971	9	3.
51	10. 643016	643061	643106	643152	643197	643242	643287	643332	643377	643422	643467	643512	8	4.
52	10. 643557	643603	643648	643693	643738	643783	643828	643873	643919	643964	644009	644054	7	1 =
53	10. 644099	644144	644190	644235	644280	644325	644370	644416	644461	644506	644551	644596	6	2.
54	10. 644642	644687	644732	644777	644823	644868	644913	644959	645004	645049	645094	645140	5	3.
55	10. 645185	645230	645276	645321	645366	645412	645457	645502	645548	645593	645638	645684	4	4.
56	10. 645729	645774	645820	645865	645910	645956	646001	646047	646092	646137	646183	646228	3	1 =
57	10. 646274	646319	646364	646410	646455	646501	646546	646592	646637	646683	646728	646773	2	2.
58	10. 646819	646864	646910	646955	647001	647046	647092	647137	647183	647228	647274	647320	1	3.
59	10. 647365	647411	647456	647502	647547	647593	647638	647684	647730	647775	647821	647866	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-secant of 13 degrees, or Secant of 103 degrees.													

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LOGARITHMIC SECANTS.

Secant of 77 degrees, or Co-secant of 167 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.647912	647958	648003	648049	648094	648140	648186	648231	648277	648323	648368	648414	59	1″ = 9
1	10.648459	648505	648551	648596	648642	648688	648734	648779	648825	648871	648916	648962	58	2. 18
2	10.649008	649053	649099	649145	649191	649236	649282	649328	649374	649419	649465	649511	57	3. 27
3	10.649557	649603	649648	649694	649740	649786	649832	649877	649923	649969	650015	650061	56	4. 37
4	10.650107	650152	650198	650244	650290	650336	650382	650428	650473	650519	650565	650611	55	1 = 9
5	10.650657	650703	650749	650795	650841	650887	650933	650978	651024	651070	651116	651162	54	2. 18
6	10.651208	651254	651300	651346	651392	651438	651484	651530	651576	651622	651668	651714	53	3. 28
7	10.651760	651806	651852	651898	651944	651990	652036	652083	652129	652175	652221	652267	52	4. 37
8	10.652313	652359	652405	652451	652497	652543	652590	652636	652682	652728	652774	652820	51	1 = 9
9	10.652866	652913	652959	653005	653051	653097	653143	653190	653236	653282	653328	653374	50	2. 19
10	10.653421	653467	653513	653559	653605	653652	653698	653744	653790	653837	653883	653929	49	3. 28
11	10.653975	654022	654068	654114	654161	654207	654253	654300	654346	654392	654438	654485	48	4. 37
12	10.654531	654577	654624	654670	654717	654763	654809	654856	654902	654948	654995	655041	47	1 = 9
13	10.655088	655134	655180	655227	655273	655320	655366	655412	655459	655505	655552	655598	46	2. 19
14	10.655645	655691	655738	655784	655831	655877	655924	655970	656017	656063	656110	656156	45	3. 28
15	10.656203	656249	656296	656342	656389	656435	656482	656528	656575	656622	656668	656715	44	4. 37
16	10.656761	656808	656855	656901	656948	656994	657041	657088	657134	657181	657227	657274	43	1 = 9
17	10.657321	657367	657414	657461	657507	657554	657601	657647	657694	657741	657788	657834	42	2. 19
18	10.657881	657928	657974	658021	658068	658115	658161	658208	658255	658302	658348	658395	41	3. 28
19	10.658442	658489	658536	658582	658629	658676	658723	658770	658816	658863	658910	658957	40	4. 37
20	10.659004	659050	659097	659144	659191	659238	659285	659332	659379	659425	659472	659519	39	1 = 9
21	10.659566	659613	659660	659707	659754	659801	659848	659895	659942	659988	660035	660082	38	2. 19
22	10.660129	660176	660223	660270	660317	660364	660411	660458	660505	660552	660599	660646	37	3. 28
23	10.660693	660740	660787	660835	660882	660929	660976	661023	661070	661117	661164	661211	36	4. 38
24	10.661258	661305	661352	661400	661447	661494	661541	661588	661635	661682	661729	661777	35	1 = 9
25	10.661824	661871	661918	661965	662012	662060	662107	662154	662201	662248	662296	662343	34	2. 19
26	10.662390	662437	662485	662532	662579	662626	662674	662721	662768	662815	662863	662910	33	3. 28
27	10.662957	663004	663052	663099	663146	663194	663241	663288	663336	663383	663430	663478	32	4. 38
28	10.663525	663572	663620	663667	663715	663762	663809	663857	663904	663952	663999	664046	31	1 = 10
29	10.664094	664141	664189	664236	664283	664331	664378	664426	664473	664521	664568	664616	30	2. 19
30	10.664663	664711	664758	664806	664853	664901	664948	664996	665043	665091	665138	665186	29	3. 29
31	10.665233	665281	665329	665376	665424	665471	665519	665566	665614	665662	665709	665757	28	4. 38
32	10.665804	665852	665900	665947	665995	666043	666090	666138	666186	666233	666281	666329	27	1 = 10
33	10.666376	666424	666472	666519	666567	666615	666662	666710	666758	666806	666853	666901	26	2. 19
34	10.666949	666997	667044	667092	667140	667188	667235	667283	667331	667379	667427	667474	25	3. 29
35	10.667522	667570	667618	667666	667714	667761	667809	667857	667905	667953	668001	668049	24	4. 38
36	10.668096	668144	668192	668240	668288	668336	668384	668432	668480	668528	668576	668623	23	1 = 10
37	10.668671	668719	668767	668815	668863	668911	668959	669007	669055	669103	669151	669199	22	2. 19
38	10.669247	669295	669343	669391	669439	669487	669535	669583	669632	669680	669728	669776	21	3. 29
39	10.669824	669872	669920	669968	670016	670064	670112	670161	670209	670257	670305	670353	20	4. 38
40	10.670401	670449	670498	670546	670594	670642	670690	670738	670787	670835	670883	670931	19	1 = 10
41	10.670979	671028	671076	671124	671172	671221	671269	671317	671365	671414	671462	671510	18	2. 19
42	10.671558	671607	671655	671703	671752	671800	671848	671897	671945	671993	672042	672090	17	3. 29
43	10.672138	672187	672235	672283	672332	672380	672428	672477	672525	672574	672622	672670	16	4. 39
44	10.672719	672767	672816	672864	672913	672961	673009	673058	673106	673155	673203	673252	15	1 = 10
45	10.673300	673349	673397	673446	673494	673543	673591	673640	673688	673737	673785	673834	14	2. 19
46	10.673883	673931	673980	674028	674077	674125	674174	674223	674271	674320	674368	674417	13	3. 29
47	10.674466	674514	674563	674611	674660	674709	674757	674806	674855	674903	674952	675001	12	4. 39
48	10.675049	675098	675147	675196	675244	675293	675342	675390	675439	675488	675537	675585	11	1 = 10
49	10.675634	675683	675732	675781	675829	675878	675927	675976	676024	676073	676122	676171	10	2. 20
50	10.676220	676269	676317	676366	676415	676464	676513	676562	676611	676659	676708	676757	9	3. 29
51	10.676806	676855	676904	676953	677002	677051	677100	677149	677197	677246	677295	677344	8	4. 39
52	10.677393	677442	677491	677540	677589	677638	677687	677736	677785	677834	677883	677932	7	1 = 10
53	10.677981	678030	678079	678128	678178	678227	678276	678325	678374	678423	678472	678521	6	2. 20
54	10.678570	678619	678668	678718	678767	678816	678865	678914	678963	679012	679062	679111	5	3. 30
55	10.679160	679209	679258	679307	679357	679406	679455	679504	679554	679603	679652	679701	4	4. 39
56	10.679750	679800	679849	679898	679947	679997	680046	680095	680145	680194	680243	680293	3	1 = 10
57	10.680342	680391	680440	680490	680539	680588	680638	680687	680737	680786	680835	680885	2	2. 20
58	10.680934	680983	681033	681082	681132	681181	681230	681280	681329	681379	681428	681478	1	3. 30
59	10.681527	681577	681626	681676	681725	681774	681824	681873	681923	681972	682022	682072	0	4. 40
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-secant of 12 degrees, or Secant of 102 degrees.

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LOGARITHMIC SECANTS.

Minutes	Secant of 78 degrees, or Co-secant of 168 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 682121	682171	682220	682270	682319	682369	682418	682468	682517	682567	682617	682666	59	1″ = 1
1	10. 682716	682765	682815	682865	682914	682964	683014	683063	683113	683162	683212	683262	58	2. 2
2	10. 683311	683361	683411	683460	683510	683560	683610	683659	683709	683759	683808	683858	57	3. 3
3	10. 683908	683958	684007	684057	684107	684157	684206	684256	684306	684356	684406	684455	56	4. 4
4	10. 684505	684555	684605	684655	684705	684754	684804	684854	684904	684954	685004	685054	55	1 = 1
5	10. 685103	685153	685203	685253	685303	685353	685403	685453	685503	685553	685603	685653	54	2. 2
6	10. 685702	685752	685802	685852	685902	685952	686002	686052	686102	686152	686202	686252	53	3. 3
7	10. 686302	686352	686402	686453	686503	686553	686603	686653	686703	686753	686803	686853	52	4. 4
8	10. 686903	686953	687003	687054	687104	687154	687204	687254	687304	687354	687404	687455	51	1 = 1
9	10. 687505	687555	687605	687655	687706	687756	687806	687856	687906	687957	688007	688057	50	2. 2
10	10. 688107	688158	688208	688258	688308	688359	688409	688459	688510	688560	688610	688660	49	3. 3
11	10. 688711	688761	688811	688862	688912	688962	689013	689063	689114	689164	689214	689265	48	4. 4
12	10. 689315	689365	689416	689466	689517	689567	689617	689668	689718	689769	689819	689870	47	1 = 1
13	10. 689920	689971	690021	690072	690122	690173	690223	690274	690324	690375	690425	690476	46	2. 2
14	10. 690526	690577	690627	690678	690728	690779	690830	690880	690931	690981	691032	691083	45	3. 3
15	10. 691133	691184	691234	691285	691336	691386	691437	691488	691538	691589	691640	691690	44	4. 4
16	10. 691741	691792	691842	691893	691944	691994	692045	692096	692147	692197	692248	692299	43	1 = 1
17	10. 692350	692400	692451	692502	692553	692604	692654	692705	692756	692807	692858	692908	42	2. 2
18	10. 692959	693010	693061	693112	693163	693213	693264	693315	693366	693417	693468	693519	41	3. 3
19	10. 693570	693621	693672	693722	693773	693824	693875	693926	693977	694028	694079	694130	40	4. 4
20	10. 694181	694232	694283	694334	694385	694436	694487	694538	694589	694640	694691	694742	39	1 = 1
21	10. 694793	694844	694895	694947	694998	695049	695100	695151	695202	695253	695304	695355	38	2. 2
22	10. 695407	695458	695509	695560	695611	695662	695713	695765	695816	695867	695918	695969	37	3. 3
23	10. 696021	696072	696123	696174	696225	696277	696328	696379	696430	696482	696533	696584	36	4. 4
24	10. 696636	696687	696738	696789	696841	696892	696943	696995	697046	697097	697149	697200	35	1 = 1
25	10. 697251	697303	697354	697406	697457	697508	697560	697611	697663	697714	697765	697817	34	2. 2
26	10. 697868	697920	697971	698023	698074	698126	698177	698228	698280	698331	698383	698434	33	3. 3
27	10. 698486	698537	698589	698641	698692	698744	698795	698847	698898	698950	699001	699053	32	4. 4
28	10. 699105	699156	699208	699259	699311	699363	699414	699466	699518	699569	699621	699673	31	1 = 1
29	10. 699724	699776	699828	699879	699931	699983	700034	700086	700138	700189	700241	700293	30	2. 2
30	10. 700345	700396	700448	700500	700552	700603	700655	700707	700759	700811	700862	700914	29	3. 3
31	10. 700966	701018	701070	701122	701173	701225	701277	701329	701381	701433	701485	701536	28	4. 4
32	10. 701588	701640	701692	701744	701796	701848	701900	701952	702004	702056	702108	702160	27	1 = 1
33	10. 702212	702264	702316	702368	702420	702472	702524	702576	702628	702680	702732	702784	26	2. 2
34	10. 702836	702888	702940	702992	703044	703096	703148	703200	703252	703305	703357	703409	25	3. 3
35	10. 703461	703513	703565	703617	703670	703722	703774	703826	703878	703930	703983	704035	24	4. 4
36	10. 704087	704139	704191	704244	704296	704348	704400	704453	704505	704557	704609	704662	23	1 = 1
37	10. 704714	704766	704819	704871	704923	704976	705028	705080	705133	705185	705237	705290	22	2. 2
38	10. 705342	705394	705447	705499	705551	705604	705656	705709	705761	705814	705866	705918	21	3. 3
39	10. 705971	706023	706076	706128	706181	706233	706286	706338	706391	706443	706496	706548	20	4. 4
40	10. 706601	706653	706706	706758	706811	706863	706916	706969	707021	707074	707126	707179	19	1 = 1
41	10. 707231	707284	707337	707389	707442	707495	707547	707600	707653	707705	707758	707811	18	2. 2
42	10. 707863	707916	707969	708021	708074	708127	708179	708232	708285	708338	708390	708443	17	3. 3
43	10. 708496	708549	708601	708654	708707	708760	708813	708865	708918	708971	709024	709077	16	4. 4
44	10. 709130	709182	709235	709288	709341	709394	709447	709500	709553	709605	709658	709711	15	1 = 1
45	10. 709764	709817	709870	709923	709976	710029	710082	710135	710188	710241	710294	710347	14	2. 2
46	10. 710400	710453	710506	710559	710612	710665	710718	710771	710824	710877	710930	710983	13	3. 3
47	10. 711036	711089	711143	711196	711249	711302	711355	711408	711461	711514	711568	711621	12	4. 4
48	10. 711674	711727	711780	711833	711887	711940	711993	712046	712099	712153	712206	712259	11	1 = 1
49	10. 712312	712366	712419	712472	712525	712579	712632	712685	712739	712792	712845	712899	10	2. 2
50	10. 712952	713005	713059	713112	713165	713219	713272	713325	713379	713432	713486	713539	9	3. 3
51	10. 713592	713646	713699	713753	713806	713860	713913	713966	714020	714073	714127	714180	8	4. 4
52	10. 714234	714287	714341	714394	714448	714501	714555	714608	714662	714716	714769	714823	7	1 = 1
53	10. 714876	714930	714983	715037	715091	715144	715198	715251	715305	715359	715412	715466	6	2. 2
54	10. 715520	715573	715627	715681	715734	715788	715842	715895	715949	716003	716057	716110	5	3. 3
55	10. 716164	716218	716272	716325	716379	716433	716487	716540	716594	716648	716702	716756	4	4. 4
56	10. 716809	716863	716917	716971	717025	717079	717133	717186	717240	717294	717348	717402	3	1 = 1
57	10. 717456	717510	717564	717618	717672	717726	717779	717833	717887	717941	717995	718049	2	2. 2
58	10. 718103	718157	718211	718265	718319	718373	718427	718481	718535	718589	718644	718698	1	3. 3
59	10. 718752	718806	718860	718914	718968	719022	719076	719130	719185	719239	719293	719347	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-secant of 11 degrees, or Secant of 101 degrees.													

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LOGARITHMIC SECANTS.

Minutes	Secant of 79 degrees, or Co-secant of 169 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 719401	719455	719509	719564	719618	719672	719726	719780	719835	719889	719943	719997	59	1″ = 11
1	10. 720052	720106	720160	720214	720269	720323	720377	720431	720486	720540	720594	720649	58	2. 22
2	10. 720703	720757	720812	720866	720920	720975	721029	721083	721138	721192	721247	721301	57	3. 33
3	10. 721355	721410	721464	721519	721573	721628	721682	721736	721791	721845	721900	721954	56	4. 44
4	10. 722009	722063	722118	722172	722227	722281	722336	722391	722445	722500	722554	722609	55	1 = 11
5	10. 722663	722718	722773	722827	722882	722936	722991	723046	723100	723155	723210	723264	54	2. 22
6	10. 723319	723374	723428	723483	723538	723592	723647	723702	723756	723811	723866	723921	53	3. 33
7	10. 723975	724030	724085	724140	724195	724249	724304	724359	724414	724469	724523	724578	52	4. 44
8	10. 724633	724688	724743	724798	724852	724907	724962	725017	725072	725127	725182	725237	51	1 = 11
9	10. 725292	725347	725401	725456	725511	725566	725621	725676	725731	725786	725841	725896	50	2. 22
10	10. 725951	726006	726061	726116	726171	726226	726281	726337	726392	726447	726502	726557	49	3. 33
11	10. 726612	726667	726722	726777	726832	726888	726943	726998	727053	727108	727163	727218	48	4. 44
12	10. 727274	727329	727384	727439	727494	727550	727605	727660	727715	727771	727826	727881	47	1 = 11
13	10. 727936	727992	728047	728102	728158	728213	728268	728324	728379	728434	728490	728545	46	2. 22
14	10. 728600	728656	728711	728766	728822	728877	728933	728988	729043	729099	729154	729210	45	3. 33
15	10. 729265	729321	729376	729432	729487	729542	729598	729653	729709	729764	729820	729876	44	4. 44
16	10. 729931	729987	730042	730098	730153	730209	730264	730320	730376	730431	730487	730542	43	1 = 11
17	10. 730598	730654	730709	730765	730821	730876	730932	730988	731043	731099	731155	731210	42	2. 22
18	10. 731266	731322	731378	731433	731489	731545	731601	731656	731712	731768	731824	731879	41	3. 33
19	10. 731935	731991	732047	732103	732159	732214	732270	732326	732382	732438	732494	732550	40	4. 45
20	10. 732605	732661	732717	732773	732829	732885	732941	732997	733053	733109	733165	733221	39	1 = 11
21	10. 733277	733333	733389	733445	733501	733557	733613	733669	733725	733781	733837	733893	38	2. 22
22	10. 733949	734005	734061	734117	734173	734230	734286	734342	734398	734454	734510	734566	37	3. 34
23	10. 734622	734679	734735	734791	734847	734903	734960	735016	735072	735128	735184	735241	36	4. 45
24	10. 735297	735353	735409	735466	735522	735578	735635	735691	735747	735804	735860	735916	35	1 = 11
25	10. 735973	736029	736085	736142	736198	736254	736311	736367	736424	736480	736536	736593	34	2. 23
26	10. 736649	736706	736762	736819	736875	736932	736988	737044	737101	737157	737214	737270	33	3. 34
27	10. 737327	737384	737440	737497	737553	737610	737666	737723	737779	737836	737893	737949	32	4. 45
28	10. 738006	738062	738119	738176	738232	738289	738346	738402	738459	738516	738572	738629	31	1 = 11
29	10. 738686	738743	738799	738856	738913	738969	739026	739083	739140	739197	739253	739310	30	2. 23
30	10. 739367	739424	739481	739537	739594	739651	739708	739765	739822	739878	739935	739992	29	3. 34
31	10. 740049	740106	740163	740220	740277	740334	740391	740448	740504	740561	740618	740675	28	4. 45
32	10. 740732	740789	740846	740903	740960	741017	741074	741131	741189	741246	741303	741360	27	1 = 11
33	10. 741417	741474	741531	741588	741645	741702	741759	741817	741874	741931	741988	742045	26	2. 23
34	10. 742102	742159	742217	742274	742331	742388	742445	742503	742560	742617	742674	742732	25	3. 34
35	10. 742789	742846	742903	742961	743018	743075	743133	743190	743247	743305	743362	743419	24	4. 46
36	10. 743477	743534	743591	743649	743706	743764	743821	743878	743936	743993	744051	744108	23	1 = 12
37	10. 744166	744223	744280	744338	744395	744453	744510	744568	744625	744683	744741	744798	22	2. 23
38	10. 744856	744913	744971	745028	745086	745143	745201	745259	745316	745374	745431	745489	21	3. 35
39	10. 745547	745604	745662	745720	745777	745835	745893	745950	746008	746066	746124	746181	20	4. 46
40	10. 746239	746297	746355	746412	746470	746528	746586	746643	746701	746759	746817	746875	19	1 = 12
41	10. 746932	746990	747048	747106	747164	747222	747280	747338	747395	747453	747511	747569	18	2. 23
42	10. 747627	747685	747743	747801	747859	747917	747975	748033	748091	748149	748207	748265	17	3. 35
43	10. 748323	748381	748439	748497	748555	748613	748671	748729	748787	748845	748903	748962	16	4. 46
44	10. 749020	749078	749136	749194	749252	749310	749369	749427	749485	749543	749601	749659	15	1 = 12
45	10. 749718	749776	749834	749892	749951	750009	750067	750125	750184	750242	750300	750359	14	2. 23
46	10. 750417	750475	750534	750592	750650	750709	750767	750825	750884	750942	751000	751059	13	3. 35
47	10. 751117	751176	751234	751293	751351	751409	751468	751526	751585	751643	751702	751760	12	4. 47
48	10. 751809	751877	751936	751994	752053	752111	752170	752229	752287	752346	752404	752463	11	1 = 12
49	10. 752522	752580	752639	752697	752756	752815	752873	752932	752991	753049	753108	753167	10	2. 24
50	10. 753225	753284	753343	753402	753460	753519	753578	753637	753695	753754	753813	753872	9	3. 35
51	10. 753930	753989	754048	754107	754166	754225	754283	754342	754401	754460	754519	754578	8	4. 47
52	10. 754637	754696	754755	754813	754872	754931	754990	755049	755108	755167	755226	755285	7	1 = 12
53	10. 755344	755403	755462	755521	755580	755639	755698	755757	755816	755875	755935	755994	6	2. 24
54	10. 756053	756112	756171	756230	756289	756348	756408	756467	756526	756585	756644	756703	5	3. 36
55	10. 756763	756822	756881	756940	756999	757059	757118	757177	757236	757296	757355	757414	4	4. 47
56	10. 757474	757533	757592	757652	757711	757770	757830	757889	757948	758008	758067	758126	3	1 = 12
57	10. 758186	758245	758305	758364	758423	758483	758542	758602	758661	758721	758780	758840	2	2. 24
58	10. 758899	758959	759018	759078	759137	759197	759256	759316	759376	759435	759495	759554	1	3. 36
59	10. 759614	759673	759733	759793	759852	759912	759972	760031	760091	760151	760210	760270	0	4. 48
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.

Co-secant of 10 degrees, or Secant of 100 degrees.

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 80 degrees, or Co-secant of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 760330	10. 760389	10. 760449	45		1″ = 12
	15	10. 760509	10. 760569	10. 760628	30		2. 24
	30	10. 760688	10. 760748	10. 760808	15		3. 36
	45	10. 760867	10. 760927	10. 760987	0	59	4. 48
1	0	10. 761047	10. 761107	10. 761166	45		1 = 12
	15	10. 761226	10. 761286	10. 761346	30		2. 24
	30	10. 761406	10. 761466	10. 761526	15		3. 36
	45	10. 761585	10. 761645	10. 761705	0	58	4. 48
2	0	10. 761765	10. 761825	10. 761885	45		1 = 12
	15	10. 761945	10. 762005	10. 762065	30		2. 24
	30	10. 762125	10. 762185	10. 762245	15		3. 36
	45	10. 762305	10. 762365	10. 762425	0	57	4. 48
3	0	10. 762485	10. 762545	10. 762605	45		1 = 12
	15	10. 762665	10. 762725	10. 762785	30		2. 24
	30	10. 762845	10. 762905	10. 762965	15		3. 36
	45	10. 763025	10. 763085	10. 763145	0	56	4. 48
4	0	10. 763205	10. 763265	10. 763326	45		1 = 12
	15	10. 763386	10. 763446	10. 763506	30		2. 24
	30	10. 763566	10. 763626	10. 763687	15		3. 36
	45	10. 763747	10. 763807	10. 763867	0	55	4. 48
5	0	10. 763927	10. 763988	10. 764048	45		1 = 12
	15	10. 764108	10. 764168	10. 764229	30		2. 24
	30	10. 764289	10. 764349	10. 764409	15		3. 36
	45	10. 764470	10. 764530	10. 764590	0	54	4. 48
6	0	10. 764651	10. 764711	10. 764771	45		1 = 12
	15	10. 764832	10. 764892	10. 764952	30		2. 24
	30	10. 765013	10. 765073	10. 765133	15		3. 36
	45	10. 765194	10. 765254	10. 765315	0	53	4. 48
7	0	10. 765375	10. 765435	10. 765496	45		1 = 12
	15	10. 765556	10. 765617	10. 765677	30		2. 24
	30	10. 765738	10. 765798	10. 765859	15		3. 36
	45	10. 765919	10. 765980	10. 766040	0	52	4. 48
8	0	10. 766101	10. 766161	10. 766222	45		1 = 12
	15	10. 766282	10. 766343	10. 766403	30		2. 24
	30	10. 766464	10. 766525	10. 766585	15		3. 36
	45	10. 766646	10. 766706	10. 766767	0	51	4. 48
9	0	10. 766828	10. 766888	10. 766949	45		1 = 12
	15	10. 767010	10. 767070	10. 767131	30		2. 24
	30	10. 767192	10. 767252	10. 767313	15		3. 36
	45	10. 767374	10. 767434	10. 767495	0	50	4. 49
10	0	10. 767556	10. 767617	10. 767677	45		1 = 12
	15	10. 767738	10. 767799	10. 767860	30		2. 24
	30	10. 767921	10. 767981	10. 768042	15		3. 36
	45	10. 768103	10. 768164	10. 768225	0	49	4. 49
11	0	10. 768285	10. 768346	10. 768407	45		1 = 12
	15	10. 768468	10. 768529	10. 768590	30		2. 24
	30	10. 768651	10. 768712	10. 768772	15		3. 37
	45	10. 768833	10. 768894	10. 768955	0	48	4. 49
12	0	10. 769016	10. 769077	10. 769138	45		1 = 12
	15	10. 769199	10. 769260	10. 769321	30		2. 24
	30	10. 769382	10. 769443	10. 769504	15		3. 37
	45	10. 769565	10. 769626	10. 769687	0	47	4. 49
13	0	10. 769748	10. 769809	10. 769870	45		1 = 12
	15	10. 769931	10. 769992	10. 770054	30		2. 24
	30	10. 770115	10. 770176	10. 770237	15		3. 37
	45	10. 770298	10. 770359	10. 770420	0	46	4. 49
14	0	10. 770481	10. 770543	10. 770604	45		1 = 12
	15	10. 770665	10. 770726	10. 770787	30		2. 24
	30	10. 770849	10. 770910	10. 770971	15		3. 37
	45	10. 771032	10. 771094	10. 771155	0	45	4. 49
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 9 degrees, or Secant of 99 degrees.					

Minutes	Seconds	Secant of 80 degrees, or Co-secant of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 771216	10. 771277	10. 771339	45		1″ = 1
	15	10. 771400	10. 771461	10. 771522	30		2. 2
	30	10. 771584	10. 771645	10. 771706	15		3. 3
	45	10. 771768	10. 771829	10. 771890	0	44	4. 4
16	0	10. 771952	10. 772013	10. 772075	45		1 = 1
	15	10. 772136	10. 772197	10. 772259	30		2. 2
	30	10. 772320	10. 772382	10. 772443	15		3. 3
	45	10. 772505	10. 772566	10. 772628	0	43	4. 4
17	0	10. 772689	10. 772750	10. 772812	45		1 = 1
	15	10. 772873	10. 772935	10. 772993	30		2. 2
	30	10. 773058	10. 773120	10. 773181	15		3. 3
	45	10. 773243	10. 773304	10. 773366	0	42	4. 4
18	0	10. 773427	10. 773489	10. 773551	45		1 = 1
	15	10. 773612	10. 773674	10. 773735	30		2. 2
	30	10. 773797	10. 773859	10. 773920	15		3. 3
	45	10. 773982	10. 774044	10. 774105	0	41	4. 4
19	0	10. 774167	10. 774229	10. 774291	45		1 = 1
	15	10. 774352	10. 774414	10. 774476	30		2. 2
	30	10. 774537	10. 774599	10. 774661	15		3. 3
	45	10. 774723	10. 774785	10. 774846	0	40	4. 4
20	0	10. 774908	10. 774970	10. 775032	45		1 = 1
	15	10. 775094	10. 775155	10. 775217	30		2. 2
	30	10. 775279	10. 775341	10. 775403	15		3. 3
	45	10. 775465	10. 775527	10. 775589	0	39	4. 4
21	0	10. 775650	10. 775712	10. 775774	45		1 = 1
	15	10. 775836	10. 775898	10. 775960	30		2. 2
	30	10. 776022	10. 776084	10. 776146	15		3. 3
	45	10. 776208	10. 776270	10. 776332	0	38	4. 4
22	0	10. 776394	10. 776456	10. 776518	45		1 = 1
	15	10. 776580	10. 776642	10. 776704	30		2. 2
	30	10. 776766	10. 776828	10. 776891	15		3. 3
	45	10. 776953	10. 777015	10. 777077	0	37	4. 5
23	0	10. 777139	10. 777201	10. 777263	45		1 = 1
	15	10. 777325	10. 777388	10. 777450	30		2. 2
	30	10. 777512	10. 777574	10. 777636	15		3. 3
	45	10. 777699	10. 777761	10. 777823	0	36	4. 5
24	0	10. 777885	10. 777948	10. 778010	45		1 = 1
	15	10. 778072	10. 778134	10. 778197	30		2. 2
	30	10. 778259	10. 778321	10. 778384	15		3. 3
	45	10. 778446	10. 778508	10. 778571	0	35	4. 5
25	0	10. 778633	10. 778695	10. 778758	45		1 = 1
	15	10. 778820	10. 778882	10. 778945	30		2. 2
	30	10. 779007	10. 779070	10. 779132	15		3. 3
	45	10. 779194	10. 779257	10. 779319	0	34	4. 5
26	0	10. 779382	10. 779444	10. 779507	45		1 = 1
	15	10. 779569	10. 779632	10. 779694	30		2. 2
	30	10. 779757	10. 779819	10. 779882	15		3. 3
	45	10. 779944	10. 780007	10. 780069	0	33	4. 5
27	0	10. 780132	10. 780195	10. 780257	45		1 = 1
	15	10. 780320	10. 780382	10. 780445	30		2. 2
	30	10. 780508	10. 780570	10. 780633	15		3. 3
	45	10. 780696	10. 780758	10. 780821	0	32	4. 5
28	0	10. 780884	10. 780946	10. 781009	45		1 = 1
	15	10. 781072	10. 781134	10. 781197	30		2. 2
	30	10. 781260	10. 781323	10. 781385	15		3. 3
	45	10. 781448	10. 781511	10. 781574	0	31	4. 5
29	0	10. 781636	10. 781699	10. 781762	45		1 = 1
	15	10. 781825	10. 781888	10. 781951	30		2. 2
	30	10. 782013	10. 782076	10. 782139	15		3. 3
	45	10. 782202	10. 782265	10. 782328	0	30	4. 5
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 9 degrees, or Secant of 99 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 80 degrees, or Co-secant of 170 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
30	0	10. 782391	10. 782454	10. 782517	45		1″ = 13
	15	10. 782579	10. 782642	10. 782705	30		2. 25
	30	10. 782768	10. 782831	10. 782894	15		3. 38
	45	10. 782957	10. 783020	10. 783083	0	29	4. 50
31	0	10. 783146	10. 783209	10. 783272	45		1 = 13
	15	10. 783335	10. 783398	10. 783462	30		2. 25
	30	10. 783525	10. 783588	10. 783651	15		3. 38
	45	10. 783714	10. 783777	10. 783840	0	28	4. 50
32	0	10. 783903	10. 783966	10. 784030	45		1 = 13
	15	10. 784093	10. 784156	10. 784219	30		2. 25
	30	10. 784282	10. 784345	10. 784409	15		3. 38
	45	10. 784472	10. 784535	10. 784598	0	27	4. 51
33	0	10. 784662	10. 784725	10. 784788	45		1 = 13
	15	10. 784851	10. 784915	10. 784978	30		2. 25
	30	10. 785041	10. 785105	10. 785168	15		3. 38
	45	10. 785231	10. 785295	10. 785358	0	26	4. 51
34	0	10. 785421	10. 785485	10. 785548	45		1 = 13
	15	10. 785611	10. 785675	10. 785738	30		2. 25
	30	10. 785802	10. 785865	10. 785928	15		3. 38
	45	10. 785992	10. 786055	10. 786119	0	25	4. 51
35	0	10. 786182	10. 786246	10. 786309	45		1 = 13
	15	10. 786373	10. 786436	10. 786500	30		2. 25
	30	10. 786563	10. 786627	10. 786690	15		3. 38
	45	10. 786754	10. 786818	10. 786881	0	24	4. 51
36	0	10. 786945	10. 787008	10. 787072	45		1 = 13
	15	10. 787136	10. 787199	10. 787263	30		2. 25
	30	10. 787326	10. 787390	10. 787454	15		3. 38
	45	10. 787517	10. 787581	10. 787645	0	23	4. 51
37	0	10. 787709	10. 787772	10. 787836	45		1 = 13
	15	10. 787900	10. 787963	10. 788027	30		2. 26
	30	10. 788091	10. 788155	10. 788218	15		3. 38
	45	10. 788282	10. 788346	10. 788410	0	22	4. 51
38	0	10. 788474	10. 788538	10. 788601	45		1 = 13
	15	10. 788665	10. 788729	10. 788793	30		2. 26
	30	10. 788857	10. 788921	10. 788985	15		3. 38
	45	10. 789048	10. 789112	10. 789176	0	21	4. 51
39	0	10. 789240	10. 789304	10. 789368	45		1 = 13
	15	10. 789432	10. 789496	10. 789560	30		2. 26
	30	10. 789624	10. 789688	10. 789752	15		3. 38
	45	10. 789816	10. 789880	10. 789944	0	20	4. 51
40	0	10. 790008	10. 790072	10. 790136	45		1 = 13
	15	10. 790200	10. 790265	10. 790329	30		2. 26
	30	10. 790393	10. 790457	10. 790521	15		3. 38
	45	10. 790585	10. 790649	10. 790713	0	19	4. 51
41	0	10. 790778	10. 790842	10. 790906	45		1 = 13
	15	10. 790970	10. 791034	10. 791099	30		2. 26
	30	10. 791163	10. 791227	10. 791291	15		3. 39
	45	10. 791356	10. 791420	10. 791484	0	18	4. 51
42	0	10. 791548	10. 791613	10. 791677	45		1 = 13
	15	10. 791741	10. 791806	10. 791870	30		2. 26
	30	10. 791934	10. 791999	10. 792063	15		3. 39
	45	10. 792127	10. 792192	10. 792256	0	17	4. 51
43	0	10. 792320	10. 792385	10. 792449	45		1 = 13
	15	10. 792514	10. 792578	10. 792643	30		2. 26
	30	10. 792707	10. 792772	10. 792836	15		3. 39
	45	10. 792901	10. 792965	10. 793030	0	16	4. 52
44	0	10. 793094	10. 793159	10. 793223	45		1 = 13
	15	10. 793288	10. 793352	10. 793417	30		2. 26
	30	10. 793481	10. 793546	10. 793611	15		3. 39
	45	10. 793675	10. 793740	10. 793804	0	15	4. 52
Minutes	Seconds	15′	10′	5′	Seconds	Minutes	Propor. parts.
		Co-secant of 9 degrees, or Secant of 99 degrees.					

Minutes	Seconds	Secant of 80 degrees, or Co-secant of 170 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
45	0	10. 793869	10. 793934	10. 793998	45		1″ = 13
	15	10. 794063	10. 794128	10. 794192	30		2. 26
	30	10. 794257	10. 794322	10. 794387	15		3. 39
	45	10. 794451	10. 794516	10. 794581	0	14	4. 52
46	0	10. 794645	10. 794710	10. 794775	45		1 = 13
	15	10. 794840	10. 794905	10. 794969	30		2. 26
	30	10. 795034	10. 795099	10. 795164	15		3. 39
	45	10. 795229	10. 795294	10. 795358	0	13	4. 52
47	0	10. 795423	10. 795488	10. 795553	45		1 = 13
	15	10. 795618	10. 795683	10. 795748	30		2. 26
	30	10. 795813	10. 795878	10. 795943	15		3. 39
	45	10. 796008	10. 796073	10. 796138	0	12	4. 52
48	0	10. 796203	10. 796268	10. 796333	45		1 = 13
	15	10. 796398	10. 796463	10. 796528	30		2. 26
	30	10. 796593	10. 796658	10. 796723	15		3. 39
	45	10. 796788	10. 796853	10. 796918	0	11	4. 52
49	0	10. 796983	10. 797048	10. 797114	45		1 = 13
	15	10. 797179	10. 797244	10. 797309	30		2. 26
	30	10. 797374	10. 797439	10. 797505	15		3. 39
	45	10. 797570	10. 797635	10. 797700	0	10	4. 52
50	0	10. 797765	10. 797831	10. 797896	45		1 = 13
	15	10. 797961	10. 798026	10. 798092	30		2. 26
	30	10. 798157	10. 798222	10. 798288	15		3. 39
	45	10. 798353	10. 798418	10. 798484	0	9	4. 52
51	0	10. 798549	10. 798614	10. 798680	45		1 = 13
	15	10. 798745	10. 798811	10. 798876	30		2. 26
	30	10. 798941	10. 799007	10. 799072	15		3. 39
	45	10. 799138	10. 799203	10. 799269	0	8	4. 52
52	0	10. 799334	10. 799400	10. 799465	45		1 = 13
	15	10. 799531	10. 799596	10. 799662	30		2. 26
	30	10. 799727	10. 799793	10. 799858	15		3. 39
	45	10. 799924	10. 799989	10. 800055	0	7	4. 52
53	0	10. 800121	10. 800186	10. 800252	45		1 = 13
	15	10. 800317	10. 800383	10. 800449	30		2. 26
	30	10. 800514	10. 800580	10. 800646	15		3. 39
	45	10. 800711	10. 800777	10. 800843	0	6	4. 53
54	0	10. 800909	10. 800974	10. 801040	45		1 = 13
	15	10. 801106	10. 801172	10. 801237	30		2. 26
	30	10. 801303	10. 801369	10. 801435	15		3. 39
	45	10. 801501	10. 801566	10. 801632	0	5	4. 53
55	0	10. 801698	10. 801764	10. 801830	45		1 = 13
	15	10. 801896	10. 801962	10. 802027	30		2. 26
	30	10. 802093	10. 802159	10. 802225	15		3. 40
	45	10. 802291	10. 802357	10. 802423	0	4	4. 53
56	0	10. 802489	10. 802555	10 802621	45		1 = 13
	15	10. 802687	10. 802753	10. 802819	30		2. 26
	30	10. 802885	10. 802951	10. 803017	15		3. 40
	45	10. 803083	10. 803149	10. 803215	0	3	4. 53
57	0	10. 803281	10. 803347	10. 803414	45		1 = 13
	15	10. 803480	10. 803546	10. 803612	30		2. 26
	30	10. 803678	10. 803744	10. 803810	15		3. 40
	45	10. 803877	10. 803943	10. 804009	0	2	4. 53
58	0	10. 804075	10. 804141	10. 804208	45		1 = 13
	15	10. 804274	10. 804340	10. 804406	30		2. 27
	30	10. 804473	10. 804539	10. 804605	15		3. 40
	45	10. 804672	10. 804738	10. 804804	0	1	4. 53
59	0	10. 804871	10. 804937	10. 805003	45		1 = 13
	15	10. 805070	10. 805136	10. 805202	30		2. 27
	30	10. 805269	10. 805335	10. 805402	15		3. 40
	45	10. 805468	10. 805535	10. 805601	0	0	4. 53
Minutes	Seconds	15′	10′	5′	Seconds	Minutes	Propor. parts.
		Co-secant of 9 degrees, or Secant of 99 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 81 degrees, or Co-secant of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 805668	10. 805734	10. 805800	45		1″ = 13
	15	10. 805867	10. 805933	10. 806000	30		2. 27
	30	10. 806067	10. 806133	10. 806200	15		3. 40
	45	10. 806266	10. 806333	10. 806399	0	59	4. 53
1	0	10. 806466	10. 806532	10. 806599	45		1 = 13
	15	10. 806666	10. 806732	10. 806799	30		2. 27
	30	10. 806866	10. 806932	10. 806999	15		3. 40
	45	10. 807066	10. 807132	10. 807199	0	58	4. 53
2	0	10. 807266	10. 807332	10. 807399	45		1 = 13
	15	10. 807466	10. 807533	10. 807599	30		2. 27
	30	10. 807666	10. 807733	10. 807800	15		3. 40
	45	10. 807867	10. 807934	10. 808000	0	57	4. 53
3	0	10. 808067	10. 808134	10. 808201	45		1 = 13
	15	10. 808268	10. 808335	10. 808402	30		2. 27
	30	10. 808468	10. 808535	10. 808602	15		3. 40
	45	10. 808669	10. 808736	10. 808803	0	56	4. 54
4	0	10. 808870	10. 808937	10. 809004	45		1 = 13
	15	10. 809071	10. 809138	10. 809205	30		2. 27
	30	10. 809272	10. 809339	10. 809406	15		3. 40
	45	10. 809473	10. 809540	10. 809607	0	55	4. 54
5	0	10. 809675	10. 809742	10. 809809	45		1 = 13
	15	10. 809876	10. 809943	10. 810010	30		2. 27
	30	10. 810077	10. 810144	10. 810212	15		3. 40
	45	10. 810279	10. 810346	10. 810413	0	54	4. 54
6	0	10. 810480	10. 810548	10. 810615	45		1 = 13
	15	10. 810682	10. 810749	10. 810817	30		2. 27
	30	10. 810884	10. 810951	10. 811019	15		3. 40
	45	10. 811086	10. 811153	10. 811220	0	53	4. 54
7	0	10. 811288	10. 811355	10. 811423	45		1 = 13
	15	10. 811490	10. 811557	10. 811625	30		2. 27
	30	10. 811692	10. 811760	10. 811827	15		3. 40
	45	10. 811895	10. 811962	10. 812030	0	52	4. 54
8	0	10. 812097	10. 812165	10. 812232	45		1 = 14
	15	10. 812300	10. 812367	10. 812435	30		2. 27
	30	10. 812502	10. 812570	10. 812637	15		3. 41
	45	10. 812705	10. 812772	10. 812840	0	51	4. 54
9	0	10. 812908	10. 812975	10. 813043	45		1 = 14
	15	10. 813111	10. 813178	10. 813246	30		2. 27
	30	10. 813313	10. 813381	10. 813449	15		3. 41
	45	10. 813517	10. 813584	10. 813652	0	50	4. 54
10	0	10. 813720	10. 813788	10. 813855	45		1 = 14
	15	10. 813923	10. 813991	10. 814059	30		2. 27
	30	10. 814126	10. 814194	10. 814262	15		3. 41
	45	10. 814330	10. 814398	10. 814466	0	49	4. 54
11	0	10. 814533	10. 814601	10. 814669	45		1 = 14
	15	10. 814737	10. 814805	10. 814873	30		2. 27
	30	10. 814941	10. 815009	10. 815077	15		3. 41
	45	10. 815145	10. 815213	10. 815281	0	48	4. 54
12	0	10. 815349	10. 815417	10. 815485	45		1 = 14
	15	10. 815553	10. 815621	10. 815689	30		2. 27
	30	10. 815757	10. 815825	10. 815893	15		3. 41
	45	10. 815961	10. 816029	10. 816097	0	47	4. 54
13	0	10. 816166	10. 816234	10. 816302	45		1 = 14
	15	10. 816370	10. 816438	10. 816506	30		2. 27
	30	10. 816575	10. 816643	10. 816711	15		3. 41
	45	10. 816779	10. 816847	10. 816916	0	46	4. 55
14	0	10. 816984	10. 817052	10. 817121	45		1 = 14
	15	10. 817189	10. 817257	10. 817325	30		2. 27
	30	10. 817394	10. 817462	10. 817530	15		3. 41
	45	10. 817599	10. 817667	10. 817736	0	45	4. 55
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 8 degrees, or Secant of 98 degrees.					

Minutes	Seconds	Secant of 81 degrees, or Co-secant of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 817804	10. 817872	10. 817941	45		1″ = 1
	15	10. 818009	10. 818078	10. 818146	30		2. 2
	30	10. 818215	10. 818283	10. 818352	15		3. 4
	45	10. 818420	10. 818489	10. 818557	0	44	4. 5
16	0	10. 818626	10. 818694	10. 818763	45		1 = 1
	15	10. 818831	10. 818900	10. 818968	30		2. 2
	30	10. 819037	10. 819106	10. 819174	15		3. 4
	45	10. 819243	10. 819311	10. 819380	0	43	4. 5
17	0	10. 819449	10. 819517	10. 819586	45		1 = 1
	15	10. 819655	10. 819723	10. 819792	30		2. 2
	30	10. 819861	10. 819930	10. 819998	15		3. 4
	45	10. 820067	10. 820136	10. 820205	0	42	4. 5
18	0	10. 820273	10. 820342	10. 820411	45		1 = 1
	15	10. 820480	10. 820549	10. 820618	30		2. 2
	30	10. 820686	10. 820755	10. 820824	15		3. 4
	45	10. 820893	10. 820962	10. 821031	0	41	4. 5
19	0	10. 821100	10. 821169	10. 821238	45		1 = 1
	15	10. 821307	10. 821376	10. 821445	30		2. 2
	30	10. 821514	10. 821583	10. 821652	15		3. 4
	45	10. 821721	10. 821790	10. 821859	0	40	4. 5
20	0	10. 821928	10. 821997	10. 822066	45		1 = 1
	15	10. 822135	10. 822204	10. 822273	30		2. 2
	30	10. 822342	10. 822412	10. 822481	15		3. 4
	45	10. 822550	10. 822619	10. 822688	0	39	4. 5
21	0	10. 822757	10. 822827	10. 822896	45		1 = 1
	15	10. 822965	10. 823034	10. 823104	30		2. 2
	30	10. 823173	10. 823242	10. 823311	15		3. 4
	45	10. 823381	10. 823450	10. 823519	0	38	4. 5
22	0	10. 823589	10. 823658	10. 823727	45		1 = 1
	15	10. 823797	10. 823866	10. 823936	30		2. 2
	30	10. 824005	10. 824074	10. 824144	15		3. 4
	45	10. 824213	10. 824283	10. 824352	0	37	4. 5
23	0	10. 824422	10. 824491	10. 824561	45		1 = 1
	15	10. 824630	10. 824700	10. 824769	30		2. 2
	30	10. 824839	10. 824908	10. 824978	15		3. 4
	45	10. 825047	10. 825117	10. 825186	0	36	4. 5
24	0	10. 825256	10. 825326	10. 825395	45		1 = 1
	15	10. 825465	10. 825535	10. 825604	30		2. 2
	30	10. 825674	10. 825744	10. 825813	15		3. 4
	45	10. 825883	10. 825953	10. 826023	0	35	4. 5
25	0	10. 826092	10. 826162	10. 826232	45		1 = 1
	15	10. 826302	10. 826371	10. 826441	30		2. 2
	30	10. 826511	10. 826581	10. 826651	15		3. 4
	45	10. 826720	10. 826790	10. 826860	0	34	4. 5
26	0	10. 826930	10. 827000	10. 827070	45		1 = 1
	15	10. 827140	10. 827210	10. 827280	30		2. 2
	30	10. 827350	10. 827420	10. 827489	15		3. 4
	45	10. 827559	10. 827629	10. 827699	0	33	4. 5
27	0	10. 827769	10. 827840	10. 827910	45		1 = 1
	15	10. 827980	10. 828050	10. 828120	30		2. 2
	30	10. 828190	10. 828260	10. 828330	15		3. 4
	45	10. 828400	10. 828470	10. 828540	0	32	4. 5
28	0	10. 828611	10. 828681	10. 828751	45		1 = 1
	15	10. 828821	10. 828891	10. 828962	30		2. 2
	30	10. 829032	10. 829102	10. 829172	15		3. 4
	45	10. 829243	10. 829313	10. 829383	0	31	4. 5
29	0	10. 829453	10. 829524	10. 829594	45		1 = 1
	15	10. 829664	10. 829735	10. 829805	30		2. 2
	30	10. 829875	10. 829946	10. 830016	15		3. 4
	45	10. 830087	10. 830157	10. 830227	0	30	4. 5
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 8 degrees, or Secant of 98 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 81 degrees, or Co-secant of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10.830298	10.830368	10.830439	45		1″ = 14
	15	10.830509	10.830580	10.830650	30		2. 28
	30	10.830721	10.830791	10.830862	15		3. 42
	45	10.830932	10.831003	10.831073	0	29	4. 56
31	0	10.831144	10.831215	10.831285	45		1 = 14
	15	10.831356	10.831426	10.831497	30		2. 28
	30	10.831568	10.831638	10.831709	15		3. 42
	45	10.831780	10.831850	10.831921	0	28	4. 57
32	0	10.831992	10.832063	10.832133	45		1 = 14
	15	10.832204	10.832275	10.832346	30		2. 28
	30	10.832416	10.832487	10.832558	15		3. 42
	45	10.832629	10.832700	10.832771	0	27	4. 57
33	0	10.832841	10.832912	10.832983	45		1 = 14
	15	10.833054	10.833125	10.833196	30		2. 28
	30	10.833267	10.833338	10.833409	15		3. 43
	45	10.833480	10.833551	10.833622	0	26	4. 57
34	0	10.833693	10.833764	10.833835	45		1 = 14
	15	10.833906	10.833977	10.834048	30		2. 28
	30	10.834119	10.834190	10.834261	15		3. 43
	45	10.834332	10.834403	10.834474	0	25	4. 57
35	0	10.834546	10.834617	10.834688	45		1 = 14
	15	10.834759	10.834830	10.834901	30		2. 28
	30	10.834973	10.835044	10.835115	15		3. 43
	45	10.835186	10.835258	10.835329	0	24	4. 57
36	0	10.835400	10.835471	10.835543	45		1 = 14
	15	10.835614	10.835685	10.835757	30		2. 29
	30	10.835828	10.835900	10.835971	15		3. 43
	45	10.836042	10.836114	10.836185	0	23	4. 57
37	0	10.836257	10.836328	10.836399	45		1 = 14
	15	10.836471	10.836542	10.836614	30		2. 29
	30	10.836685	10.836757	10.836828	15		3. 43
	45	10.836900	10.836972	10.837043	0	22	4. 57
38	0	10.837115	10.837186	10.837258	45		1 = 14
	15	10.837329	10.837401	10.837473	30		2. 29
	30	10.837544	10.837616	10.837688	15		3. 43
	45	10.837759	10.837831	10.837903	0	21	4. 57
39	0	10.837975	10.838046	10.838118	45		1 = 14
	15	10.838190	10.838262	10.838333	30		2. 29
	30	10.838405	10.838477	10.838549	15		3. 43
	45	10.838621	10.838692	10.838764	0	20	4. 57
40	0	10.838836	10.838908	10.838980	45		1 = 14
	15	10.839052	10.839124	10.839196	30		2. 29
	30	10.839268	10.839339	10.839411	15		3. 43
	45	10.839483	10.839555	10.839627	0	19	4. 58
41	0	10.839699	10.839771	10.839843	45		1 = 14
	15	10.839916	10.839988	10.840060	30		2. 29
	30	10.840132	10.840204	10.840276	15		3. 43
	45	10.840348	10.840420	10.840492	0	18	4. 58
42	0	10.840565	10.840637	10.840709	45		1 = 14
	15	10.840781	10.840853	10.840925	30		2. 29
	30	10.840998	10.841070	10.841142	15		3. 43
	45	10.841214	10.841287	10.841359	0	17	4. 58
43	0	10.841431	10.841504	10.841576	45		1 = 14
	15	10.841648	10.841721	10.841793	30		2. 29
	30	10.841865	10.841938	10.842010	15		3. 43
	45	10.842083	10.842155	10.842228	0	16	4. 58
44	0	10.842300	10.842372	10.842445	45		1 = 15
	15	10.842517	10.842590	10.842662	30		2. 29
	30	10.842735	10.842807	10.842880	15		3. 44
	45	10.842953	10.843025	10.843098	0	15	4. 58
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 8 degrees, or Secant of 98 degrees.					

Minutes	Seconds	Secant of 81 degrees, or Co-secant of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10.843170	10.843243	10.843316	45		1″ = 15
	15	10.843388	10.843461	10.843534	30		2. 29
	30	10.843606	10.843679	10.843752	15		3. 44
	45	10.843824	10.843897	10.843970	0	14	4. 58
46	0	10.844043	10.844115	10.844188	45		1 = 15
	15	10.844261	10.844334	10.844407	30		2. 29
	30	10.844479	10.844552	10.844625	15		3. 44
	45	10.844698	10.844771	10.844844	0	13	4. 58
47	0	10.844917	10.844989	10.845062	45		1 = 15
	15	10.845135	10.845208	10.845281	30		2. 29
	30	10.845354	10.845427	10.845500	15		3. 44
	45	10.845573	10.845646	10.845719	0	12	4. 58
48	0	10.845792	10.845865	10.845938	45		1 = 15
	15	10.846012	10.846085	10.846158	30		2. 29
	30	10.846231	10.846304	10.846377	15		3. 44
	45	10.846450	10.846524	10.846597	0	11	4. 58
49	0	10.846670	10.846743	10.846816	45		1 = 15
	15	10.846890	10.846963	10.847036	30		2. 29
	30	10.847109	10.847183	10.847256	15		3. 44
	45	10.847329	10.847403	10.847476	0	10	4. 59
50	0	10.847549	10.847623	10.847696	45		1 = 15
	15	10.847769	10.847843	10.847916	30		2. 29
	30	10.847990	10.848063	10.848137	15		3. 44
	45	10.848210	10.848284	10.848357	0	9	4. 59
51	0	10.848431	10.848504	10.848578	45		1 = 15
	15	10.848651	10.848725	10.848798	30		2. 29
	30	10.848872	10.848945	10.849019	15		3. 44
	45	10.849093	10.849166	10.849240	0	8	4. 59
52	0	10.849314	10.849387	10.849461	45		1 = 15
	15	10.849535	10.849608	10.849682	30		2. 29
	30	10.849756	10.849830	10.849903	15		3. 44
	45	10.849977	10.850051	10.850125	0	7	4. 59
53	0	10.850198	10.850272	10.850346	45		1 = 15
	15	10.850420	10.850494	10.850568	30		2. 30
	30	10.850642	10.850715	10.850789	15		3. 44
	45	10.850863	10.850937	10.851011	0	6	4. 59
54	0	10.851085	10.851159	10.851233	45		1 = 15
	15	10.851307	10.851381	10.851455	30		2. 30
	30	10.851529	10.851603	10.851677	15		3. 44
	45	10.851751	10.851826	10.851900	0	5	4. 59
55	0	10.851974	10.852048	10.852122	45		1 = 15
	15	10.852196	10.852270	10.852345	30		2. 30
	30	10.852419	10.852493	10.852567	15		3. 45
	45	10.852641	10.852716	10.852790	0	4	4. 59
56	0	10.852864	10.852938	10.853013	45		1 = 15
	15	10.853087	10.853161	10.853236	30		2. 30
	30	10.853310	10.853384	10.853459	15		3. 45
	45	10.853533	10.853608	10.853682	0	3	4. 59
57	0	10.853756	10.853831	10.853905	45		1 = 15
	15	10.853980	10.854054	10.854129	30		2. 30
	30	10.854203	10.854278	10.854352	15		3. 45
	45	10.854427	10.854501	10.854576	0	2	4. 60
58	0	10.854651	10.854725	10.854800	45		1 = 15
	15	10.854874	10.854949	10.855024	30		2. 30
	30	10.855098	10.855173	10.855248	15		3. 45
	45	10.855323	10.855397	10.855472	0	1	4. 60
59	0	10.855547	10.855621	10.855696	45		1 = 15
	15	10.855771	10.855846	10.855921	30		2. 30
	30	10.855995	10.856070	10.856145	15		3. 45
	45	10.856220	10.856295	10.856370	0	0	4. 60
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 8 degrees, or Secant of 98 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 82 degrees, or Co-secant of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10.856445	10.856520	10.856594	45		1″ = 15
	15	10.856669	10.856744	10.856819	30		2. 30
	30	10.856894	10.856969	10.857044	15		3. 45
	45	10.857119	10.857194	10.857269	0	59	4. 60
1	0	10.857344	10.857420	10.857495	45		1 = 15
	15	10.857570	10.857645	10.857720	30		2. 30
	30	10.857795	10.857870	10.857945	15		3. 45
	45	10.858021	10.858096	10.858171	0	58	4. 60
2	0	10.858246	10.858321	10.858397	45		1 = 15
	15	10.858472	10.858547	10.858623	30		2. 30
	30	10.858698	10.858773	10.858848	15		3. 45
	45	10.858924	10.858999	10.859075	0	57	4. 60
3	0	10.859150	10.859225	10.859301	45		1 = 15
	15	10.859376	10.859452	10.859527	30		2. 30
	30	10.859602	10.859678	10.859753	15		3. 45
	45	10.859829	10.859904	10.859980	0	56	4. 60
4	0	10.860055	10.860131	10.860207	45		1 = 15
	15	10.860282	10.860358	10.860433	30		2. 30
	30	10.860509	10.860585	10.860660	15		3. 45
	45	10.860736	10.860812	10.860887	0	55	4. 60
5	0	10.860963	10.861039	10.861114	45		1 = 15
	15	10.861190	10.861266	10.861342	30		2. 30
	30	10.861417	10.861493	10.861569	15		3. 45
	45	10.861645	10.861721	10.861797	0	54	4. 61
6	0	10.861872	10.861948	10.862024	45		1 = 15
	15	10.862100	10.862176	10.862252	30		2. 30
	30	10.862328	10.862404	10.862480	15		3. 46
	45	10.862556	10.862632	10.862708	0	53	4. 61
7	0	10.862784	10.862860	10.862936	45		1 = 15
	15	10.863012	10.863088	10.863164	30		2. 30
	30	10.863240	10.863316	10.863393	15		3. 46
	45	10.863469	10.863545	10.863621	0	52	4. 61
8	0	10.863697	10.863773	10.863850	45		1 = 15
	15	10.863926	10.864002	10.864078	30		2. 31
	30	10.864155	10.864231	10.864307	15		3. 46
	45	10.864383	10.864460	10.864536	0	51	4. 61
9	0	10.864612	10.864689	10.864765	45		1 = 15
	15	10.864842	10.864918	10.864994	30		2. 31
	30	10.865071	10.865147	10.865224	15		3. 46
	45	10.865300	10.865377	10.865453	0	50	4. 61
10	0	10.865530	10.865606	10.865683	45		1 = 15
	15	10.865759	10.865836	10.865913	30		2. 31
	30	10.865989	10.866066	10.866142	15		3. 46
	45	10.866219	10.866296	10.866372	0	49	4. 61
11	0	10.866449	10.866526	10.866602	45		1 = 15
	15	10.866679	10.866756	10.866833	30		2. 31
	30	10.866909	10.866986	10.867063	15		3. 46
	45	10.867140	10.867217	10.867293	0	48	4. 61
12	0	10.867370	10.867447	10.867524	45		1 = 15
	15	10.867601	10.867678	10.867755	30		2. 31
	30	10.867832	10.867909	10.867986	15		3. 46
	45	10.868063	10.868139	10.868216	0	47	4. 62
13	0	10.868294	10.868371	10.868448	45		1 = 15
	15	10.868525	10.868602	10.868679	30		2. 31
	30	10.868756	10.868833	10.868910	15		3. 46
	45	10.868987	10.869064	10.869142	0	46	4. 62
14	0	10.869219	10.869296	10.869373	45		1 = 15
	15	10.869450	10.869528	10.869605	30		2. 31
	30	10.869682	10.869759	10.869837	15		3. 46
	45	10.869914	10.869991	10.870069	0	45	4. 62
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 7 degrees, or Secant of 97 degrees.					

Minutes	Seconds	Secant of 82 degrees, or Co-secant of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10.870146	10.870223	10.870301	45		1″ = 15
	15	10.870378	10.870456	10.870533	30		2. 30
	30	10.870610	10.870688	10.870765	15		3. 45
	45	10.870843	10.870920	10.870998	0	44	4. 60
16	0	10.871075	10.871153	10.871230	45		1 = 15
	15	10.871308	10.871385	10.871463	30		2. 30
	30	10.871541	10.871618	10.871696	15		3. 45
	45	10.871774	10.871851	10.871929	0	43	4. 60
17	0	10.872007	10.872084	10.872162	45		1 = 15
	15	10.872240	10.872317	10.872395	30		2. 30
	30	10.872473	10.872551	10.872629	15		3. 45
	45	10.872706	10.872784	10.872862	0	42	4. 60
18	0	10.872940	10.873018	10.873096	45		1 = 15
	15	10.873174	10.873251	10.873329	30		2. 30
	30	10.873407	10.873485	10.873563	15		3. 45
	45	10.873641	10.873719	10.873797	0	41	4. 60
19	0	10.873875	10.873953	10.874031	45		1 = 15
	15	10.874109	10.874188	10.874266	30		2. 30
	30	10.874344	10.874422	10.874500	15		3. 45
	45	10.874578	10.874656	10.874735	0	40	4. 60
20	0	10.874813	10.874891	10.874969	45		1 = 15
	15	10.875047	10.875126	10.875204	30		2. 30
	30	10.875282	10.875361	10.875439	15		3. 45
	45	10.875517	10.875596	10.875674	0	39	4. 60
21	0	10.875752	10.875831	10.875909	45		1 = 15
	15	10.875987	10.876066	10.876144	30		2. 30
	30	10.876223	10.876301	10.876380	15		3. 45
	45	10.876458	10.876537	10.876615	0	38	4. 60
22	0	10.876694	10.876772	10.876851	45		1 = 15
	15	10.876930	10.877008	10.877087	30		2. 30
	30	10.877165	10.877244	10.877323	15		3. 45
	45	10.877401	10.877480	10.877559	0	37	4. 60
23	0	10.877638	10.877716	10.877795	45		1 = 15
	15	10.877874	10.877953	10.878031	30		2. 30
	30	10.878110	10.878189	10.878268	15		3. 45
	45	10.878347	10.878426	10.878504	0	36	4. 60
24	0	10.878583	10.878662	10.878741	45		1 = 15
	15	10.878820	10.878899	10.878978	30		2. 30
	30	10.879057	10.879136	10.879215	15		3. 45
	45	10.879294	10.879373	10.879452	0	35	4. 60
25	0	10.879531	10.879610	10.879689	45		1 = 15
	15	10.879768	10.879848	10.879927	30		2. 30
	30	10.880006	10.880085	10.880164	15		3. 45
	45	10.880243	10.880323	10.880402	0	34	4. 60
26	0	10.880481	10.880561	10.880640	45		1 = 15
	15	10.880719	10.880798	10.880878	30		2. 30
	30	10.880957	10.881036	10.881116	15		3. 45
	45	10.881195	10.881274	10.881354	0	33	4. 60
27	0	10.881433	10.881513	10.881592	45		1 = 15
	15	10.881672	10.881751	10.881831	30		2. 30
	30	10.881910	10.881990	10.882069	15		3. 45
	45	10.882149	10.882228	10.882308	0	32	4. 60
28	0	10.882387	10.882467	10.882547	45		1 = 15
	15	10.882626	10.882706	10.882786	30		2. 30
	30	10.882865	10.882945	10.883025	15		3. 45
	45	10.883104	10.883184	10.883264	0	31	4. 60
29	0	10.883344	10.883424	10.883503	45		1 = 15
	15	10.883583	10.883663	10.883743	30		2. 30
	30	10.883823	10.883903	10.883983	15		3. 45
	45	10.884062	10.884142	10.884222	0	30	4. 60
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 7 degrees, or Secant of 97 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 82 degrees, or Co-secant of 172 degrees. 0′	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 884302	10. 884382	10. 884462	45		1″ = 16
	15	10. 884542	10. 884622	10. 884702	30		2. 32
	30	10. 884782	10. 884862	10. 884942	15		3. 48
	45	10. 885023	10. 885103	10. 885183	0	29	4. 64
1	0	10. 885263	10. 885343	10. 885423	45		1 = 16
	15	10. 885503	10. 885584	10. 885664	30		2. 32
	30	10. 885744	10. 885824	10. 885905	15		3. 48
	45	10. 885985	10. 886065	10. 886145	0	28	4. 64
2	0	10. 886226	10. 886306	10. 886386	45		1 = 16
	15	10. 886467	10. 886547	10. 886628	30		2. 32
	30	10. 886708	10. 886788	10. 886869	15		3. 48
	45	10. 886949	10. 887030	10. 887110	0	27	4. 64
3	0	10. 887191	10. 887271	10 887352	45		1 = 16
	15	10. 887432	10. 887513	10. 887594	30		2. 32
	30	10. 887674	10. 887755	10. 887835	15		3. 48
	45	10. 887916	10. 887997	10. 888077	0	26	4. 64
4	0	10. 888158	10. 888239	10. 888319	45		1 = 16
	15	10. 888400	10. 888481	10. 888562	30		2. 32
	30	10. 888642	10. 888723	10. 888804	15		3. 48
	45	10. 888885	10. 888966	10. 889046	0	25	4. 65
5	0	10. 889127	10. 889208	10. 889289	45		1 = 16
	15	10. 889370	10. 889451	10. 889532	30		2. 32
	30	10. 889613	10. 889694	10. 889775	15		3. 49
	45	10. 889856	10. 889937	10. 890018	0	24	4. 65
6	0	10. 890099	10. 890180	10. 890261	45		1 = 16
	15	10. 890342	10. 890423	10. 890504	30		2. 32
	30	10. 890586	10. 890667	10. 890748	15		3. 49
	45	10. 890829	10. 890910	10. 890992	0	23	4. 65
7	0	10. 891073	10. 891154	10. 891235	45		1 = 16
	15	10. 891317	10. 891398	10. 891479	30		2. 33
	30	10. 891560	10. 891642	10. 891723	15		3. 49
	45	10. 891805	10. 891886	10. 891967	0	22	4. 65
8	0	10. 892049	10. 892130	10. 892212	45		1 = 16
	15	10. 892293	10. 892375	10. 892456	30		2. 33
	30	10. 892538	10. 892619	10. 892701	15		3. 49
	45	10. 892782	10. 892864	10. 892945	0	21	4. 65
9	0	10. 893027	10. 893109	10. 893190	45		1 = 16
	15	10. 893272	10. 893354	10. 893435	30		2. 33
	30	10. 893517	10. 893599	10. 893680	15		3. 49
	45	10. 893762	10. 893844	10 893926	0	20	4. 65
10	0	10. 894008	10. 894089	10. 894171	45		1 = 16
	15	10. 894253	10. 894335	10. 894417	30		2. 33
	30	10. 894499	10. 894581	10. 894662	15		3. 49
	45	10. 894744	10. 894826	10. 894908	0	19	4. 66
11	0	10. 894990	10. 895072	10. 895154	45		1 = 16
	15	10. 895236	10. 895318	10. 895400	30		2. 33
	30	10. 895483	10. 895565	10. 895647	15		3. 49
	45	10. 895729	10. 895811	10. 895893	0	18	4. 66
12	0	10. 895975	10. 896058	10. 896140	45		1 = 16
	15	10. 896222	10. 896304	10. 896386	30		2. 33
	30	10. 896469	10. 896551	10. 896633	15		3. 49
	45	10. 896716	10. 896798	10. 896880	0	17	4. 66
13	0	10. 896963	10. 897045	10. 897127	45		1 = 16
	15	10. 897210	10. 897292	10 897375	30		2. 33
	30	10. 897457	10. 897540	10. 897622	15		3. 49
	45	10. 897705	10. 897787	10. 897870	0	16	4. 66
14	0	10. 897952	10. 898035	10. 898117	45		1 = 17
	15	10. 898200	10. 898283	10. 898365	30		2. 33
	30	10. 898448	10. 898531	10. 898613	15		3. 50
	45	10. 898696	10. 898779	10. 898861	0	15	4. 66
Minutes	Seconds	15′	10′	5′	Seconds	Minutes	Propor. parts.
		Co-secant of 7 degrees, or Secant of 97 degrees.					

Minutes	Seconds	Secant of 82 degrees, or Co-secant of 172 degrees. 0′	5′	10″	Seconds	Minutes	Propor. parts.
45	0	10. 898944	10. 899027	10. 899110	45		1″ = 17
	15	10. 899192	10. 899275	10. 899358	30		2. 33
	30	10. 899441	10. 899524	10. 899607	15		3. 50
	45	10. 899690	10. 899772	10. 899855	0	14	4. 66
46	0	10. 899938	10. 900021	10. 900104	45		1 = 17
	15	10. 900187	10. 900270	10. 900353	30		2. 33
	30	10. 900436	10. 900519	10. 900602	15		3. 50
	45	10. 900686	10. 900769	10. 900852	0	13	4. 66
47	0	10. 900935	10. 901018	10. 901101	45		1 = 17
	15	10. 901184	10. 901268	10. 901351	30		2. 33
	30	10. 901434	10. 901517	10. 901600	15		3. 50
	45	10. 901684	10. 901767	10. 901850	0	12	4. 67
48	0	10. 901934	10. 902017	10. 902100	45		1 = 17
	15	10. 902184	10. 902267	10. 902351	30		2. 33
	30	10. 902434	10. 902517	10. 902601	15		3. 50
	45	10. 902684	10. 902768	10. 902851	0	11	4. 67
49	0	10. 902935	10. 903018	10. 903102	45		1 = 17
	15	10. 903186	10. 903269	10. 903353	30		2. 33
	30	10. 903436	10. 903520	10. 903604	15		3. 50
	45	10. 903687	10. 903771	10. 903855	0	10	4. 67
50	0	10. 903938	10. 904022	10. 904106	45		1 = 17
	15	10. 904190	10. 904273	10. 904357	30		2. 34
	30	10. 904441	10. 904525	10. 904609	15		3. 50
	45	10. 904693	10. 904777	10. 904860	0	9	4. 67
51	0	10. 904944	10. 905028	10. 905112	45		1 = 17
	15	10. 905196	10. 905280	10. 905364	30		2. 34
	30	10. 905448	10. 905532	10. 905616	15		3. 50
	45	10. 905700	10. 905784	10. 905868	0	8	4. 67
52	0	10. 905953	10. 906037	10. 906121	45		1 = 17
	15	10. 906205	10. 906289	10. 906373	30		2. 34
	30	10. 906458	10. 906542	10. 906626	15		3. 51
	45	10. 906710	10. 906795	10. 906879	0	7	4. 67
53	0	10. 906963	10. 907048	10. 907132	45		1 = 17
	15	10. 907216	10. 907301	10. 907385	30		2. 34
	30	10. 907469	10. 907554	10. 907638	15		3. 51
	45	10. 907723	10. 907807	10. 907892	0	6	4. 68
54	0	10. 907976	10. 908061	10. 908145	45		1 = 17
	15	10. 908230	10. 908315	10. 908399	30		2. 34
	30	10. 908484	10. 908568	10. 908653	15		3. 51
	45	10. 908738	10. 908822	10. 908907	0	5	4. 68
55	0	10. 908992	10. 909076	10. 909161	45		1 = 17
	15	10. 909246	10. 909331	10. 909416	30		2. 34
	30	10. 909500	10. 909585	10. 909670	15		3. 51
	45	10. 909755	10. 909840	10. 909925	0	4	4. 68
56	0	10. 910010	10. 910095	10. 910179	45		1 = 17
	15	10. 910264	10. 910349	10. 910434	30		2. 34
	30	10. 910519	10. 910604	10. 910690	15		3. 51
	45	10. 910775	10. 910860	10. 910945	0	3	4. 68
57	0	10. 911030	10. 911115	10. 911200	45		1 = 17
	15	10. 911285	10. 911371	10. 911456	30		2. 34
	30	10. 911541	10. 911626	10. 911711	15		3. 51
	45	10. 911797	10. 911882	10. 911967	0	2	4. 68
58	0	10. 912053	10. 912138	10. 912223	45		1 = 17
	15	10. 912309	10. 912394	10. 912480	30		2. 34
	30	10. 912565	10. 912650	10. 912736	15		3. 51
	45	10. 912821	10. 912907	10. 912992	0	1	4. 68
59	0	10. 913078	10. 913163	10. 913249	45		1 = 17
	15	10. 913335	10. 913420	10. 913506	30		2. 34
	30	10. 913591	10. 913677	10. 913763	15		3. 51
	45	10. 913848	10. 913934	10. 914020	0	0	4. 68
Minutes	Seconds	15′	10′	5′	Seconds	Minutes	Propor. parts.
		Co-secant of 7 degrees, or Secant of 97 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 83 degrees, or Co-secant of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 914105	10. 914191	10. 914277	45		1″ = 17
	15	10. 914363	10. 914449	10. 914534	30		2. 34
	30	10. 914620	10. 914706	10. 914792	15		3. 52
	45	10. 914878	10. 914964	10. 915050	0	59	4. 69
1	0	10. 915136	10. 915222	10. 915308	45		1 = 17
	15	10. 915394	10. 915480	10. 915566	30		2. 34
	30	10. 915652	10. 915738	10. 915824	15		3. 52
	45	10. 915910	10. 915996	10. 916082	0	58	4. 69
2	0	10. 916168	10. 916254	10. 916341	45		1 = 17
	15	10. 916427	10. 916513	10. 916599	30		2. 35
	30	10. 916685	10. 916772	10. 916858	15		3. 52
	45	10. 916944	10. 917031	10. 917117	0	57	4. 69
3	0	10. 917203	10. 917290	10. 917376	45		1 = 17
	15	10. 917462	10. 917549	10. 917635	30		2. 35
	30	10. 917722	10. 917808	10. 917895	15		3. 52
	45	10. 917981	10. 918068	10. 918154	0	56	4. 69
4	0	10. 918241	10. 918328	10. 918414	45		1 = 17
	15	10. 918501	10. 918587	10. 918674	30		2. 35
	30	10. 918761	10. 918847	10. 918934	15		3. 52
	45	10. 919021	10. 919108	10. 919194	0	55	4. 69
5	0	10. 919281	10. 919368	10. 919455	45		1 = 17
	15	10. 919542	10. 919628	10. 919715	30		2. 35
	30	10. 919802	10. 919889	10. 919976	15		3. 52
	45	10. 920063	10. 920150	10. 920237	0	54	4. 69
6	0	10. 920324	10. 920411	10. 920498	45		1 = 17
	15	10. 920585	10. 920672	10. 920759	30		2. 35
	30	10. 920846	10. 920933	10. 921020	15		3. 52
	45	10. 921107	10. 921195	10. 921282	0	53	4. 70
7	0	10. 921369	10. 921456	10. 921543	45		1 = 17
	15	10. 921631	10. 921718	10. 921805	30		2. 35
	30	10. 921893	10. 921980	10. 922067	15		3. 52
	45	10. 922155	10. 922242	10. 922329	0	52	4. 70
8	0	10. 922417	10. 922504	10. 922592	45		1 = 18
	15	10. 922679	10. 922767	10. 922854	30		2. 35
	30	10. 922942	10. 923029	10. 923117	15		3. 53
	45	10. 923204	10. 923292	10. 923379	0	51	4. 70
9	0	10. 923467	10. 923555	10. 923642	45		1 = 18
	15	10. 923730	10. 923818	10. 923906	30		2. 35
	30	10. 923993	10. 924081	10. 924169	15		3. 53
	45	10. 924257	10. 924344	10. 924432	0	50	4. 70
10	0	10. 924520	10. 924608	10. 924696	45		1 = 18
	15	10. 924784	10. 924872	10. 924960	30		2. 35
	30	10. 925047	10. 925135	10. 925223	15		3. 53
	45	10. 925311	10. 925399	10. 925487	0	49	4. 70
11	0	10. 925576	10. 925664	10. 925752	45		1 = 18
	15	10. 925840	10. 925928	10. 926016	30		2. 35
	30	10. 926104	10. 926192	10. 926281	15		3. 53
	45	10. 926369	10. 926457	10. 926545	0	48	4. 71
12	0	10. 926634	10. 926722	10. 926810	45		1 = 18
	15	10. 926899	10. 926987	10. 927075	30		2. 35
	30	10. 927164	10. 927252	10. 927341	15		3. 53
	45	10. 927429	10. 927517	10. 927606	0	47	4. 71
13	0	10. 927694	10. 927783	10. 927871	45		1 = 18
	15	10. 927960	10. 928049	10. 928137	30		2. 35
	30	10. 928226	10. 928314	10. 928403	15		3. 53
	45	10. 928492	10. 928580	10. 928669	0	46	4. 71
14	0	10. 928758	10. 928847	10. 928935	45		1 = 18
	15	10. 929024	10. 929113	10. 929202	30		2. 36
	30	10. 929291	10. 929379	10. 929468	15		3. 53
	45	10. 929557	10. 929646	10. 929735	0	45	4. 71
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 6 degrees, or Secant of 96 degrees.					

Minutes	Seconds	Secant of 83 degrees, or Co-secant of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 929824	10. 929913	10. 930002	45		1″ = 1
	15	10. 930091	10. 930180	10. 930269	30		2. 3
	30	10. 930358	10. 930447	10. 930536	15		3. 5
	45	10. 930625	10. 930714	10. 930803	0	44	4. 7
16	0	10. 930893	10. 930982	10. 931071	45		1 = 1
	15	10. 931160	10. 931249	10. 931339	30		2. 3
	30	10. 931428	10. 931517	10. 931607	15		3. 5
	45	10. 931696	10. 931785	10. 931875	0	43	4. 7
17	0	10. 931964	10. 932053	10. 932143	45		1 = 1
	15	10. 932232	10. 932322	10. 932411	30		2. 3
	30	10. 932501	10. 932590	10. 932680	15		3. 5
	45	10. 932769	10. 932859	10. 932948	0	42	4. 7
18	0	10. 933038	10. 933128	10. 933217	45		1 = 1
	15	10. 933307	10. 933397	10. 933486	30		2. 3
	30	10. 933576	10. 933666	10. 933756	15		3. 5
	45	10. 933845	10. 933935	10. 934025	0	41	4. 7
19	0	10. 934115	10. 934205	10. 934294	45		1 = 1
	15	10. 934384	10. 934474	10. 934564	30		2. 3
	30	10. 934654	10. 934744	10. 934834	15		3. 5
	45	10. 934924	10. 935014	10. 935104	0	40	4. 7
20	0	10. 935194	10. 935284	10. 935374	45		1 = 1
	15	10. 935465	10. 935555	10. 935645	30		2. 3
	30	10. 935735	10. 935825	10. 935915	15		3. 5
	45	10. 936006	10. 936096	10. 936186	0	39	4. 7
21	0	10. 936276	10. 936367	10. 936457	45		1 = 1
	15	10. 936547	10. 936638	10. 936728	30		2. 3
	30	10. 936819	10. 936909	10. 936999	15		3. 5
	45	10. 937090	10. 937180	10. 937271	0	38	4. 7
22	0	10. 937361	10. 937452	10. 937542	45		1 = 1
	15	10. 937633	10. 937724	10. 937814	30		2. 3
	30	10. 937905	10. 937996	10. 938086	15		3. 5
	45	10. 938177	10. 938268	10. 938358	0	37	4. 7
23	0	10. 938449	10. 938540	10. 938631	45		1 = 1
	15	10. 938721	10. 938812	10. 938903	30		2. 3
	30	10. 938994	10. 939085	10. 939176	15		3. 5
	45	10. 939267	10. 939358	10. 939449	0	36	4. 7
24	0	10. 939540	10. 939631	10. 939722	45		1 = 1
	15	10. 939813	10. 939904	10. 939995	30		2. 3
	30	10. 940086	10. 940177	10. 940268	15		3. 5
	45	10. 940359	10. 940450	10. 940542	0	35	4. 7
25	0	10. 940633	10. 940724	10. 940815	45		1 = 1
	15	10. 940907	10. 940998	10. 941089	30		2. 3
	30	10. 941180	10. 941272	10. 941363	15		3. 5
	45	10. 941455	10. 941546	10. 941637	0	34	4. 7
26	0	10. 941729	10. 941820	10. 941912	45		1 = 1
	15	10. 942003	10. 942095	10. 942186	30		2. 3
	30	10. 942278	10. 942369	10. 942461	15		3. 5
	45	10. 942553	10. 942644	10. 942736	0	33	4. 7
27	0	10. 942828	10. 942919	10. 943011	45		1 = 1
	15	10. 943103	10. 943195	10. 943286	30		2. 3
	30	10. 943378	10. 943470	10. 943562	15		3. 5
	45	10. 943654	10. 943746	10. 943837	0	32	4. 7
28	0	10. 943929	10. 944021	10. 944113	45		1 = 1
	15	10. 944205	10. 944297	10. 944389	30		2. 3
	30	10. 944481	10. 944573	10. 944665	15		3. 5
	45	10. 944757	10. 944850	10. 944942	0	31	4. 7
29	0	10. 945034	10. 945126	10. 945218	45		1 = 1
	15	10. 945310	10. 945403	10. 945495	30		2. 3
	30	10. 945587	10. 945679	10. 945772	15		3. 5
	45	10. 945864	10. 945956	10. 946049	0	30	4. 7
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 6 degrees, or Secant of 96 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 83 degrees, or Co-secant of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10. 946141	10. 946234	10. 946326	45		1″ = 19
	15	10. 946418	10. 946511	10. 946603	30		2. 37
	30	10. 946696	10. 946788	10. 946881	15		3. 56
	45	10. 946974	10. 947066	10. 947159	0	29	4. 74
31	0	10. 947251	10. 947344	10. 947437	45		1 = 19
	15	10. 947529	10. 947622	10. 947715	30		2. 37
	30	10. 947808	10 947900	10. 947993	15		3. 56
	45	10. 948086	10. 948179	10. 948272	0	28	4. 74
32	0	10. 948365	10. 948457	10. 948550	45		1 = 19
	15	10. 948643	10. 948736	10. 948829	30		2. 37
	30	10. 948922	10. 949015	10. 949108	15		3. 56
	45	10. 949201	10. 949294	10. 949387	0	27	4. 74
33	0	10. 949481	10. 949574	10. 949667	45		1 = 19
	15	10. 949760	10. 949853	10. 949946	30		2. 37
	30	10. 950040	10. 950133	10. 950226	15		3. 56
	45	10. 950319	10. 950413	10. 950506	0	26	4. 75
34	0	10. 950599	10. 950693	10. 950786	45		1 = 19
	15	10. 950880	10. 950973	10. 951067	30		2. 37
	30	10. 951160	10. 951254	10. 951347	15		3. 56
	45	10. 951441	10. 951534	10. 951628	0	25	4. 75
35	0	10. 951721	10. 951815	10. 951909	45		1 = 19
	15	10. 952002	10. 952096	10. 952190	30		2. 37
	30	10. 952283	10. 952377	10. 952471	15		3. 56
	45	10. 952565	10. 952658	10. 952752	0	24	4. 75
36	0	10. 952846	10. 952940	10. 953034	45		1 = 19
	15	10. 953128	10. 953222	10. 953316	30		2. 38
	30	10. 953410	10. 953504	10. 953598	15		3. 56
	45	10. 953692	10. 953786	10. 953880	0	23	4. 75
37	0	10. 953974	10. 954068	10. 954162	45		1 = 19
	15	10. 954256	10. 954350	10. 954445	30		2. 38
	30	10. 954539	10. 954633	10. 954727	15		3. 57
	45	10. 954822	10. 954916	10. 955010	0	22	4. 75
38	0	10. 955105	10. 955199	10. 955293	45		1 = 19
	15	10. 955388	10. 955482	10. 955577	30		2. 38
	30	10. 955671	10. 955766	10. 955860	15		3. 57
	45	10. 955955	10. 956049	10. 956144	0	21	4. 76
39	0	10. 956238	10. 956333	10. 956428	45		1 = 19
	15	10. 956522	10. 956617	10. 956712	30		2. 38
	30	10. 956806	10. 956901	10. 956996	15		3. 57
	45	10. 957091	10. 957185	10. 957280	0	20	4. 76
40	0	10. 957375	10. 957470	10. 957565	45		1 = 19
	15	10. 957660	10. 957755	10. 957850	30		2. 38
	30	10. 957944	10. 958039	10. 958134	15		3. 57
	45	10. 958230	10. 958325	10. 958420	0	19	4. 76
41	0	10. 958515	10. 958610	10. 958705	45		1 = 19
	15	10. 958800	10. 958895	10. 958991	30		2. 38
	30	10. 959086	10. 959181	10. 959276	15		3. 57
	45	10. 959372	10. 959467	10. 959562	0	18	4. 76
42	0	10. 959658	10. 959753	10. 959848	45		1 = 19
	15	10. 959944	10. 960039	10. 960135	30		2. 38
	30	10. 960230	10. 960326	10. 960421	15		3. 57
	45	10. 960517	10. 960612	10. 960708	0	17	4. 76
43	0	10. 960803	10. 960899	10. 960995	45		1 = 19
	15	10. 961090	10. 961186	10. 961282	30		2. 38
	30	10. 961377	10. 961473	10. 961569	15		3. 57
	45	10. 961665	10. 961761	10. 961856	0	16	4. 77
44	0	10. 961952	10. 962048	10. 962144	45		1 = 19
	15	10. 962240	10. 962336	10. 962432	30		2. 38
	30	10. 962528	10. 962624	10. 962720	15		3. 58
	45	10. 962816	10. 962912	10. 963008	0	15	4. 77
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 6 degrees, or Secant of 96 degrees.					

Minutes	Seconds	Secant of 83 degrees, or Co-secant of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 963104	10. 963200	10. 963296	45		1″ = 19
	15	10. 963393	10. 963489	10. 963585	30		2. 39
	30	10. 963681	10. 963778	10. 963874	15		3. 58
	45	10. 963970	10. 964067	10. 964163	0	14	4. 77
46	0	10. 964259	10. 964356	10. 964452	45		1 = 19
	15	10. 964549	10. 964645	10. 964741	30		2. 39
	30	10. 964838	10. 964935	10. 965031	15		3. 58
	45	10. 965128	10. 965224	10. 965321	0	13	4. 77
47	0	10. 965417	10. 965514	10. 965611	45		1 = 19
	15	10. 965707	10. 965804	10. 965901	30		2. 39
	30	10. 965998	10. 966095	10. 966191	15		3. 58
	45	10. 966288	10. 966385	10. 966482	0	12	4. 77
48	0	10. 966579	10. 966676	10. 966773	45		1 = 19
	15	10. 966870	10. 966967	10. 967064	30		2. 39
	30	10. 967161	10. 967258	10. 967355	15		3. 58
	45	10. 967452	10. 967549	10. 967646	0	11	4. 78
49	0	10. 967743	10. 967840	10. 967938	45		1 = 19
	15	10. 968035	10. 968132	10. 968229	30		2. 39
	30	10. 968327	10. 968424	10. 968521	15		3. 58
	45	10. 968619	10. 968716	10. 968813	0	10	4. 78
50	0	10. 968911	10. 969008	10. 969106	45		1 = 20
	15	10. 969203	10. 969301	10. 969398	30		2. 39
	30	10. 969496	10. 969594	10. 969691	15		3. 59
	45	10. 969789	10. 969886	10. 969984	0	9	4. 78
51	0	10. 970082	10. 970179	10. 970277	45		1 = 20
	15	10. 970375	10. 970473	10. 970571	30		2. 39
	30	10. 970668	10. 970766	10. 970864	15		3. 59
	45	10. 970962	10. 971060	10. 971158	0	8	4. 78
52	0	10. 971256	10. 971354	10. 971452	45		1 = 20
	15	10. 971550	10. 971648	10. 971746	30		2. 39
	30	10. 971844	10. 971942	10. 972040	15		3. 59
	45	10. 972138	10. 972237	10. 972335	0	7	4. 78
53	0	10. 972433	10. 972531	10. 972630	45		1 = 20
	15	10. 972728	10. 972826	10. 972924	30		2. 39
	30	10. 973023	10. 973121	10. 973220	15		3. 59
	45	10. 973318	10. 973417	10. 973515	0	6	4. 79
54	0	10. 973613	10. 973712	10. 973811	45		1 = 20
	15	10 973909	10. 974008	10. 974106	30		2. 39
	30	10. 974205	10. 974304	10. 974402	15		3. 59
	45	10. 974501	10. 974600	10. 974698	0	5	4. 79
55	0	10. 974797	10. 974896	10. 974995	45		1 = 20
	15	10. 975094	10. 975103	10. 975291	30		2. 40
	30	10. 975390	10. 975489	10. 975588	15		3. 59
	45	10. 975687	10. 975786	10. 975885	0	4	4. 79
56	0	10. 975984	10. 976083	10. 976182	45		1 = 20
	15	10. 976282	10. 976381	10. 976480	30		2. 40
	30	10. 976579	10. 976678	10. 976777	15		3. 59
	45	10. 976877	10. 976976	10. 977075	0	3	4. 79
57	0	10. 977175	10. 977274	10. 977373	45		1 = 20
	15	10. 977473	10. 977572	10. 977671	30		2. 40
	30	10. 977771	10. 977870	10. 977970	15		3. 60
	45	10. 978069	10. 978169	10. 978269	0	2	4. 80
58	0	10. 978368	10. 978468	10. 978567	45		1 = 20
	15	10. 978667	10. 978767	10. 978866	30		2. 40
	30	10. 978966	10. 979066	10. 979166	15		3. 60
	45	10. 979266	10. 979365	10. 979465	0	1	4. 80
59	0	10. 979565	10. 979665	10. 979765	45		1 = 20
	15	10. 979865	10. 979965	10. 980065	30		2. 40
	30	10. 980165	10. 980265	10. 980365	15		3. 60
	45	10. 980465	10. 980565	10. 980665	0	0	4. 80
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 6 degrees, or Secant of 96 degrees.					

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Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 980765	10. 980866	10. 980966	45		1″ = 20
	15	10. 981066	10. 981166	10. 981267	30		2. 40
	30	10. 981367	10. 981467	10. 981567	15		3. 60
	45	10. 981668	10. 981768	10. 981869	0	59	4. 80
1	0	10. 981969	10. 982069	10. 982170	45		1 = 20
	15	10. 982270	10. 982371	10. 982472	30		2. 40
	30	10. 982572	10. 982673	10. 982773	15		3. 60
	45	10. 982874	10. 982975	10. 983075	0	58	4. 80
2	0	10. 983176	10. 983277	10. 983378	45		1 = 20
	15	10. 983478	10. 983579	10. 983680	30		2. 40
	30	10. 983781	10. 983882	10. 983983	15		3. 61
	45	10. 984084	10. 984185	10. 984285	0	57	4. 81
3	0	10. 984386	10. 984488	10. 984589	45		1 = 20
	15	10. 984690	10. 984791	10. 984892	30		2. 40
	30	10. 984993	10. 985094	10. 985195	15		3. 61
	45	10. 985297	10. 985398	10. 985499	0	56	4. 81
4	0	10. 985600	10. 985702	10. 985803	45		1 = 20
	15	10. 985904	10. 986006	10. 986107	30		2. 41
	30	10. 986209	10. 986310	10. 986411	15		3. 61
	45	10. 986513	10. 986614	10. 986716	0	55	4. 81
5	0	10. 986818	10. 986919	10. 987021	45		1 = 20
	15	10. 987122	10. 987224	10. 987326	30		2. 41
	30	10. 987428	10. 987529	10. 987631	15		3. 61
	45	10. 987733	10. 987835	10. 987937	0	54	4. 81
6	0	10. 988038	10. 988140	10. 988242	45		1 = 20
	15	10. 988344	10. 988446	10. 988548	30		2. 41
	30	10. 988650	10. 988752	10. 988854	15		3. 61
	45	10. 988956	10. 989058	10. 989160	0	53	4. 82
7	0	10. 989263	10. 989365	10. 989467	45		1 = 20
	15	10. 989569	10. 989671	10. 989774	30		2. 41
	30	10. 989876	10. 989978	10. 990081	15		3. 61
	45	10. 990183	10. 990285	10. 990388	0	52	4. 82
8	0	10. 990490	10. 990593	10. 990695	45		1 = 21
	15	10. 990798	10. 990900	10. 991003	30		2. 41
	30	10. 991105	10. 991208	10. 991311	15		3. 62
	45	10. 991413	10. 991516	10. 991619	0	51	4. 82
9	0	10. 991722	10. 991824	10. 991927	45		1 = 21
	15	10. 992030	10. 992133	10. 992236	30		2. 41
	30	10. 992338	10. 992441	10. 992544	15		3. 62
	45	10. 992647	10. 992750	10. 992853	0	50	4. 82
10	0	10. 992956	10. 993059	10. 993162	45		1 = 21
	15	10. 993266	10. 993369	10. 993472	30		2. 41
	30	10. 993575	10. 993678	10. 993781	15		3. 62
	45	10. 993885	10. 993988	10. 994091	0	49	4. 83
11	0	10. 994195	10. 994298	10. 994401	45		1 = 21
	15	10. 994505	10. 994608	10. 994712	30		2. 41
	30	10. 994815	10. 994919	10. 995022	15		3. 62
	45	10. 995126	10. 995229	10. 995333	0	48	4. 83
12	0	10. 995437	10. 995540	10. 995644	45		1 = 21
	15	10. 995748	10. 995851	10. 995955	30		2. 42
	30	10. 996059	10. 996163	10. 996267	15		3. 62
	45	10. 996370	10. 996474	10. 996578	0	47	4. 83
13	0	10. 996682	10. 996786	10. 996890	45		1 = 21
	15	10. 996994	10. 997098	10. 997202	30		2. 42
	30	10. 997306	10. 997410	10. 997514	15		3. 62
	45	10. 997619	10. 997723	10. 997827	0	46	4. 83
14	0	10. 997931	10. 998035	10. 998140	45		1 = 21
	15	10. 998244	10. 998348	10. 998453	30		2. 42
	30	10. 998557	10. 998662	10. 998766	15		3. 63
	45	10. 998870	10. 998975	10. 999079	0	45	4. 84
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 999184	10. 999289	10. 999393	45		1″ = 21
	15	10. 999498	10. 999602	10. 999707	30		2. 42
	30	10. 999812	10. 999916	11. 000021	15		3. 63
	45	11. 000126	11. 000231	11. 000336	0	44	4. 84
16	0	11. 000440	11. 000545	11. 000650	45		1 = 2
	15	11. 000755	11. 000860	11. 000965	30		2. 4
	30	11. 001070	11. 001175	11. 001280	15		3. 6
	45	11. 001385	11. 001490	11. 001595	0	43	4. 8
17	0	11. 001701	11. 001806	11. 001911	45		1 = 2
	15	11. 002016	11. 002121	11. 002227	30		2. 4
	30	11. 002332	11. 002437	11. 002543	15		3. 6
	45	11. 002648	11. 002753	11. 002859	0	42	4. 8
18	0	11. 002964	11. 003070	11. 003175	45		1 = 2
	15	11. 003281	11. 003386	11. 003492	30		2. 4
	30	11. 003598	11. 003703	11. 003809	15		3. 6
	45	11. 003915	11. 004020	11. 004126	0	41	4. 8
19	0	11. 004232	11. 004338	11. 004443	45		1 = 2
	15	11. 004549	11. 004655	11. 004761	30		2. 4
	30	11. 004867	11. 004973	11. 005079	15		3. 6
	45	11. 005185	11. 005291	11. 005397	0	40	4. 8
20	0	11. 005503	11. 005609	11. 005715	45		1 = 2
	15	11. 005822	11. 005928	11. 006034	30		2. 4
	30	11. 006140	11. 006246	11. 006353	15		3. 6
	45	11. 006459	11. 006565	11. 006672	0	39	4. 8
21	0	11. 006778	11. 006885	11. 006991	45		1 = 2
	15	11. 007098	11. 007204	11. 007311	30		2. 4
	30	11. 007417	11. 007524	11. 007630	15		3. 6
	45	11. 007737	11. 007844	11. 007950	0	38	4. 8
22	0	11. 008057	11. 008164	11. 008271	45		1 = 2
	15	11. 008377	11. 008484	11. 008591	30		2. 4
	30	11. 008698	11. 008805	11. 008912	15		3. 6
	45	11. 009019	11. 009126	11. 009233	0	37	4. 8
23	0	11. 009340	11. 009447	11. 009554	45		1 = 2
	15	11. 009661	11. 009768	11. 009875	30		2. 4
	30	11. 009983	11. 010090	11. 010197	15		3. 6
	45	11. 010304	11. 010412	11. 010519	0	36	4. 8
24	0	11. 010626	11. 010734	11. 010841	45		1 = 2
	15	11. 010948	11. 011056	11. 011164	30		2. 4
	30	11. 011271	11. 011378	11. 011486	15		3. 6
	45	11. 011594	11. 011701	11. 011809	0	35	4. 8
25	0	11. 011917	11. 012024	11. 012132	45		1 = 2
	15	11. 012240	11. 012348	11. 012455	30		2. 4
	30	11. 012563	11. 012671	11. 012779	15		3. 6
	45	11. 012887	11. 012995	11. 013103	0	34	4. 8
26	0	11. 013211	11. 013319	11. 013427	45		1 = 2
	15	11. 013535	11. 013643	11. 013751	30		2. 4
	30	11. 013859	11. 013968	11. 014076	15		3. 6
	45	11. 014184	11. 014292	11. 014401	0	33	4. 8
27	0	11. 014509	11. 014617	11. 014726	45		1 = 2
	15	11. 014834	11. 014943	11. 015051	30		2. 4
	30	11. 015160	11. 015268	11. 015377	15		3. 6
	45	11. 015485	11. 015594	11. 015702	0	32	4. 8
28	0	11. 015811	11. 015920	11. 016028	45		1 = 2
	15	11. 016137	11. 016246	11. 016355	30		2. 4
	30	11. 016464	11. 016572	11. 016681	15		3. 6
	45	11. 016790	11. 016899	11. 017008	0	31	4. 8
29	0	11. 017117	11. 017226	11. 017335	45		1 = 2
	15	11. 017444	11. 017553	11. 017662	30		2. 4
	30	11. 017772	11. 017881	11. 017990	15		3. 6
	45	11. 018099	11. 018208	11. 018318	0	30	4. 8
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11.018427	11.018536	11.018646	45		1″ = 22
	15	11.018755	11.018865	11.018974	30		2. 44
	30	11.019084	11.019193	11.019303	15		3. 66
	45	11.019412	11.019522	11.019631	0	29	4. 88
31	0	11.019741	11.019851	11.019960	45		1 = 22
	15	11.020070	11.020180	11.020290	30		2. 44
	30	11.020400	11.020509	11.020619	15		3. 66
	45	11.020729	11.020839	11.020949	0	28	4. 88
32	0	11.021059	11.021169	11.021279	45		1 = 22
	15	11.021389	11.021499	11.021609	30		2. 44
	30	11.021720	11.021830	11.021940	15		3. 66
	45	11.022050	11.022161	11.022271	0	27	4. 88
33	0	11.022381	11.022492	11.022602	45		1 = 22
	15	11.022712	11.022823	11.022933	30		2. 44
	30	11.023044	11.023154	11.023265	15		3. 66
	45	11.023375	11.023486	11.023597	0	26	4. 88
34	0	11.023707	11.023818	11.023929	45		1 = 22
	15	11.024040	11.024150	11.024261	30		2. 44
	30	11.024372	11.024483	11.024594	15		3. 67
	45	11.024705	11.024816	11.024927	0	25	4. 89
35	0	11.025038	11.025149	11.025260	45		1 = 22
	15	11.025371	11.025482	11.025593	30		2. 44
	30	11.025704	11.025815	11.025927	15		3. 67
	45	11.026038	11.026149	11.026261	0	24	4. 89
36	0	11.026372	11.026483	11.026595	45		1 = 22
	15	11.026706	11.026818	11.026929	30		2. 45
	30	11.027041	11.027152	11.027264	15		3. 67
	45	11.027375	11.027487	11.027599	0	23	4. 89
37	0	11.027710	11.027822	11.027934	45		1 = 22
	15	11.028046	11.028158	11.028269	30		2. 45
	30	11.028381	11.028493	11.028605	15		3. 67
	45	11.028717	11.028829	11.028941	0	22	4. 90
38	0	11.029053	11.029165	11.029277	45		1 = 22
	15	11.029390	11.029502	11.029614	30		2. 45
	30	11.029726	11.029838	11.029951	15		3. 67
	45	11.030063	11.030175	11.030288	0	21	4. 90
39	0	11.030400	11.030513	11.030625	45		1 = 23
	15	11.030737	11.030850	11.030963	30		2. 45
	30	11.031075	11.031188	11.031300	15		3. 68
	45	11.031413	11.031526	11.031638	0	20	4. 90
40	0	11.031751	11.031864	11.031977	45		1 = 23
	15	11.032090	11.032203	11.032315	30		2. 45
	30	11.032428	11.032541	11.032654	15		3. 68
	45	11.032767	11.032880	11.032993	0	19	4. 90
41	0	11.033107	11.033220	11.033333	45		1 = 23
	15	11.033446	11.033559	11.033673	30		2. 45
	30	11.033786	11.033899	11.034013	15		3. 68
	45	11.034126	11.034239	11.034353	0	18	4. 91
42	0	11.034466	11.034580	11.034693	45		1 = 23
	15	11.034807	11.034920	11.035034	30		2. 45
	30	11.035148	11.035261	11.035375	15		3. 68
	45	11.035489	11.035603	11.035716	0	17	4. 91
43	0	11.035830	11.035944	11.036058	45		1 = 23
	15	11.036172	11.036286	11.036400	30		2. 46
	30	11.036514	11.036628	11.036742	15		3. 68
	45	11.036856	11.036970	11.037084	0	16	4. 91
44	0	11.037199	11.037313	11.037427	45		1 = 23
	15	11.037541	11.037656	11.037770	30		2. 46
	30	11.037884	11.037999	11.038113	15		3. 69
	45	11.038228	11.038342	11.038457	0	15	4. 91
		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.038571	11.038686	11.038800	45		1″ = 23
	15	11.038915	11.039030	11.039144	30		2. 46
	30	11.039259	11.039374	11.039489	15		3. 69
	45	11.039604	11.039718	11.039833	0	14	4. 92
46	0	11.039948	11.040063	11.040178	45		1 = 23
	15	11.040293	11.040408	11.040523	30		2. 46
	30	11.040638	11.040754	11.040869	15		3. 69
	45	11.040984	11.041099	11.041214	0	13	4. 92
47	0	11.041330	11.041445	11.041560	45		1 = 23
	15	11.041676	11.041791	11.041907	30		2. 46
	30	11.042022	11.042138	11.042253	15		3. 69
	45	11.042369	11.042484	11.042600	0	12	4. 92
48	0	11.042716	11.042831	11.042947	45		1 = 23
	15	11.043063	11.043179	11.043294	30		2. 46
	30	11.043410	11.043526	11.043642	15		3. 70
	45	11.043758	11.043874	11.043990	0	11	4. 93
49	0	11.044106	11.044222	11.044338	45		1 = 23
	15	11.044454	11.044570	11.044687	30		2. 46
	30	11.044803	11.044919	11.045035	15		3. 70
	45	11.045152	11.045268	11.045384	0	10	4. 93
50	0	11.045501	11.045617	11.045734	45		1 = 23
	15	11.045850	11.045967	11.046083	30		2. 47
	30	11.046200	11.046317	11.046433	15		3. 70
	45	11.046550	11.046667	11.046784	0	9	4. 93
51	0	11.046900	11.047017	11.047134	45		1 = 23
	15	11.047251	11.047368	11.047485	30		2. 47
	30	11.047602	11.047719	11.047836	15		3. 70
	45	11.047953	11.048070	11.048187	0	8	4. 94
52	0	11.048304	11.048421	11.048539	45		1 = 23
	15	11.048656	11.048773	11.048891	30		2. 47
	30	11.049008	11.049125	11.049243	15		3. 70
	45	11.049360	11.049478	11.049595	0	7	4. 94
53	0	11.049713	11.049830	11.049948	45		1 = 24
	15	11.050066	11.050183	11.050301	30		2. 47
	30	11.050419	11.050537	11.050654	15		3. 71
	45	11.050772	11.050890	11.051008	0	6	4. 94
54	0	11.051126	11.051244	11.051362	45		1 = 24
	15	11.051480	11.051598	11.051716	30		2. 47
	30	11.051834	11.051953	11.052071	15		3. 71
	45	11.052189	11.052307	11.052426	0	5	4. 94
55	0	11.052544	11.052662	11.052781	45		1 = 24
	15	11.052899	11.053018	11.053136	30		2. 47
	30	11.053255	11.053373	11.053492	15		3. 71
	45	11.053610	11.053729	11.053848	0	4	4. 95
56	0	11.053966	11.054085	11.054204	45		1 = 24
	15	11.054323	11.054442	11.054561	30		2. 48
	30	11.054679	11.054798	11.054917	15		3. 71
	45	11.055036	11.055155	11.055275	0	3	4. 95
57	0	11.055394	11.055513	11.055632	45		1 = 24
	15	11.055751	11.055870	11.055990	30		2. 48
	30	11.056109	11.056228	11.056348	15		3. 72
	45	11.056467	11.056587	11.056706	0	2	4. 95
58	0	11.056826	11.056945	11.057065	45		1 = 24
	15	11.057184	11.057304	11.057424	30		2. 48
	30	11.057543	11.057663	11.057783	15		3. 72
	45	11.057903	11.058023	11.058142	0	1	4. 96
59	0	11.058262	11.058382	11.058502	45		1 = 24
	15	11.058622	11.058742	11.058862	30		2. 48
	30	11.058983	11.059103	11.059223	15		3. 72
	45	11.059343	11.059463	11.059584	0	0	4. 96
		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11.059704	11.059824	11.059945	45		1″ = 24
	15	11.060065	11.060186	11.060306	30		2. 48
	30	11.060427	11.060547	11.060668	15		3. 72
	45	11.060788	11.060909	11.061030	0	59	4. 96
1	0	11.061150	11.061271	11.061392	45		1 = 24
	15	11.061513	11.061634	11.061754	30		2. 48
	30	11.061875	11.061996	11.062117	15		3. 73
	45	11.062238	11.062359	11.062480	0	58	4. 97
2	0	11.062602	11.062723	11.062844	45		1 = 24
	15	11.062965	11.063086	11.063208	30		2. 49
	30	11.063329	11.063450	11.063572	15		3. 73
	45	11.063693	11.063815	11.063936	0	57	4. 97
3	0	11.064058	11.064179	11.064301	45		1 = 24
	15	11.064423	11.064544	11.064666	30		2. 49
	30	11.064788	11.064909	11.065031	15		3. 73
	45	11.065153	11.065275	11.065397	0	56	4. 97
4	0	11.065519	11.065641	11.065763	45		1 = 24
	15	11.065885	11.066007	11.066129	30		2. 49
	30	11.066251	11.066373	11.066496	15		3. 73
	45	11.066618	11.066740	11.066863	0	55	4. 98
5	0	11.066985	11.067107	11.067230	45		1 = 25
	15	11.067352	11.067475	11.067597	30		2. 49
	30	11.067720	11.067842	11.067965	15		3. 74
	45	11.068088	11.068210	11.068333	0	54	4. 98
6	0	11.068456	11.068579	11.068702	45		1 = 25
	15	11.068825	11.068948	11.069070	30		2. 49
	30	11.069193	11.069316	11.069440	15		3. 74
	45	11.069563	11.069686	11.069809	0	53	4. 98
7	0	11.069932	11.070055	11.070179	45		1 = 25
	15	11.070302	11.070425	11.070549	30		2. 49
	30	11.070672	11.070796	11.070919	15		3. 74
	45	11.071043	11.071166	11.071290	0	52	4. 99
8	0	11.071413	11.071537	11.071661	45		1 = 25
	15	11.071784	11.071908	11.072032	30		2. 50
	30	11.072156	11.072280	11.072404	15		3. 74
	45	11.072528	11.072652	11.072776	0	51	4. 99
9	0	11.072900	11.073024	11.073148	45		1 = 25
	15	11.073272	11.073396	11.073520	30		2. 50
	30	11.073645	11.073769	11.073893	15		3. 75
	45	11.074018	11.074142	11.074267	0	50	4. 99
10	0	11.074391	11.074516	11.074640	45		1 = 25
	15	11.074765	11.074889	11.075014	30		2. 50
	30	11.075139	11.075263	11.075388	15		3. 75
	45	11.075513	11.075638	11.075763	0	49	4. 100
11	0	11.075888	11.076013	11.076138	45		1 = 25
	15	11.076263	11.076388	11.076513	30		2. 50
	30	11.076638	11.076763	11.076888	15		3. 75
	45	11.077014	11.077139	11.077264	0	48	4. 100
12	0	11.077389	11.077515	11.077640	45		1 = 25
	15	11.077766	11.077891	11.078017	30		2. 50
	30	11.078142	11.078268	11.078394	15		3. 75
	45	11.078519	11.078645	11.078771	0	47	4. 100
13	0	11.078897	11.079022	11.079148	45		1 = 25
	15	11.079274	11.079400	11.079526	30		2. 50
	30	11.079652	11.079778	11.079904	15		3. 76
	45	11.080030	11.080156	11.080283	0	46	4. 101
14	0	11.080409	11.080535	11.080661	45		1 = 25
	15	11.080788	11.080914	11.081041	30		2. 51
	30	11.081167	11.081294	11.081420	15		3. 76
	45	11.081547	11.081673	11.081800	0	45	4. 101
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11.081927	11.082053	11.082180	45		1″ = 2
	15	11.082307	11.082434	11.082561	30		2. 5
	30	11.082687	11.082814	11.082941	15		3. 7
	45	11.083068	11.083195	11.083322	0	44	4. 10
16	0	11.083450	11.083577	11.083704	45		1 = 2
	15	11.083831	11.083958	11.084086	30		2. 5
	30	11.084213	11.084341	11.084468	15		3. 7
	45	11.084595	11.084723	11.084850	0	43	4. 10
17	0	11.084978	11.085106	11.085233	45		1 = 2
	15	11.085361	11.085489	11.085616	30		2. 5
	30	11.085744	11.085872	11.086000	15		3. 7
	45	11.086128	11.086256	11.086384	0	42	4. 10
18	0	11.086512	11.086640	11.086768	45		1 = 2
	15	11.086896	11.087024	11.087153	30		2. 5
	30	11.087281	11.087409	11.087538	15		3. 7
	45	11.087666	11.087794	11.087923	0	41	4. 10
19	0	11.088051	11.088180	11.088308	45		1 = 2
	15	11.088437	11.088566	11.088694	30		2. 5
	30	11.088823	11.088952	11.089081	15		3. 7
	45	11.089209	11.089338	11.089467	0	40	4. 10
20	0	11.089596	11.089725	11.089854	45		1 = 2
	15	11.089983	11.090112	11.090241	30		2. 5
	30	11.090371	11.090500	11.090629	15		3. 7
	45	11.090758	11.090888	11.091017	0	39	4. 10
21	0	11.091146	11.091276	11.091405	45		1 = 2
	15	11.091535	11.091665	11.091794	30		2. 5
	30	11.091924	11.092053	11.092183	15		3. 7
	45	11.092313	11.092443	11.092573	0	38	4. 10
22	0	11.092702	11.092832	11.092962	45		1 = 2
	15	11.093092	11.093222	11.093352	30		2. 5
	30	11.093483	11.093613	11.093743	15		3. 7
	45	11.093873	11.094003	11.094134	0	37	4. 10
23	0	11.094264	11.094394	11.094525	45		1 = 2
	15	11.094655	11.094786	11.094916	30		2. 5
	30	11.095047	11.095178	11.095308	15		3. 7
	45	11.095439	11.095570	11.095701	0	36	4. 10
24	0	11.095831	11.095962	11.096093	45		1 = 2
	15	11.096224	11.096355	11.096486	30		2. 5
	30	11.096617	11.096748	11.096879	15		3. 7
	45	11.097011	11.097142	11.097273	0	35	4. 10
25	0	11.097404	11.097536	11.097667	45		1 = 2
	15	11.097799	11.097930	11.098062	30		2. 5
	30	11.098193	11.098325	11.098456	15		3. 7
	45	11.098588	11.098720	11.098851	0	34	4. 10
26	0	11.098983	11.099115	11.099247	45		1 = 2
	15	11.099379	11.099511	11.099643	30		2. 5
	30	11.099775	11.099907	11.100039	15		3. 7
	45	11.100171	11.100303	11.100435	0	33	4. 10
27	0	11.100568	11.100700	11.100832	45		1 = 2
	15	11.100965	11.101097	11.101230	30		2. 5
	30	11.101362	11.101495	11.101627	15		3. 7
	45	11.101760	11.101893	11.102025	0	32	4. 10
28	0	11.102158	11.102291	11.102424	45		1 = 2
	15	11.102557	11.102690	11.102823	30		2. 5
	30	11.102956	11.103089	11.103222	15		3. 7
	45	11.103355	11.103488	11.103621	0	31	4. 10
29	0	11.103754	11.103888	11.104021	45		1 = 2
	15	11.104154	11.104288	11.104421	30		2. 5
	30	11.104555	11.104688	11.104822	15		3. 7
	45	11.104956	11.105089	11.105223	0	30	4. 10
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11. 105357	11. 105490	11. 105624	45		1″ = 27
	15	11. 105758	11. 105892	11. 106026	30		2. 54
	30	11. 106160	11. 106294	11. 106428	15		3. 80
	45	11. 106562	11. 106696	11. 106831	0	29	4. 107
31	0	11. 106965	11. 107099	11. 107233	45		1 = 27
	15	11. 107368	11. 107502	11. 107637	30		2. 54
	30	11. 107771	11. 107906	11. 108040	15		3. 81
	45	11. 108175	11. 108310	11. 108444	0	28	4. 108
32	0	11. 108579	11. 108714	11. 108849	45		1 = 27
	15	11. 108984	11. 109118	11. 109253	30		2. 54
	30	11. 109388	11. 109523	11. 109659	15		3. 81
	45	11. 109794	11. 109929	11. 110064	0	27	4. 108
33	0	11. 110199	11. 110335	11. 110470	45		1 = 27
	15	11. 110605	11. 110741	11. 110876	30		2. 54
	30	11. 111012	11. 111147	11. 111283	15		3. 81
	45	11. 111418	11. 111554	11. 111690	0	26	4. 108
34	0	11. 111826	11. 111961	11. 112097	45		1 = 27
	15	11. 112233	11. 112369	11. 112505	30		2. 54
	30	11. 112641	11. 112777	11. 112913	15		3. 82
	45	11. 113049	11. 113186	11. 113322	0	25	4. 109
35	0	11. 113458	11. 113594	11. 113731	45		1 = 27
	15	11. 113867	11. 114004	11. 114140	30		2. 55
	30	11. 114277	11. 114413	11. 114550	15		3. 82
	45	11. 114687	11. 114823	11. 114960	0	24	4. 109
36	0	11. 115097	11. 115234	11. 115371	45		1 = 27
	15	11. 115508	11. 115644	11. 115781	30		2. 55
	30	11. 115919	11. 116056	11. 116193	15		3. 82
	45	11. 116330	11. 116467	11. 116604	0	23	4. 110
37	0	11. 116742	11. 116879	11. 117017	45		1 = 28
	15	11. 117154	11. 117292	11. 117429	30		2. 55
	30	11. 117567	11. 117704	11. 117842	15		3. 83
	45	11. 117980	11. 118117	11. 118255	0	22	4. 110
38	0	11. 118393	11. 118531	11. 118669	45		1 = 28
	15	11. 118807	11. 118945	11. 119083	30		2. 55
	30	11. 119221	11. 119359	11. 119497	15		3. 83
	45	11. 119636	11. 119774	11. 119912	0	21	4. 110
39	0	11. 120051	11. 120189	11. 120328	45		1 = 28
	15	11. 120466	11. 120605	11. 120743	30		2. 55
	30	11. 120882	11. 121020	11. 121159	15		3. 83
	45	11. 121298	11. 121437	11. 121576	0	20	4. 111
40	0	11. 121715	11. 121854	11. 121993	45		1 = 28
	15	11. 122132	11. 122271	11. 122410	30		2. 56
	30	11. 122549	11. 122688	11. 122827	15		3. 83
	45	11. 122967	11. 123106	11. 123246	0	19	4. 111
41	0	11. 123385	11. 123524	11. 123664	45		1 = 28
	15	11. 123804	11. 123943	11. 124083	30		2. 56
	30	11. 124223	11. 124362	11. 124502	15		3. 84
	45	11. 124642	11. 124782	11. 124922	0	18	4. 112
42	0	11. 125062	11. 125202	11. 125342	45		1 = 28
	15	11. 125482	11. 125622	11. 125763	30		2. 56
	30	11. 125903	11. 126043	11. 126183	15		3. 84
	45	11. 126324	11. 126464	11. 126605	0	17	4. 112
43	0	11. 126745	11. 126886	11. 127027	45		1 = 28
	15	11. 127167	11. 127308	11. 127449	30		2. 56
	30	11. 127589	11. 127730	11. 127871	15		3. 84
	45	11. 128012	11. 128153	11. 128294	0	16	4. 113
44	0	11. 128435	11. 128576	11. 128718	45		1 = 28
	15	11. 128859	11. 129000	11. 129141	30		2. 57
	30	11. 129283	11. 129424	11. 129566	15		3. 85
	45	11. 129707	11. 129849	11. 129990	0	15	4. 113
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11. 130132	11. 130274	11. 130415	45		1″ = 28
	15	11. 130557	11. 130699	11. 130841	30		2. 57
	30	11. 130983	11. 131125	11. 131267	15		3. 85
	45	11. 131409	11. 131551	11. 131693	0	14	4. 114
46	0	11. 131835	11. 131978	11. 132120	45		1 = 28
	15	11. 132262	11. 132405	11. 132547	30		2. 57
	30	11. 132690	11. 132832	11. 132975	15		3. 85
	45	11. 133117	11. 133260	11. 133403	0	13	4. 114
47	0	11. 133545	11. 133688	11. 133831	45		1 = 29
	15	11. 133974	11. 134117	11. 134260	30		2. 57
	30	11. 134403	11. 134546	11. 134689	15		3. 86
	45	11. 134832	11. 134976	11. 135119	0	12	4. 114
48	0	11. 135262	11. 135406	11. 135549	45		1 = 29
	15	11. 135693	11. 135836	11. 135980	30		2. 57
	30	11. 136123	11. 136267	11. 136411	15		3. 86
	45	11. 136554	11. 136698	11. 136842	0	11	4. 115
49	0	11. 136986	11. 137130	11. 137274	45		1 = 29
	15	11. 137418	11. 137562	11. 137706	30		2. 58
	30	11. 137850	11. 137995	11. 138139	15		3. 86
	45	11. 138283	11. 138428	11. 138572	0	10	4. 115
50	0	11. 138717	11. 138861	11. 139006	45		1 = 29
	15	11. 139150	11. 139295	11. 139440	30		2. 58
	30	11. 139585	11. 139729	11. 139874	15		3. 87
	45	11. 140019	11. 140164	11. 140309	0	9	4. 116
51	0	11. 140454	11. 140599	11. 140745	45		1 = 29
	15	11. 140890	11. 141035	11. 141180	30		2. 58
	30	11. 141326	11. 141471	11. 141617	15		3. 87
	45	11. 141762	11. 141908	11. 142053	0	8	4. 116
52	0	11. 142199	11. 142345	11. 142490	45		1 = 29
	15	11. 142636	11. 142782	11. 142928	30		2. 59
	30	11. 143074	11. 143220	11. 143366	15		3. 88
	45	11. 143512	11. 143658	11. 143804	0	7	4. 116
53	0	11. 143951	11. 144097	11. 144243	45		1 = 29
	15	11. 144390	11. 144536	11. 144683	30		2. 59
	30	11. 144829	11. 144976	11. 145122	15		3. 88
	45	11. 145269	11. 145416	11. 145563	0	6	4. 117
54	0	11. 145709	11. 145856	11. 146003	45		1 = 29
	15	11. 146150	11. 146297	11. 146444	30		2. 59
	30	11. 146592	11. 146739	11. 146886	15		3. 88
	45	11. 147033	11. 147181	11. 147328	0	5	4. 118
55	0	11. 147475	11. 147623	11. 147770	45		1 = 30
	15	11. 147918	11. 148066	11. 148213	30		2. 59
	30	11. 148361	11. 148509	11. 148657	15		3. 89
	45	11. 148805	11. 148953	11. 149101	0	4	4. 118
56	0	11. 149249	11. 149397	11. 149545	45		1 = 30
	15	11. 149693	11. 149841	11. 149990	30		2. 59
	30	11. 150138	11. 150286	11. 150435	15		3. 89
	45	11. 150583	11. 150732	11. 150881	0	3	4. 119
57	0	11. 151029	11. 151178	11. 151327	45		1 = 30
	15	11. 151476	11. 151624	11. 151773	30		2. 60
	30	11. 151922	11. 152071	11. 152220	15		3. 89
	45	11. 152370	11. 152519	11. 152668	0	2	4. 119
58	0	11. 152817	11. 152967	11. 153116	45		1 = 30
	15	11. 153265	11. 153415	11. 153564	30		2. 60
	30	11. 153714	11. 153864	11. 154013	15		3. 90
	45	11. 154163	11. 154313	11. 154463	0	1	4. 120
59	0	11. 154613	11. 154763	11. 154913	45		1 = 30
	15	11. 155063	11. 155213	11. 155363	30		2. 60
	30	11. 155513	11. 155663	11. 155814	15		3. 90
	45	11. 155964	11. 156114	11. 156265	0	0	4. 120
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

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LOGARITHMIC SECANTS.

Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
11. 156415	11. 156566	11. 156717	45		1″ = 30
11. 156867	11. 157018	11. 157169	30		2. 60
11. 157320	11. 157471	11. 157622	15		3. 90
11. 157773	11. 157924	11. 158075	0	59	4. 121
11. 158226	11. 158377	11. 158528	45		1 = 30
11. 158680	11. 158831	11. 158982	30		2. 61
11. 159134	11. 159285	11. 159437	15		3. 91
11. 159589	11. 159740	11. 159892	0	58	4. 121
11. 160044	11. 160196	11. 160348	45		1 = 30
11. 160500	11. 160652	11. 160804	30		2. 61
11. 160956	11. 161108	11. 161260	15		3. 91
11. 161412	11. 161565	11. 161717	0	57	4. 122
11. 161870	11. 162022	11. 162175	45		1 = 31
11. 162327	11. 162480	11. 162633	30		2. 61
11. 162785	11. 162938	11. 163091	15		3. 92
11. 163244	11. 163397	11. 163550	0	56	4. 122
11. 163703	11. 163856	11. 164009	45		1 = 31
11. 164163	11. 164316	11. 164469	30		2. 61
11. 164623	11. 164776	11. 164930	15		3. 92
11. 165083	11. 165237	11. 165391	0	55	4. 123
11. 165544	11. 165698	11. 165852	45		1 = 31
11. 166006	11. 166160	11. 166314	30		2. 62
11. 166468	11. 166622	11. 166776	15		3. 92
11. 166930	11. 167085	11. 167239	0	54	4. 123
11. 167393	11. 167548	11. 167702	45		1 = 31
11. 167857	11. 168012	11. 168166	30		2. 62
11. 168321	11. 168476	11. 168631	15		3. 93
11. 168785	11. 168940	11. 169095	0	53	4. 124
11. 169250	11. 169406	11. 169561	45		1 = 31
11. 169716	11. 169871	11. 170027	30		2. 62
11. 170182	11. 170337	11. 170493	15		3. 93
11. 170649	11. 170804	11. 170960	0	52	4. 124
11. 171116	11. 171271	11. 171427	45		1 = 31
11. 171583	11. 171739	11. 171895	30		2. 62
11. 172051	11. 172207	11. 172363	15		3. 94
11. 172520	11. 172676	11. 172832	0	51	4. 125
11. 172989	11. 173145	11. 173302	45		1 = 31
11. 173458	11. 173615	11. 173772	30		2. 63
11. 173928	11. 174085	11. 174242	15		3. 94
11. 174399	11. 174556	11. 174713	0	50	4. 125
11. 174870	11. 175027	11. 175184	45		1 = 31
11. 175342	11. 175499	11. 175656	30		2. 63
11. 175814	11. 175971	11. 176129	15		3. 94
11. 176286	11. 176444	11. 176602	0	49	4. 126
11. 176760	11. 176917	11. 177075	45		1 = 32
11. 177233	11. 177391	11. 177549	30		2. 63
11. 177707	11. 177866	11. 178024	15		3. 95
11. 178182	11. 178341	11. 178499	0	48	4. 126
11. 178657	11. 178816	11. 178975	45		1 = 32
11. 179133	11. 179292	11. 179451	30		2. 64
11. 179609	11. 179768	11. 179927	15		3. 95
11. 180086	11. 180245	11. 180404	0	47	4. 127
11. 180564	11. 180723	11. 180882	45		1 = 32
11. 181041	11. 181201	11. 181360	30		2. 64
11. 181520	11. 181679	11. 181839	15		3. 96
11. 181999	11. 182159	11. 182318	0	46	4. 128
11. 182478	11. 182638	11. 182798	45		1 = 32
11. 182958	11. 183118	11. 183279	30		2. 64
11. 183439	11. 183599	11. 183759	15		3. 96
11. 183920	11. 184080	11. 184241	0	45	4. 128
15″	10″	5″	Seconds	Minutes	Propor. parts.
Co-secant of 3 degrees, or Secant of 93 degrees.					

Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11. 184401	11. 184562	11. 184723	45		1″ = 32
	15	11. 184884	11. 185044	11. 185205	30		2. 64
	30	11. 185366	11. 185527	11. 185688	15		3. 97
	45	11. 185849	11. 186011	11. 186172	0	44	4. 129
16	0	11. 186333	11. 186495	11. 186656	45		1 = 32
	15	11. 186817	11. 186979	11. 187141	30		2. 65
	30	11. 187302	11. 187464	11. 187626	15		3. 97
	45	11. 187788	11. 187950	11. 188112	0	43	4. 129
17	0	11. 188274	11. 188436	11. 188598	45		1 = 32
	15	11. 188760	11. 188922	11. 189085	30		2. 65
	30	11. 189247	11. 189410	11. 189572	15		3. 97
	45	11. 189735	11. 189897	11. 190060	0	42	4. 130
18	0	11. 190223	11. 190386	11. 190548	45		1 = 33
	15	11. 190711	11. 190874	11. 191038	30		2. 66
	30	11. 191201	11. 191364	11. 191527	15		3. 98
	45	11. 191690	11. 191854	11. 192017	0	41	4. 130
19	0	11. 192181	11. 192344	11. 192508	45		1 = 33
	15	11. 192672	11. 192835	11. 192999	30		2. 66
	30	11. 193163	11. 193327	11. 193491	15		3. 98
	45	11. 193655	11. 193819	11. 193983	0	40	4. 131
20	0	11. 194148	11. 194312	11. 194476	45		1 = 33
	15	11. 194641	11. 194805	11. 194970	30		2. 66
	30	11. 195134	11. 195299	11. 195464	15		3. 99
	45	11. 195629	11. 195794	11. 195959	0	39	4. 132
21	0	11. 196124	11. 196289	11. 196454	45		1 = 33
	15	11. 196619	11. 196784	11. 196949	30		2. 66
	30	11. 197115	11. 197280	11. 197446	15		3. 99
	45	11. 197611	11. 197777	11. 197943	0	38	4. 132
22	0	11. 198108	11. 198274	11. 198440	45		1 = 33
	15	11. 198606	11. 198772	11. 198938	30		2. 66
	30	11. 199104	11. 199271	11. 199437	15		3. 100
	45	11. 199603	11. 199770	11. 199936	0	37	4. 133
23	0	11. 200103	11. 200269	11. 200436	45		1 = 33
	15	11. 200603	11. 200769	11. 200936	30		2. 67
	30	11. 201103	11. 201270	11. 201437	15		3. 100
	45	11. 201604	11. 201771	11. 201939	0	36	4. 134
24	0	11. 202106	11. 202273	11. 202441	45		1 = 34
	15	11. 202608	11. 202776	11. 202943	30		2. 67
	30	11. 203111	11. 203279	11. 203447	15		3. 101
	45	11. 203614	11. 203782	11. 203950	0	35	4. 134
25	0	11. 204119	11. 204287	11. 204455	45		1 = 34
	15	11. 204623	11. 204791	11. 204960	30		2. 67
	30	11. 205128	11. 205297	11. 205466	15		3. 101
	45	11. 205634	11. 205803	11. 205972	0	34	4. 135
26	0	11. 206141	11. 206310	11. 206479	45		1 = 34
	15	11. 206648	11. 206817	11. 206986	30		2. 68
	30	11. 207155	11. 207324	11. 207494	15		3. 102
	45	11. 207663	11. 207833	11. 208002	0	33	4. 135
27	0	11. 208172	11. 208342	11. 208512	45		1 = 34
	15	11. 208682	11. 208851	11. 209021	30		2. 68
	30	11. 209192	11. 209362	11. 209532	15		3. 102
	45	11. 209702	11. 209872	11. 210043	0	32	4. 136
28	0	11. 210213	11. 210384	11. 210554	45		1 = 34
	15	11. 210725	11. 210896	11. 211067	30		2. 68
	30	11. 211237	11. 211408	11. 211579	15		3. 102
	45	11. 211750	11. 211922	11. 212093	0	31	4. 137
29	0	11. 212264	11. 212435	11. 212607	45		1 = 34
	15	11. 212778	11. 212950	11. 213121	30		2. 69
	30	11. 213293	11. 213465	11. 213637	15		3. 103
	45	11. 213809	11. 213981	11. 214153	0	30	4. 137
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

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LOGARITHMIC SECANTS

Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11.214325	11.214497	11.214669	45		1″ = 34
	15	11.214841	11.215014	11.215186	30		2. 69
	30	11.215359	11.215531	11.215704	15		3. 103
	45	11.215877	11.216049	11.216222	0	29	4. 138
31	0	11.216395	11.216568	11.216741	45		1 = 35
	15	11.216914	11.217087	11.217261	30		2. 69
	30	11.217434	11.217607	11.217781	15		3. 104
	45	11.217954	11.218128	11.218302	0	28	4. 139
32	0	11.218476	11.218649	11.218823	45		1 = 35
	15	11.218997	11.219171	11.219345	30		2. 70
	30	11.219519	11.219694	11.219868	15		3. 104
	45	11.220042	11.220217	11.220391	0	27	4. 139
33	0	11.220566	11.220741	11.220915	45		1 = 35
	15	11.221090	11.221265	11.221440	30		2. 70
	30	11.221615	11.221790	11.221965	15		3. 105
	45	11.222140	11.222316	11.222491	0	26	4. 140
34	0	11.222667	11.222842	11.223018	45		1 = 35
	15	11.223193	11.223369	11.223545	30		2. 70
	30	11.223721	11.223897	11.224073	15		3. 105
	45	11.224249	11.224425	11.224601	0	25	4. 141
35	0	11.224777	11.224954	11.225130	45		1 = 35
	15	11.225307	11.225483	11.225660	30		2. 71
	30	11.225837	11.226013	11.226190	15		3. 106
	45	11.226367	11.226544	11.226721	0	24	4. 141
36	0	11.226899	11.227076	11.227253	45		1 = 36
	15	11.227431	11.227608	11.227785	30		2. 71
	30	11.227963	11.228141	11.228319	15		3. 107
	45	11.228496	11.228674	11.228852	0	23	4. 142
37	0	11.229030	11.229208	11.229387	45		1 = 36
	15	11.229565	11.229743	11.229922	30		2. 71
	30	11.230100	11.230279	11.230457	15		3. 107
	45	11.230636	11.230815	11.230993	0	22	4. 143
38	0	11.231172	11.231351	11.231530	45		1 = 36
	15	11.231710	11.231889	11.232068	30		2. 72
	30	11.232247	11.232427	11.232606	15		3. 108
	45	11.232786	11.232966	11.233145	0	21	4. 143
39	0	11.233325	11.233505	11.233685	45		1 = 36
	15	11.233865	11.234045	11.234225	30		2. 72
	30	11.234406	11.234586	11.234766	15		3. 108
	45	11.234947	11.235128	11.235308	0	20	4. 144
40	0	11.235489	11.235670	11.235851	45		1 = 36
	15	11.236031	11.236212	11.236394	30		2. 72
	30	11.236575	11.236756	11.236937	15		3. 109
	45	11.237117	11.237300	11.237482	0	19	4. 145
41	0	11.237663	11.237845	11.238027	45		1 = 36
	15	11.238209	11.238391	11.238573	30		2. 73
	30	11.238755	11.238937	11.239119	15		3. 109
	45	11.239301	11.239484	11.239666	0	18	4. 146
42	0	11.239849	11.240031	11.240214	45		1 = 37
	15	11.240397	11.240580	11.240763	30		2. 73
	30	11.240946	11.241129	11.241312	15		3. 110
	45	11.241495	11.241678	11.241862	0	17	4. 146
43	0	11.242045	11.242229	11.242413	45		1 = 37
	15	11.242596	11.242780	11.242964	30		2. 74
	30	11.243148	11.243332	11.243516	15		3. 110
	45	11.243700	11.243884	11.244069	0	16	4. 147
44	0	11.244253	11.244438	11.244622	45		1 = 37
	15	11.244807	11.244991	11.245176	30		2. 74
	30	11.245361	11.245546	11.245731	15		3. 111
	45	11.245916	11.246102	11.246287	0	15	4. 148
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.246472	11.246658	11.246843	45		1″ = 37
	15	11.247029	11.247214	11.247400	30		2. 74
	30	11.247586	11.247772	11.247958	15		3. 111
	45	11.248144	11.248330	11.248516	0	14	4. 149
46	0	11.248703	11.248889	11.249076	45		1 = 37
	15	11.249262	11.249449	11.249635	30		2. 75
	30	11.249822	11.250009	11.250196	15		3. 112
	45	11.250383	11.250570	11.250757	0	13	4. 149
47	0	11.250945	11.251132	11.251319	45		1 = 38
	15	11.251507	11.251695	11.251882	30		2. 75
	30	11.252070	11.252258	11.252446	15		3. 113
	45	11.252634	11.252822	11.253010	0	12	4. 150
48	0	11.253198	11.253387	11.253575	45		1 = 38
	15	11.253764	11.253952	11.254141	30		2. 75
	30	11.254330	11.254519	11.254707	15		3. 113
	45	11.254896	11.255086	11.255275	0	11	4. 151
49	0	11.255464	11.255653	11.255843	45		1 = 38
	15	11.256032	11.256222	11.256411	30		2. 76
	30	11.256601	11.256791	11.256981	15		3. 114
	45	11.257171	11.257361	11.257551	0	10	4. 152
50	0	11.257741	11.257932	11.258122	45		1 = 38
	15	11.258313	11.258503	11.258694	30		2. 76
	30	11.258885	11.259075	11.259266	15		3. 114
	45	11.259457	11.259648	11.259840	0	9	4. 153
51	0	11.260031	11.260222	11.260414	45		1 = 38
	15	11.260605	11.260797	11.260988	30		2. 77
	30	11.261180	11.261372	11.261564	15		3. 115
	45	11.261756	11.261948	11.262140	0	8	4. 153
52	0	11.262332	11.262525	11.262717	45		1 = 39
	15	11.262910	11.263102	11.263295	30		2. 77
	30	11.263488	11.263681	11.263874	15		3. 116
	45	11.264067	11.264260	11.264453	0	7	4. 154
53	0	11.264646	11.264840	11.265033	45		1 = 39
	15	11.265227	11.265420	11.265614	30		2. 78
	30	11.265808	11.266002	11.266196	15		3. 116
	45	11.266390	11.266584	11.266778	0	6	4. 155
54	0	11.266973	11.267167	11.267362	45		1 = 39
	15	11.267556	11.267751	11.267946	30		2. 78
	30	11.268141	11.268336	11.268531	15		3. 117
	45	11.268726	11.268921	11.269116	0	5	4. 156
55	0	11.269312	11.269507	11.269703	45		1 = 39
	15	11.269898	11.270094	11.270290	30		2. 78
	30	11.270486	11.270682	11.270878	15		3. 118
	45	11.271074	11.271271	11.271467	0	4	4. 157
56	0	11.271663	11.271860	11.272057	45		1 = 39
	15	11.272253	11.272450	11.272647	30		2. 79
	30	11.272844	11.273041	11.273238	15		3. 118
	45	11.273436	11.273633	11.273830	0	3	4. 158
57	0	11.274028	11.274225	11.274423	45		1 = 40
	15	11.274621	11.274819	11.275017	30		2. 79
	30	11.275215	11.275413	11.275611	15		3. 119
	45	11.275810	11.276008	11.276207	0	2	4. 158
58	0	11.276405	11.276604	11.276803	45		1 = 40
	15	11.277002	11.277201	11.277400	30		2. 80
	30	11.277599	11.277798	11.277998	15		3. 119
	45	11.278197	11.278397	11.278596	0	1	4. 159
59	0	11.278796	11.278996	11.279196	45		1 = 40
	15	11.279396	11.279596	11.279796	30		2. 80
	30	11.279996	11.280197	11.280397	15		3. 120
	45	11.280598	11.280798	11.280999	0	0	4. 160
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11. 281200	11. 281401	11. 281602	45		1″ = 40
	15	11. 281803	11. 282004	11. 282205	30		2. 81
	30	11. 282403	11. 282608	11. 282810	15		3. 121
	45	11. 283011	11. 283213	11. 283415	0	59	4. 161
1	0	11. 283617	11. 283819	11. 284021	45		1 = 40
	15	11. 284223	11. 284426	11. 284628	30		2. 81
	30	11. 284831	11. 285033	11. 285236	15		3. 121
	45	11. 285439	11. 285642	11. 285845	0	58	4. 162
2	0	11. 286048	11. 286251	11. 286454	45		1 = 41
	15	11. 286658	11. 286861	11. 287065	30		2. 81
	30	11. 287268	11. 287472	11. 287676	15		3. 122
	45	11. 287880	11. 288084	11. 288288	0	57	4. 163
3	0	11. 288492	11. 288697	11. 288901	45		1 = 41
	15	11. 289106	11. 289310	11. 289515	30		2. 82
	30	11. 289720	11. 289925	11. 290130	15		3. 123
	45	11. 290335	11. 290540	11. 290745	0	56	4. 164
4	0	11. 290951	11. 291156	11. 291362	45		1 = 41
	15	11. 291568	11. 291773	11. 291979	30		2. 82
	30	11. 292185	11. 292391	11. 292598	15		3. 124
	45	11. 292804	11. 293010	11. 293217	0	55	4. 165
5	0	11. 293423	11. 293630	11. 293837	45		1 = 41
	15	11. 294044	11. 294251	11. 294458	30		2. 83
	30	11. 294665	11. 294872	11. 295080	15		3. 124
	45	11. 295287	11. 295495	11. 295702	0	54	4. 166
6	0	11. 295910	11. 296118	11. 296326	45		1 = 42
	15	11. 296534	11. 296742	11. 296950	30		2. 83
	30	11. 297159	11. 297367	11. 297576	15		3. 125
	45	11. 297784	11. 297993	11. 298202	0	53	4. 167
7	0	11. 298411	11. 298620	11. 298829	45		1 = 42
	15	11. 299039	11. 299248	11. 299457	30		2. 84
	30	11. 299667	11. 299877	11. 300086	15		3. 126
	45	11. 300296	11. 300506	11. 300716	0	52	4. 168
8	0	11. 300927	11. 301137	11. 301347	45		1 = 42
	15	11. 301558	11. 301768	11. 301979	30		2. 84
	30	11. 302190	11. 302401	11. 302612	15		3. 126
	45	11. 302823	11. 303034	11. 303245	0	51	4. 169
9	0	11. 303457	11. 303668	11. 303880	45		1 = 42
	15	11. 304092	11. 304304	11. 304516	30		2. 85
	30	11. 304728	11. 304940	11. 305152	15		3. 127
	45	11. 305364	11. 305577	11. 305789	0	50	4. 170
10	0	11. 306002	11. 306215	11. 306428	45		1 = 43
	15	11. 306641	11. 306854	11. 307067	30		2. 85
	30	11. 307280	11. 307494	11. 307707	15		3. 128
	45	11. 307921	11. 308134	11. 308348	0	49	4. 171
11	0	11. 308562	11. 308776	11. 308990	45		1 = 43
	15	11. 309204	11. 309419	11. 309633	30		2. 86
	30	11. 309848	11. 310063	11. 310277	15		3. 129
	45	11. 310492	11. 310707	11. 310922	0	48	4. 172
12	0	11. 311137	11. 311353	11. 311568	45		1 = 43
	15	11. 311784	11. 311999	11. 312215	30		2. 86
	30	11. 312431	11. 312647	11. 312863	15		3. 129
	45	11. 313079	11. 313295	11. 313512	0	47	4. 173
13	0	11. 313728	11. 313945	11. 314161	45		1 = 43
	15	11. 314378	11. 314595	11. 314812	30		2. 87
	30	11. 315029	11. 315247	11. 315464	15		3. 130
	45	11. 315681	11. 315899	11. 316117	0	46	4. 174
14	0	11. 316335	11. 316552	11. 316770	45		1 = 44
	15	11. 316989	11. 317207	11. 317425	30		2. 87
	30	11. 317644	11. 317862	11. 318081	15		3. 131
	45	11. 318300	11. 318519	11. 318738	0	45	4. 175
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11. 318957	11. 319176	11. 319395	45		1″ = 40
	15	11. 319615	11. 319834	11. 320054	30		2. 81
	30	11. 320274	11. 320494	11. 320714	15		3. 121
	45	11. 320934	11. 321154	11. 321374	0	44	4. 161
16	0	11. 321595	11. 321815	11. 322036	45		1 = 40
	15	11. 322257	11. 322478	11. 322699	30		2. 81
	30	11. 322920	11. 323141	11. 323362	15		3. 121
	45	11. 323584	11. 323805	11. 324027	0	43	4. 162
17	0	11. 324249	11. 324471	11. 324693	45		1 = 41
	15	11. 324915	11. 325137	11. 325360	30		2. 81
	30	11. 325582	11. 325805	11. 326028	15		3. 122
	45	11. 326250	11. 326473	11. 326696	0	42	4. 163
18	0	11. 326920	11. 327143	11. 327366	45		1 = 41
	15	11. 327590	11. 327813	11. 328037	30		2. 82
	30	11. 328261	11. 328485	11. 328709	15		3. 123
	45	11. 328933	11. 329158	11. 329382	0	41	4. 164
19	0	11. 329607	11. 329831	11. 330056	45		1 = 41
	15	11. 330281	11. 330506	11. 330731	30		2. 82
	30	11. 330957	11. 331182	11. 331407	15		3. 124
	45	11. 331633	11. 331859	11. 332085	0	40	4. 165
20	0	11. 332311	11. 332537	11. 332763	45		1 = 41
	15	11. 332989	11. 333216	11. 333442	30		2. 83
	30	11. 333669	11. 333896	11. 334123	15		3. 124
	45	11. 334350	11. 334577	11. 334804	0	39	4. 166
21	0	11. 335032	11. 335259	11. 335487	45		1 = 42
	15	11. 335714	11. 335942	11. 336170	30		2. 83
	30	11. 336398	11. 336627	11. 336855	15		3. 125
	45	11. 337084	11. 337312	11. 337541	0	38	4. 167
22	0	11. 337770	11. 337999	11. 338228	45		1 = 42
	15	11. 338457	11. 338686	11. 338916	30		2. 84
	30	11. 339145	11. 339375	11. 339605	15		3. 126
	45	11. 339835	11. 340065	11. 340295	0	37	4. 168
23	0	11. 340525	11. 340756	11. 340986	45		1 = 42
	15	11. 341217	11. 341448	11. 341679	30		2. 84
	30	11. 341910	11. 342141	11. 342372	15		3. 126
	45	11. 342603	11. 342835	11. 343067	0	36	4. 169
24	0	11. 343298	11. 343530	11. 343762	45		1 = 42
	15	11. 343994	11. 344227	11. 344459	30		2. 85
	30	11. 344692	11. 344924	11. 345157	15		3. 127
	45	11. 345390	11. 345623	11. 345856	0	35	4. 170
25	0	11. 346089	11. 346323	11. 346556	45		1 = 43
	15	11. 346790	11. 347024	11. 347258	30		2. 85
	30	11. 347492	11. 347726	11. 347960	15		3. 128
	45	11. 348194	11. 348429	11. 348664	0	34	4. 171
26	0	11. 348898	11. 349133	11. 349368	45		1 = 43
	15	11. 349604	11. 349839	11. 350074	30		2. 86
	30	11. 350310	11. 350545	11. 350781	15		3. 129
	45	11. 351017	11. 351253	11. 351489	0	33	4. 172
27	0	11. 351726	11. 351962	11. 352199	45		1 = 43
	15	11. 352436	11. 352672	11. 352909	30		2. 86
	30	11. 353146	11. 353384	11. 353621	15		3. 129
	45	11. 353859	11. 354096	11. 354334	0	32	4. 173
28	0	11. 354572	11. 354810	11. 355048	45		1 = 43
	15	11. 355286	11. 355525	11. 355763	30		2. 87
	30	11. 356002	11. 356241	11. 356480	15		3. 130
	45	11. 356719	11. 356958	11. 357197	0	31	4. 174
29	0	11. 357437	11. 357676	11. 357916	45		1 = 44
	15	11. 358156	11. 358396	11. 358636	30		2. 87
	30	11. 358876	11. 359116	11. 359357	15		3. 131
	45	11. 359598	11. 359838	11. 360079	0	30	4. 175
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
33	0	11.360320	11.360562	11.360803	45		1″ = 48
	15	11.361044	11.361286	11.361528	30		2. 97
	30	11.361770	11.362012	11.362254	15		3. 145
	45	11.362496	11.362738	11.362981	0	29	4. 193
34	0	11.363224	11.363466	11.363709	45		1 = 49
	15	11.363952	11.364196	11.364439	30		2. 97
	30	11.364682	11.364926	11.365170	15		3. 146
	45	11.365414	11.365658	11.365902	0	28	4. 195
35	0	11.366146	11.366391	11.366635	45		1 = 49
	15	11.366880	11.367125	11.367370	30		2. 98
	30	11.367615	11.367860	11.368106	15		3. 147
	45	11.368351	11.368597	11.368843	0	27	4. 196
36	0	11.369089	11.369335	11.369581	45		1 = 49
	15	11.369828	11.370074	11.370321	30		2. 99
	30	11.370568	11.370815	11.371062	15		3. 148
	45	11.371309	11.371556	11.371804	0	26	4. 197
37	0	11.372052	11.372299	11.372547	45		1 = 50
	15	11.372795	11.373044	11.373292	30		2. 99
	30	11.373541	11.373789	11.374038	15		3. 149
	45	11.374287	11.374536	11.374785	0	25	4. 199
38	0	11.375035	11.375284	11.375534	45		1 = 50
	15	11.375784	11.376034	11.376284	30		2. 100
	30	11.376534	11.376784	11.377035	15		3. 150
	45	11.377285	11.377536	11.377787	0	24	4. 200
39	0	11.378038	11.378290	11.378541	45		1 = 50
	15	11.378793	11.379044	11.379296	30		2. 101
	30	11.379548	11.379800	11.380052	15		3. 151
	45	11.380305	11.380557	11.380810	0	23	4. 202
40	0	11.381063	11.381316	11.381569	45		1 = 51
	15	11.381823	11.382076	11.382330	30		2. 101
	30	11.382583	11.382837	11.383091	15		3. 152
	45	11.383345	11.383600	11.383854	0	22	4. 203
41	0	11.384109	11.384364	11.384619	45		1 = 51
	15	11.384874	11.385129	11.385384	30		2. 102
	30	11.385640	11.385896	11.386152	15		3. 153
	45	11.386408	11.386664	11.386920	0	21	4. 204
42	0	11.387176	11.387433	11.387690	45		1 = 51
	15	11.387947	11.388204	11.388461	30		2. 103
	30	11.388718	11.388976	11.389234	15		3. 154
	45	11.389491	11.389749	11.390008	0	20	4. 206
43	0	11.390266	11.390524	11.390783	45		1 = 52
	15	11.391042	11.391301	11.391560	30		2. 104
	30	11.391819	11.392078	11.392338	15		3. 155
	45	11.392597	11.392857	11.393117	0	19	4. 207
44	0	11.393377	11.393638	11.393898	45		1 = 52
	15	11.394159	11.394420	11.394681	30		2. 104
	30	11.394942	11.395203	11.395464	15		3. 157
	45	11.395726	11.395987	11.396249	0	18	4. 209
45	0	11.396511	11.396774	11.397036	45		1 = 53
	15	11.397298	11.397561	11.397824	30		2. 105
	30	11.398087	11.398350	11.398613	15		3. 158
	45	11.398877	11.399140	11.399404	0	17	4. 210
46	0	11.399668	11.399932	11.400197	45		1 = 53
	15	11.400461	11.400726	11.400990	30		2. 106
	30	11.401255	11.401520	11.401786	15		3. 159
	45	11.402051	11.402317	11.402582	0	16	4. 212
47	0	11.402848	11.403114	11.403380	45		1 = 53
	15	11.403647	11.403913	11.404180	30		2. 107
	30	11.404447	11.404714	11.404981	15		3. 160
	45	11.405249	11.405516	11.405784	0	15	4. 213
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.406052	11.406320	11.406588	45		1″ = 54
	15	11.406856	11.407125	11.407393	30		2. 108
	30	11.407662	11.407931	11.408201	15		3. 161
	45	11.408470	11.408739	11.409009	0	14	4. 215
46	0	11.409279	11.409549	11.409819	45		1 = 54
	15	11.410090	11.410360	11.410631	30		2. 108
	30	11.410902	11.411173	11.411444	15		3. 162
	45	11.411715	11.411987	11.412259	0	13	4. 217
47	0	11.412531	11.412803	11.413075	45		1 = 55
	15	11.413347	11.413620	11.413893	30		2. 109
	30	11.414165	11.414439	11.414712	15		3. 164
	45	11.414985	11.415259	11.415533	0	12	4. 218
48	0	11.415807	11.416081	11.416355	45		1 = 55
	15	11.416630	11.416904	11.417179	30		2. 110
	30	11.417454	11.417729	11.418005	15		3. 165
	45	11.418280	11.418556	11.418832	0	11	4. 220
49	0	11.419108	11.419384	11.419660	45		1 = 55
	15	11.419937	11.420214	11.420491	30		2. 111
	30	11.420768	11.421045	11.421322	15		3. 166
	45	11.421600	11.421878	11.422156	0	10	4. 222
50	0	11.422434	11.422712	11.422991	45		1 = 56
	15	11.423270	11.423548	11.423828	30		2. 112
	30	11.424107	11.424386	11.424666	15		3. 167
	45	11.424946	11.425226	11.425506	0	9	4. 223
51	0	11.425786	11.426067	11.426347	45		1 = 56
	15	11.426628	11.426909	11.427190	30		2. 113
	30	11.427472	11.427753	11.428035	15		3. 169
	45	11.428317	11.428599	11.428882	0	8	4. 225
52	0	11.429164	11.429447	11.429730	45		1 = 57
	15	11.430013	11.430296	11.430580	30		2. 113
	30	11.430863	11.431147	11.431431	15		3. 170
	45	11.431715	11.432000	11.432284	0	7	4. 227
53	0	11.432569	11.432854	11.433139	45		1 = 57
	15	11.433424	11.433710	11.433995	30		2. 114
	30	11.434281	11.434567	11.434854	15		3. 171
	45	11.435140	11.435427	11.435714	0	6	4. 229
54	0	11.436001	11.436288	11.436575	45		1 = 58
	15	11.436863	11.437150	11.437439	30		2. 115
	30	11.437727	11.438015	11.438303	15		3. 173
	45	11.438592	11.438881	11.439170	0	5	4. 230
55	0	11.439460	11.439749	11.440039	45		1 = 58
	15	11.440329	11.440619	11.440909	30		2. 116
	30	11.441199	11.441490	11.441781	15		3. 174
	45	11.442072	11.442363	11.442655	0	4	4. 232
56	0	11.442946	11.443238	11.443530	45		1 = 59
	15	11.443823	11.444115	11.444407	30		2. 117
	30	11.444700	11.444993	11.445287	15		3. 176
	45	11.445580	11.445874	11.446167	0	3	4. 234
57	0	11.446461	11.446756	11.447050	45		1 = 59
	15	11.447345	11.447639	11.447934	30		2. 118
	30	11.448230	11.448525	11.448821	15		3. 177
	45	11.449117	11.449413	11.449709	0	2	4. 236
58	0	11.450005	11.450302	11.450599	45		1 = 60
	15	11.450896	11.451193	11.451490	30		2. 119
	30	11.451788	11.452086	11.452384	15		3. 179
	45	11.452682	11.452981	11.453279	0	1	4. 238
59	0	11.453578	11.453877	11.454177	45		1 = 60
	15	11.454476	11.454776	11.455076	30		2. 120
	30	11.455376	11.455676	11.455977	15		3. 180
	45	11.456277	11.456578	11.456880	0	0	4. 240
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

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LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
0	0	11.457181	457241	457301	457362	457422	457482	457543	457603	457663	457724	50
	10	11.457784	457845	457905	457965	458026	458086	458147	458207	458267	458328	40
	20	11.458388	458449	458509	458570	458630	458691	458751	458812	458872	458933	30
	30	11.458993	459054	459115	459175	459236	459296	459357	459417	459478	459539	20
	40	11.459599	459660	459721	459781	459842	459903	459963	460024	460085	460145	10
	50	11.460206	460267	460327	460388	460449	460510	460570	460631	460692	460753	00
1	0	11.460814	460874	460935	460996	461057	461118	461179	461239	461300	461361	50
	10	11.461422	461483	461544	461605	461666	461727	461788	461848	461909	461970	40
	20	11.462031	462092	462153	462214	462275	462336	462397	462458	462519	462580	30
	30	11.462641	462703	462764	462825	462886	462947	463008	463069	463130	463191	20
	40	11.463253	463314	463375	463436	463497	463558	463620	463681	463742	463803	10
	50	11.463864	463926	463987	464048	464109	464171	464232	464293	464354	464416	00
2	0	11.464477	464538	464600	464661	464722	464784	464845	464907	464968	465029	50
	10	11.465091	465152	465214	465275	465336	465398	465459	465521	465582	465644	40
	20	11.465705	465767	465828	465890	465951	466013	466074	466136	466197	466259	30
	30	11.466321	466382	466444	466505	466567	466629	466690	466752	466813	466875	20
	40	11.466937	466998	467060	467122	467183	467245	467307	467369	467430	467492	10
	50	11.467554	467616	467677	467739	467801	467863	467925	467986	468048	468110	00
3	0	11.468172	468234	468296	468357	468419	468481	468543	468605	468667	468729	50
	10	11.468791	468853	468915	468976	469038	469100	469162	469224	469286	469348	40
	20	11.469410	469472	469534	469597	469659	469721	469783	469845	469907	469969	30
	30	11.470031	470093	470155	470217	470280	470342	470404	470466	470528	470590	20
	40	11.470653	470715	470777	470839	470901	470964	471026	471088	471150	471213	10
	50	11.471275	471337	471400	471462	471524	471586	471649	471711	471774	471836	00
4	0	11.471898	471961	472023	472085	472148	472210	472273	472335	472398	472460	50
	10	11.472522	472585	472647	472710	472772	472835	472897	472960	473022	473085	40
	20	11.473148	473210	473273	473335	473398	473460	473523	473586	473648	473711	30
	30	11.473774	473836	473899	473962	474024	474087	474150	474212	474275	474338	20
	40	11.474400	474463	474526	474589	474651	474714	474777	474840	474903	474965	10
	50	11.475028	475091	475154	475217	475280	475343	475405	475468	475531	475594	00
5	0	11.475657	475720	475783	475846	475909	475972	476035	476098	476161	476224	50
	10	11.476287	476350	476413	476476	476539	476602	476665	476728	476791	476854	40
	20	11.476917	476980	477043	477107	477170	477233	477296	477359	477422	477485	30
	30	11.477549	477612	477675	477738	477801	477865	477928	477991	478054	478118	20
	40	11.478181	478244	478308	478371	478434	478498	478561	478624	478688	478751	10
	50	11.478814	478878	478941	479005	479068	479131	479195	479258	479322	479385	00
6	0	11.479449	479512	479576	479639	479703	479766	479830	479893	479957	480020	50
	10	11.480084	480147	480211	480274	480338	480402	480465	480529	480593	480656	40
	20	11.480720	480784	480847	480911	480975	481038	481102	481166	481229	481293	30
	30	11.481357	481421	481484	481548	481612	481676	481740	481803	481867	481931	20
	40	11.481995	482059	482123	482186	482250	482314	482378	482442	482506	482570	10
	50	11.482634	482698	482762	482826	482890	482954	483018	483082	483146	483210	00
7	0	11.483274	483338	483402	483466	483530	483594	483658	483722	483786	483850	50
	10	11.483914	483979	484043	484107	484171	484235	484299	484364	484428	484492	40
	20	11.484556	484620	484685	484749	484813	484877	484942	485006	485070	485135	30
	30	11.485199	485263	485327	485392	485456	485521	485585	485649	485714	485778	20
	40	11.485842	485907	485971	486036	486100	486165	486229	486294	486358	486423	10
	50	11.486487	486552	486616	486681	486745	486810	486874	486939	487003	487068	00
8	0	11.487133	487197	487262	487326	487391	487456	487520	487585	487650	487714	50
	10	11.487779	487844	487909	487973	488038	488103	488168	488232	488297	488362	40
	20	11.488427	488491	488556	488621	488686	488751	488816	488880	488945	489010	30
	30	11.489075	489140	489205	489270	489335	489400	489465	489530	489595	489660	20
	40	11.489725	489790	489855	489920	489985	490050	490115	490180	490245	490310	10
	50	11.490375	490440	490505	490570	490635	490701	490766	490831	490896	490961	00
9	0	11.491026	491092	491157	491222	491287	491352	491418	491483	491548	491613	50
	10	11.491679	491744	491809	491875	491940	492005	492071	492136	492201	492267	40
	20	11.492332	492397	492463	492528	492594	492659	492724	492790	492855	492921	30
	30	11.492986	493052	493117	493183	493248	493314	493379	493445	493511	493576	20
	40	11.493642	493707	493773	493838	493904	493970	494035	494101	494167	494232	10
	50	11.494298	494364	494429	494495	494561	494626	494692	494758	494824	494889	00
Minutes / Seconds		10″	9	8″	7″	6″	5″	4″	3″	2″	1″	Seconds / Minutes

Co-secant of 1 degree, or Secant of 91 degrees.

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LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.

Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
0	11.494955	495021	495087	495153	495218	495284	495350	495416	495482	495548	50	
10	11.495614	495679	495745	495811	495877	495943	496009	496075	496141	496207	40	
20	11.496273	496339	496405	496471	496537	496603	496669	496735	496801	496867	30	
30	11.496933	496999	497065	497131	497198	497264	497330	497396	497462	497528	20	
40	11.497594	497661	497727	497793	497859	497925	497992	498058	498124	498190	10	
50	11.498257	498323	498389	498456	498522	498588	498655	498721	498787	498854	0	49
1 0	11.498920	498986	499053	499119	499186	499252	499319	499385	499451	499518	50	
10	11.499584	499651	499717	499784	499850	499917	499984	500050	500117	500183	40	
20	11.500250	500316	500383	500450	500516	500583	500650	500716	500783	500850	30	
30	11.500916	500983	501050	501116	501183	501250	501317	501383	501450	501517	20	
40	11.501584	501650	501717	501784	501851	501918	501985	502051	502118	502185	10	
50	11.502252	502319	502386	502453	502520	502587	502654	502721	502788	502855	0	48
2 0	11.502922	502989	503056	503123	503190	503257	503324	503391	503458	503525	50	
10	11.503592	503659	503726	503793	503861	503928	503995	504062	504129	504196	40	
20	11.504264	504331	504398	504465	504532	504600	504667	504734	504802	504869	30	
30	11.504936	505003	505071	505138	505205	505273	505340	505408	505475	505542	20	
40	11.505610	505677	505745	505812	505880	505947	506014	506082	506149	506217	10	
50	11.506284	506352	506420	506487	506555	506622	506690	506757	506825	506893	0	47
3 0	11.506960	507028	507095	507163	507231	507298	507366	507434	507502	507569	50	
10	11.507637	507705	507772	507840	507908	507976	508044	508111	508179	508247	40	
20	11.508315	508383	508450	508518	508586	508654	508722	508790	508858	508926	30	
30	11.508994	509062	509130	509198	509266	509334	509402	509470	509538	509606	20	
40	11.509674	509742	509810	509878	509946	510014	510082	510150	510218	510287	10	
50	11.510355	510423	510491	510559	510627	510696	510764	510832	510900	510969	0	46
4 0	11.511037	511105	511173	511242	511310	511378	511447	511515	511583	511652	50	
10	11.511720	511788	511857	511925	511994	512062	512130	512199	512267	512336	40	
20	11.512404	512473	512541	512610	512678	512747	512815	512884	512952	513021	30	
30	11.513090	513158	513227	513295	513364	513433	513501	513570	513639	513707	20	
40	11.513776	513845	513913	513982	514051	514120	514188	514257	514326	514395	10	
50	11.514463	514532	514601	514670	514739	514808	514876	514945	515014	515083	0	45
5 0	11.515152	515221	515290	515359	515428	515497	515566	515635	515704	515773	50	
10	11.515842	515911	515980	516049	516118	516187	516256	516325	516394	516463	40	
20	11.516533	516602	516671	516740	516809	516878	516948	517017	517086	517155	30	
30	11.517224	517294	517363	517432	517501	517571	517640	517709	517779	517848	20	
40	11.517917	517987	518056	518126	518195	518264	518334	518403	518473	518542	10	
50	11.518612	518681	518750	518820	518889	518959	519029	519098	519168	519237	0	44
6 0	11.519307	519376	519446	519516	519585	519655	519724	519794	519864	519933	50	
10	11.520003	520073	520142	520212	520282	520352	520421	520491	520561	520631	40	
20	11.520701	520770	520840	520910	520980	521050	521120	521189	521259	521329	30	
30	11.521399	521469	521539	521609	521679	521749	521819	521889	521959	522029	20	
40	11.522099	522169	522239	522309	522379	522449	522519	522589	522659	522729	10	
50	11.522800	522870	522940	523010	523080	523150	523221	523291	523361	523431	0	43
7 0	11.523502	523572	523642	523712	523783	523853	523923	523994	524064	524134	50	
10	11.524205	524275	524345	524416	524486	524557	524627	524698	524768	524838	40	
20	11.524909	524979	525050	525120	525191	525261	525332	525403	525473	525544	30	
30	11.525614	525685	525756	525826	525897	525967	526038	526109	526179	526250	20	
40	11.526321	526392	526462	526533	526604	526675	526745	526816	526887	526958	10	
50	11.527029	527099	527170	527241	527312	527383	527454	527525	527596	527666	0	42
8 0	11.527737	527808	527879	527950	528021	528092	528163	528234	528305	528376	50	
10	11.528447	528518	528590	528661	528732	528803	528874	528945	529016	529087	40	
20	11.529159	529230	529301	529372	529443	529515	529586	529657	529728	529800	30	
30	11.529871	529942	530013	530085	530156	530227	530299	530370	530442	530513	20	
40	11.530584	530656	530727	530799	530870	530942	531013	531085	531156	531228	10	
50	11.531299	531371	531442	531514	531585	531657	531728	531800	531872	531943	0	41
9 0	11.532015	532087	532158	532230	532302	532373	532445	532517	532588	532660	50	
10	11.532732	532804	532876	532947	533019	533091	533163	533235	533306	533378	40	
20	11.533450	533522	533594	533666	533738	533810	533882	533954	534026	534098	30	
30	11.534170	534242	534314	534386	534458	534530	534602	534674	534746	534818	20	
40	11.534890	534962	535035	535107	535179	535251	535323	535395	535468	535540	10	
50	11.535612	535684	535757	535829	535901	535973	536046	536118	536190	536263	0	40
	10′	9″	8′	7″	6′	5′	4″	3″	2′	1″	Seconds	Minutes

Co-secant of 1 degree, or Secant of 91 degrees.

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 980765	10. 980866	10. 980966	45		1″ = 20
	15	10. 981066	10. 981166	10. 981267	30		2. 40
	30	10. 981367	10. 981467	10. 981567	15		3. 60
	45	10. 981668	10. 981768	10 981869	0	59	4. 80
1	0	10. 981969	10. 982069	10. 982170	45		1 = 20
	15	10. 982270	10. 982371	10. 982472	30		2. 40
	30	10. 982572	10. 982673	10. 982773	15		3. 60
	45	10. 982874	10. 982975	10. 983075	0	58	4. 80
2	0	10. 983176	10. 983277	10. 983378	45		1 = 20
	15	10. 983478	10. 983579	10. 983680	30		2. 40
	30	10. 983781	10. 983882	10. 983983	15		3. 61
	45	10. 984084	10. 984185	10. 984285	0	57	4. 81
3	0	10. 984386	10. 984488	10. 984589	45		1 = 20
	15	10. 984690	10. 984791	10. 984892	30		2. 40
	30	10. 984993	10. 985094	10. 985195	15		3. 61
	45	10. 985297	10. 985398	10. 985499	0	56	4. 81
4	0	10. 985600	10. 985702	10. 985803	45		1 = 20
	15	10. 985904	10. 986006	10. 986107	30		2. 41
	30	10. 986209	10. 986310	10. 986411	15		3. 61
	45	10. 986513	10. 986614	10. 986716	0	55	4. 81
5	0	10. 986818	10. 986919	10. 987021	45		1 = 20
	15	10. 987122	10. 987224	10. 987326	30		2. 41
	30	10. 987428	10. 987529	10. 987631	15		3. 61
	45	10. 987733	10. 987835	10. 987937	0	54	4. 81
6	0	10. 988038	10. 988140	10. 988242	45		1 = 20
	15	10. 988344	10. 988446	10. 988548	30		2. 41
	30	10. 988650	10. 988752	10. 988854	15		3. 61
	45	10. 988956	10. 989058	10. 989160	0	53	4. 82
7	0	10. 989263	10. 989365	10. 989467	45		1 = 20
	15	10. 989569	10. 989671	10. 989774	30		2. 41
	30	10. 989876	10. 989978	10. 990081	15		3. 61
	45	10. 990183	10. 990285	10. 990388	0	52	4. 82
8	0	10. 990490	10. 990593	10. 990695	45		1 = 21
	15	10. 990798	10. 990900	10. 991003	30		2. 41
	30	10. 991105	10. 991208	10. 991311	15		3. 62
	45	10. 991413	10. 991516	10. 991619	0	51	4. 82
9	0	10. 991722	10. 991824	10. 991927	45		1 = 21
	15	10. 992030	10. 992133	10. 992236	30		2. 41
	30	10. 992338	10. 992441	10. 992544	15		3. 62
	45	10. 992647	10. 992750	10. 992853	0	50	4. 82
10	0	10. 992956	10. 993059	10. 993162	45		1 = 21
	15	10. 993266	10. 993369	10. 993472	30		2. 41
	30	10. 993575	10. 993678	10. 993781	15		3. 62
	45	10. 993885	10. 993988	10. 994091	0	49	4. 83
11	0	10. 994195	10. 994298	10. 994401	45		1 = 21
	15	10. 994505	10. 994608	10. 994712	30		2. 41
	30	10. 994815	10. 994919	10. 995022	15		3. 62
	45	10. 995126	10. 995229	10. 995333	0	48	4. 83
12	0	10. 995437	10. 995540	10. 995644	45		1 = 21
	15	10. 995748	10. 995851	10. 995955	30		2. 42
	30	10. 996059	10. 996163	10. 996267	15		3. 62
	45	10. 996370	10. 996474	10. 996578	0	47	4. 83
13	0	10. 996682	10. 996786	10. 996890	45		1 = 21
	15	10. 996994	10. 997098	10. 997202	30		2. 42
	30	10. 997306	10. 997410	10. 997514	15		3. 62
	45	10. 997619	10. 997723	10. 997827	0	46	4. 83
14	0	10. 997931	10. 998035	10. 998140	45		1 = 21
	15	10. 998244	10. 998348	10. 998453	30		2. 42
	30	10. 998557	10. 998662	10. 998766	15		3. 63
	45	10. 998870	10. 998975	10. 999079	0	45	4. 84
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 999184	10. 999289	10. 999393	45		1″ = [illegible]
	15	10. 999498	10. 999602	10. 999707	30		2. [illegible]
	30	10. 999812	10. 999916	11. 000021	15		3. [illegible]
	45	11. 000126	11. 000231	11. 000336	0	44	4. [illegible]
16	0	11. 000440	11. 000545	11. 000650	45		1 = [illegible]
	15	11. 000755	11. 000860	11. 000965	30		2. [illegible]
	30	11. 001070	11. 001175	11. 001280	15		3. [illegible]
	45	11. 001385	11. 001490	11. 001595	0	43	4. [illegible]
17	0	11. 001701	11. 001806	11. 001911	45		1 = [illegible]
	15	11. 002016	11. 002121	11. 002227	30		2. [illegible]
	30	11. 002332	11. 002437	11. 002543	15		3. [illegible]
	45	11. 002648	11. 002753	11. 002859	0	42	4. [illegible]
18	0	11. 002964	11. 003070	11. 003175	45		1 = [illegible]
	15	11. 003281	11. 003386	11. 003492	30		2. [illegible]
	30	11. 003598	11. 003703	11. 003809	15		3. [illegible]
	45	11. 003915	11. 004020	11. 004126	0	41	4. [illegible]
19	0	11. 004232	11. 004338	11. 004443	45		1 = [illegible]
	15	11. 004549	11. 004655	11. 004761	30		2. [illegible]
	30	11. 004867	11. 004973	11. 005079	15		3. [illegible]
	45	11. 005185	11. 005291	11. 005397	0	40	4. [illegible]
20	0	11. 005503	11. 005609	11. 005715	45		1 = [illegible]
	15	11. 005822	11. 005928	11. 006034	30		2. [illegible]
	30	11. 006140	11. 006246	11. 006353	15		3. [illegible]
	45	11. 006459	11. 006565	11. 006672	0	39	4. [illegible]
21	0	11. 006778	11. 006885	11. 006991	45		1 = [illegible]
	15	11. 007098	11. 007204	11. 007311	30		2. [illegible]
	30	11. 007417	11. 007524	11. 007630	15		3. [illegible]
	45	11. 007737	11. 007844	11. 007950	0	38	4. [illegible]
22	0	11. 008057	11. 008164	11. 008271	45		1 = [illegible]
	15	11. 008377	11. 008484	11. 008591	30		2. [illegible]
	30	11. 008698	11. 008805	11. 008912	15		3. [illegible]
	45	11. 009019	11. 009126	11. 009233	0	37	4. [illegible]
23	0	11. 009340	11. 009447	11. 009554	45		1 = [illegible]
	15	11. 009661	11. 009768	11. 009875	30		2. [illegible]
	30	11. 009983	11. 010090	11. 010197	15		3. [illegible]
	45	11. 010304	11. 010412	11. 010519	0	36	4. [illegible]
24	0	11. 010626	11. 010734	11. 010841	45		1 = [illegible]
	15	11. 010948	11. 011056	11. 011164	30		2. [illegible]
	30	11. 011271	11. 011378	11. 011486	15		3. [illegible]
	45	11. 011594	11. 011701	11. 011809	0	35	4. [illegible]
25	0	11. 011917	11. 012024	11. 012132	45		1 = [illegible]
	15	11. 012240	11. 012348	11. 012455	30		2. [illegible]
	30	11. 012563	11. 012671	11. 012779	15		3. [illegible]
	45	11. 012887	11. 012995	11. 013103	0	34	4. [illegible]
26	0	11. 013211	11. 013319	11. 013427	45		1 = [illegible]
	15	11. 013535	11. 013643	11. 013751	30		2. [illegible]
	30	11. 013859	11. 013968	11. 014076	15		3. [illegible]
	45	11. 014184	11. 014292	11. 014401	0	33	4. [illegible]
27	0	11. 014509	11. 014617	11. 014726	45		1 = [illegible]
	15	11. 014834	11. 014943	11. 015051	30		2. [illegible]
	30	11. 015160	11. 015268	11. 015377	15		3. [illegible]
	45	11. 015485	11. 015594	11. 015702	0	32	4. [illegible]
28	0	11. 015811	11. 015920	11. 016028	45		1 = [illegible]
	15	11. 016137	11. 016246	11. 016355	30		2. [illegible]
	30	11. 016464	11. 016572	11. 016681	15		3. [illegible]
	45	11. 016790	11. 016899	11. 017008	0	31	4. [illegible]
29	0	11. 017117	11. 017226	11. 017335	45		1 = [illegible]
	15	11. 017444	11. 017553	11. 017662	30		2. [illegible]
	30	11. 017772	11. 017881	11. 017990	15		3. [illegible]
	45	11. 018099	11. 018208	11. 018318	0	30	4. [illegible]
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11.018427	11.018536	11.018646	45		1″ = 22
	15	11.018755	11.018865	11.018974	30		2. 44
	30	11.019084	11.019193	11.019303	15		3. 66
	45	11.019412	11.019522	11.019631	0	29	4. 88
31	0	11.019741	11.019851	11.019960	45		1 = 22
	15	11.020070	11.020180	11.020290	30		2. 44
	30	11.020400	11.020509	11.020619	15		3. 66
	45	11.020729	11.020839	11.020949	0	28	4. 88
32	0	11.021059	11.021169	11.021279	45		1 = 22
	15	11.021389	11.021499	11.021609	30		2. 44
	30	11.021720	11.021830	11.021940	15		3. 66
	45	11.022050	11.022161	11.022271	0	27	4. 88
33	0	11.022381	11.022492	11.022602	45		1 = 22
	15	11.022712	11.022823	11.022933	30		2. 44
	30	11.023044	11.023154	11.023265	15		3. 66
	45	11.023375	11.023486	11.023597	0	26	4. 88
34	0	11.023707	11.023818	11.023929	45		1 = 22
	15	11.024040	11.024150	11.024261	30		2. 44
	30	11.024372	11.024483	11.024594	15		3. 67
	45	11.024705	11.024816	11.024927	0	25	4. 89
35	0	11.025038	11.025149	11.025260	45		1 = 22
	15	11.025371	11.025482	11.025593	30		2. 44
	30	11.025704	11.025815	11.025927	15		3. 67
	45	11.026038	11.026149	11.026261	0	24	4. 89
36	0	11.026372	11.026483	11.026595	45		1 = 22
	15	11.026706	11.026818	11.026929	30		2. 45
	30	11.027041	11.027152	11.027264	15		3. 67
	45	11.027375	11.027487	11.027599	0	23	4. 89
37	0	11.027710	11.027822	11.027934	45		1 = 22
	15	11.028046	11.028158	11.028269	30		2. 45
	30	11.028381	11.028493	11.028605	15		3. 67
	45	11.028717	11.028829	11.028941	0	22	4. 90
38	0	11.029053	11.029165	11.029277	45		1 = 22
	15	11.029390	11.029502	11.029614	30		2. 45
	30	11.029726	11.029838	11.029951	15		3. 67
	45	11.030063	11.030175	11.030288	0	21	4. 90
39	0	11.030400	11.030513	11.030625	45		1 = 23
	15	11.030737	11.030850	11.030963	30		2. 45
	30	11.031075	11.031188	11.031300	15		3. 68
	45	11.031413	11.031526	11.031638	0	20	4. 90
40	0	11.031751	11.031864	11.031977	45		1 = 23
	15	11.032090	11.032203	11.032315	30		2. 45
	30	11.032428	11.032541	11.032654	15		3. 68
	45	11.032767	11.032880	11.032993	0	19	4. 90
41	0	11.033107	11.033220	11.033333	45		1 = 23
	15	11.033446	11.033559	11.033673	30		2. 45
	30	11.033786	11.033899	11.034013	15		3. 68
	45	11.034126	11.034239	11.034353	0	18	4. 91
42	0	11.034466	11.034580	11.034693	45		1 = 23
	15	11.034807	11.034920	11.035034	30		2. 45
	30	11.035148	11.035261	11.035375	15		3. 68
	45	11.035489	11.035603	11.035716	0	17	4. 91
43	0	11.035830	11.035944	11.036058	45		1 = 23
	15	11.036172	11.036286	11.036400	30		2. 46
	30	11.036514	11.036628	11.036742	15		3. 68
	45	11.036856	11.036970	11.037084	0	16	4. 91
44	0	11.037199	11.037313	11.037427	45		1 = 23
	15	11.037541	11.037656	11.037770	30		2. 46
	30	11.037884	11.037999	11.038113	15		3. 69
	45	11.038228	11.038342	11.038457	0	15	4. 91
		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

Minutes	Seconds	Secant of 84 degrees, or Co-secant of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.038571	11.038686	11.038800	45		1″ = 23
	15	11.038915	11.039030	11.039144	30		2. 46
	30	11.039259	11.039374	11.039489	15		3. 69
	45	11.039604	11.039718	11.039833	0	14	4. 92
46	0	11.039948	11.040063	11.040178	45		1 = 23
	15	11.040293	11.040408	11.040523	30		2. 46
	30	11.040638	11.040754	11.040869	15		3. 69
	45	11.040984	11.041099	11.041214	0	13	4. 92
47	0	11.041330	11.041445	11.041560	45		1 = 23
	15	11.041676	11.041791	11.041907	30		2. 46
	30	11.042022	11.042138	11.042253	15		3. 69
	45	11.042369	11.042484	11.042600	0	12	4. 92
48	0	11.042716	11.042831	11.042947	45		1 = 23
	15	11.043063	11.043179	11.043294	30		2. 46
	30	11.043410	11.043526	11.043642	15		3. 70
	45	11.043758	11.043874	11.043990	0	11	4. 93
49	0	11.044106	11.044222	11.044338	45		1 = 23
	15	11.044454	11.044570	11.044687	30		2. 46
	30	11.044803	11.044919	11.045035	15		3. 70
	45	11.045152	11.045268	11.045384	0	10	4. 93
50	0	11.045501	11.045617	11.045734	45		1 = 23
	15	11.045850	11.045967	11.046083	30		2. 47
	30	11.046200	11.046317	11.046433	15		3. 70
	45	11.046550	11.046667	11.046784	0	9	4. 93
51	0	11.046900	11.047017	11.047134	45		1 = 23
	15	11.047251	11.047368	11.047485	30		2. 47
	30	11.047602	11.047719	11.047836	15		3. 70
	45	11.047953	11.048070	11.048187	0	8	4. 94
52	0	11.048304	11.048421	11.048539	45		1 = 23
	15	11.048656	11.048773	11.048891	30		2. 47
	30	11.049008	11.049125	11.049243	15		3. 70
	45	11.049360	11.049478	11.049595	0	7	4. 94
53	0	11.049713	11.049830	11.049948	45		1 = 24
	15	11.050066	11.050183	11.050301	30		2. 47
	30	11.050419	11.050537	11.050654	15		3. 71
	45	11.050772	11.050890	11.051008	0	6	4. 94
54	0	11.051126	11.051244	11.051362	45		1 = 24
	15	11.051480	11.051598	11.051716	30		2. 47
	30	11.051834	11.051953	11.052071	15		3. 71
	45	11.052189	11.052307	11.052426	0	5	4. 94
55	0	11.052544	11.052662	11.052781	45		1 = 24
	15	11.052899	11.053018	11.053136	30		2. 47
	30	11.053255	11.053373	11.053492	15		3. 71
	45	11.053610	11.053729	11.053848	0	4	4. 95
56	0	11.053966	11.054085	11.054204	45		1 = 24
	15	11.054323	11.054442	11.054561	30		2. 48
	30	11.054679	11.054798	11.054917	15		3. 71
	45	11.055036	11.055155	11.055275	0	3	4. 95
57	0	11.055394	11.055513	11.055632	45		1 = 24
	15	11.055751	11.055870	11.055990	30		2. 48
	30	11.056109	11.056228	11.056348	15		3. 72
	45	11.056467	11.056587	11.056706	0	2	4. 95
58	0	11.056826	11.056945	11.057065	45		1 = 24
	15	11.057184	11.057304	11.057424	30		2. 48
	30	11.057543	11.057663	11.057783	15		3. 72
	45	11.057903	11.058023	11.058142	0	1	4. 96
59	0	11.058262	11.058382	11.058502	45		1 = 24
	15	11.058622	11.058742	11.058862	30		2. 48
	30	11.058983	11.059103	11.059223	15		3. 72
	45	11.059343	11.059463	11.059584	0	0	4. 96
		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 5 degrees, or Secant of 95 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11.059704	11.059824	11.059945	45		1″ = 24
	15	11.060065	11.060186	11.060306	30		2. 48
	30	11.060427	11.060547	11.060668	15		3. 72
	45	11.060788	11.060909	11.061030	0	59	4. 96
1	0	11.061150	11.061271	11.061392	45		1 = 24
	15	11.061513	11.061634	11.061754	30		2. 48
	30	11.061875	11.061996	11.062117	15		3. 73
	45	11.062238	11.062359	11.062480	0	58	4. 97
2	0	11.062602	11.062723	11.062844	45		1 = 24
	15	11.062965	11.063086	11.063208	30		2. 49
	30	11.063329	11.063450	11.063572	15		3. 73
	45	11.063693	11.063815	11.063936	0	57	4. 97
3	0	11.064058	11.064179	11.064301	45		1 = 24
	15	11.064423	11.064544	11.064666	30		2. 49
	30	11.064788	11.064909	11.065031	15		3. 73
	45	11.065153	11.065275	11.065397	0	56	4. 97
4	0	11.065519	11.065641	11.065763	45		1 = 24
	15	11.065885	11.066007	11.066129	30		2. 49
	30	11.066251	11.066373	11.066496	15		3. 73
	45	11.066618	11.066740	11.066863	0	55	4. 98
5	0	11.066985	11.067107	11.067230	45		1 = 25
	15	11.067352	11.067475	11.067597	30		2. 49
	30	11.067720	11.067842	11.067965	15		3. 74
	45	11.068088	11.068210	11.068333	0	54	4. 98
6	0	11.068456	11.068579	11.068702	45		1 = 25
	15	11.068825	11.068948	11.069070	30		2. 49
	30	11.069193	11.069316	11.069440	15		3. 74
	45	11.069563	11.069686	11.069809	0	53	4. 98
7	0	11.069932	11.070055	11.070179	45		1 = 25
	15	11.070302	11.070425	11.070549	30		2. 49
	30	11.070672	11.070796	11.070919	15		3. 74
	45	11.071043	11.071166	11.071290	0	52	4. 99
8	0	11.071413	11.071537	11.071661	45		1 = 25
	15	11.071784	11.071908	11.072032	30		2. 50
	30	11.072156	11.072280	11.072404	15		3. 74
	45	11.072528	11.072652	11.072776	0	51	4. 99
9	0	11.072900	11.073024	11.073148	45		1 = 25
	15	11.073272	11.073396	11.073520	30		2. 50
	30	11.073645	11.073769	11.073893	15		3. 75
	45	11.074018	11.074142	11.074267	0	50	4. 99
10	0	11.074391	11.074516	11.074640	45		1 = 25
	15	11.074765	11.074889	11.075014	30		2. 50
	30	11.075139	11.075263	11.075388	15		3. 75
	45	11.075513	11.075638	11.075763	0	49	4. 100
11	0	11.075888	11.076013	11.076138	45		1 = 25
	15	11.076263	11.076388	11.076513	30		2. 50
	30	11.076638	11.076763	11.076888	15		3. 75
	45	11.077014	11.077139	11.077264	0	48	4. 100
12	0	11.077389	11.077515	11.077640	45		1 = 25
	15	11.077766	11.077891	11.078017	30		2. 50
	30	11.078142	11.078268	11.078394	15		3. 75
	45	11.078519	11.078645	11.078771	0	47	4. 100
13	0	11.078897	11.079022	11.079148	45		1 = 25
	15	11.079274	11.079400	11.079526	30		2. 50
	30	11.079652	11.079778	11.079904	15		3. 76
	45	11.080030	11.080156	11.080283	0	46	4. 101
14	0	11.080409	11.080535	11.080661	45		1 = 25
	15	11.080788	11.080914	11.081041	30		2. 51
	30	11.081167	11.081294	11.081420	15		3. 76
	45	11.081547	11.081673	11.081800	0	45	4. 101
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11.081927	11.082053	11.082180	45		1″ = 25
	15	11.082307	11.082434	11.082561	30		2. 51
	30	11.082687	11.082814	11.082941	15		3. 76
	45	11.083068	11.083195	11.083322	0	44	4. 101
16	0	11.083450	11.083577	11.083704	45		1 = 25
	15	11.083831	11.083958	11.084086	30		2. 51
	30	11.084213	11.084341	11.084468	15		3. 76
	45	11.084595	11.084723	11.084850	0	43	4. 101
17	0	11.084978	11.085106	11.085233	45		1 = 25
	15	11.085361	11.085489	11.085616	30		2. 51
	30	11.085744	11.085872	11.086000	15		3. 77
	45	11.086128	11.086256	11.086384	0	42	4. 102
18	0	11.086512	11.086640	11.086768	45		1 = 25
	15	11.086896	11.087024	11.087153	30		2. 51
	30	11.087281	11.087409	11.087538	15		3. 77
	45	11.087666	11.087794	11.087923	0	41	4. 102
19	0	11.088051	11.088180	11.088308	45		1 = 25
	15	11.088437	11.088566	11.088694	30		2. 51
	30	11.088823	11.088952	11.089081	15		3. 77
	45	11.089209	11.089338	11.089467	0	40	4. 102
20	0	11.089596	11.089725	11.089854	45		1 = 25
	15	11.089983	11.090112	11.090241	30		2. 51
	30	11.090371	11.090500	11.090629	15		3. 77
	45	11.090758	11.090888	11.091017	0	39	4. 102
21	0	11.091146	11.091276	11.091405	45		1 = 25
	15	11.091535	11.091665	11.091794	30		2. 51
	30	11.091924	11.092053	11.092183	15		3. 77
	45	11.092313	11.092443	11.092573	0	38	4. 102
22	0	11.092702	11.092832	11.092962	45		1 = 25
	15	11.093092	11.093222	11.093352	30		2. 51
	30	11.093483	11.093613	11.093743	15		3. 77
	45	11.093873	11.094003	11.094134	0	37	4. 102
23	0	11.094264	11.094394	11.094525	45		1 = 25
	15	11.094655	11.094786	11.094916	30		2. 51
	30	11.095047	11.095178	11.095308	15		3. 77
	45	11.095439	11.095570	11.095701	0	36	4. 102
24	0	11.095831	11.095962	11.096093	45		1 = 25
	15	11.096224	11.096355	11.096486	30		2. 51
	30	11.096617	11.096748	11.096879	15		3. 77
	45	11.097011	11.097142	11.097273	0	35	4. 102
25	0	11.097404	11.097536	11.097667	45		1 = 25
	15	11.097799	11.097930	11.098062	30		2. 51
	30	11.098193	11.098325	11.098456	15		3. 77
	45	11.098588	11.098720	11.098851	0	34	4. 102
26	0	11.098983	11.099115	11.099247	45		1 = 25
	15	11.099379	11.099511	11.099643	30		2. 51
	30	11.099775	11.099907	11.100039	15		3. 77
	45	11.100171	11.100303	11.100435	0	33	4. 102
27	0	11.100568	11.100700	11.100832	45		1 = 25
	15	11.100965	11.101097	11.101230	30		2. 51
	30	11.101362	11.101495	11.101627	15		3. 77
	45	11.101760	11.101893	11.102025	0	32	4. 102
28	0	11.102158	11.102291	11.102424	45		1 = 25
	15	11.102557	11.102690	11.102823	30		2. 51
	30	11.102956	11.103089	11.103222	15		3. 77
	45	11.103355	11.103488	11.103621	0	31	4. 102
29	0	11.103754	11.103888	11.104021	45		1 = 25
	15	11.104154	11.104288	11.104421	30		2. 51
	30	11.104555	11.104688	11.104822	15		3. 77
	45	11.104956	11.105089	11.105223	0	30	4. 102
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11.105357	11.105490	11.105624	45		1″ = 27
	15	11.105758	11.105892	11.106026	30		2. 54
	30	11.106160	11.106294	11.106428	15		3. 80
	45	11.106562	11.106696	11.106831	0	29	4. 107
31	0	11.106965	11.107099	11.107233	45		1 = 27
	15	11.107368	11.107502	11.107637	30		2. 54
	30	11.107771	11.107906	11.108040	15		3. 81
	45	11.108175	11.108310	11.108444	0	28	4. 108
32	0	11.108579	11.108714	11.108849	45		1 = 27
	15	11.108984	11.109118	11.109253	30		2. 54
	30	11.109388	11.109523	11.109659	15		3. 81
	45	11.109794	11.109929	11.110064	0	27	4. 108
33	0	11.110199	11.110335	11.110470	45		1 = 27
	15	11.110605	11.110741	11.110876	30		2. 54
	30	11.111012	11.111147	11.111283	15		3. 81
	45	11.111418	11.111554	11.111690	0	26	4. 108
34	0	11.111826	11.111961	11.112097	45		1 = 27
	15	11.112233	11.112369	11.112505	30		2. 54
	30	11.112641	11.112777	11.112913	15		3. 82
	45	11.113049	11.113186	11.113322	0	25	4. 109
35	0	11.113458	11.113594	11.113731	45		1 = 27
	15	11.113867	11.114004	11.114140	30		2. 55
	30	11.114277	11.114413	11.114550	15		3. 82
	45	11.114687	11.114823	11.114960	0	24	4. 109
36	0	11.115097	11.115234	11.115371	45		1 = 27
	15	11.115508	11.115644	11.115781	30		2. 55
	30	11.115919	11.116056	11.116193	15		3. 82
	45	11.116330	11.116467	11.116604	0	23	4. 110
37	0	11.116742	11.116879	11.117017	45		1 = 28
	15	11.117154	11.117292	11.117429	30		2. 55
	30	11.117567	11.117704	11.117842	15		3. 83
	45	11.117980	11.118117	11.118255	0	22	4. 110
38	0	11.118393	11.118531	11.118669	45		1 = 28
	15	11.118807	11.118945	11.119083	30		2. 55
	30	11.119221	11.119359	11.119497	15		3. 83
	45	11.119636	11.119774	11.119912	0	21	4. 110
39	0	11.120051	11.120189	11.120328	45		1 = 28
	15	11.120466	11.120605	11.120743	30		2. 55
	30	11.120882	11.121020	11.121159	15		3. 83
	45	11.121298	11.121437	11.121576	0	20	4. 111
40	0	11.121715	11.121854	11.121993	45		1 = 28
	15	11.122132	11.122271	11.122410	30		2. 56
	30	11.122549	11.122688	11.122827	15		3. 83
	45	11.122967	11.123106	11.123246	0	19	4. 111
41	0	11.123385	11.123524	11.123664	45		1 = 28
	15	11.123804	11.123943	11.124083	30		2. 56
	30	11.124223	11.124362	11.124502	15		3. 84
	45	11.124642	11.124782	11.124922	0	18	4. 112
42	0	11.125062	11.125202	11.125342	45		1 = 28
	15	11.125482	11.125622	11.125763	30		2. 56
	30	11.125903	11.126043	11.126183	15		3. 84
	45	11.126324	11.126464	11.126605	0	17	4. 112
43	0	11.126745	11.126886	11.127027	45		1 = 28
	15	11.127167	11.127308	11.127449	30		2. 56
	30	11.127589	11.127730	11.127871	15		3. 84
	45	11.128012	11.128153	11.128294	0	16	4. 113
44	0	11.128435	11.128576	11.128718	45		1 = 28
	15	11.128859	11.129000	11.129141	30		2. 57
	30	11.129283	11.129424	11.129566	15		3. 85
	45	11.129707	11.129849	11.129990	0	15	4. 113
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

Minutes	Seconds	Secant of 85 degrees, or Co-secant of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.130132	11.130274	11.130415	45		1″ = 28
	15	11.130557	11.130699	11.130841	30		2. 57
	30	11.130983	11.131125	11.131267	15		3. 85
	45	11.131409	11.131551	11.131693	0	14	4. 114
46	0	11.131835	11.131978	11.132120	45		1 = 28
	15	11.132262	11.132405	11.132547	30		2. 57
	30	11.132690	11.132832	11.132975	15		3. 85
	45	11.133117	11.133260	11.133403	0	13	4. 114
47	0	11.133545	11.133688	11.133831	45		1 = 29
	15	11.133974	11.134117	11.134260	30		2. 57
	30	11.134403	11.134546	11.134689	15		3. 86
	45	11.134832	11.134976	11.135119	0	12	4. 114
48	0	11.135262	11.135406	11.135549	45		1 = 29
	15	11.135693	11.135836	11.135980	30		2. 57
	30	11.136123	11.136267	11.136411	15		3. 86
	45	11.136554	11.136698	11.136842	0	11	4. 115
49	0	11.136986	11.137130	11.137274	45		1 = 29
	15	11.137418	11.137562	11.137706	30		2. 58
	30	11.137850	11.137995	11.138139	15		3. 86
	45	11.138283	11.138428	11.138572	0	10	4. 115
50	0	11.138717	11.138861	11.139006	45		1 = 29
	15	11.139150	11.139295	11.139440	30		2. 58
	30	11.139585	11.139729	11.139874	15		3. 87
	45	11.140019	11.140164	11.140309	0	9	4. 116
51	0	11.140454	11.140599	11.140745	45		1 = 29
	15	11.140890	11.141035	11.141180	30		2. 58
	30	11.141326	11.141471	11.141617	15		3. 87
	45	11.141762	11.141908	11.142053	0	8	4. 116
52	0	11.142199	11.142345	11.142490	45		1 = 29
	15	11.142636	11.142782	11.142928	30		2. 59
	30	11.143074	11.143220	11.143366	15		3. 88
	45	11.143512	11.143658	11.143804	0	7	4. 116
53	0	11.143951	11.144097	11.144243	45		1 = 29
	15	11.144390	11.144536	11.144683	30		2. 59
	30	11.144829	11.144976	11.145122	15		3. 88
	45	11.145269	11.145416	11.145563	0	6	4. 117
54	0	11.145709	11.145856	11.146003	45		1 = 29
	15	11.146150	11.146297	11.146444	30		2. 59
	30	11.146592	11.146739	11.146886	15		3. 88
	45	11.147033	11.147181	11.147328	0	5	4. 118
55	0	11.147475	11.147623	11.147770	45		1 = 30
	15	11.147918	11.148066	11.148213	30		2. 59
	30	11.148361	11.148509	11.148657	15		3. 89
	45	11.148805	11.148953	11.149101	0	4	4. 118
56	0	11.149249	11.149397	11.149545	45		1 = 30
	15	11.149693	11.149841	11.149990	30		2. 59
	30	11.150138	11.150286	11.150435	15		3. 89
	45	11.150583	11.150732	11.150881	0	3	4. 119
57	0	11.151029	11.151178	11.151327	45		1 = 30
	15	11.151476	11.151624	11.151773	30		2. 60
	30	11.151922	11.152071	11.152220	15		3. 89
	45	11.152370	11.152519	11.152668	0	2	4. 119
58	0	11.152817	11.152967	11.153116	45		1 = 30
	15	11.153265	11.153415	11.153564	30		2. 60
	30	11.153714	11.153864	11.154013	15		3. 90
	45	11.154163	11.154313	11.154463	0	1	4. 120
59	0	11.154613	11.154763	11.154913	45		1 = 30
	15	11.155063	11.155213	11.155363	30		2. 60
	30	11.155513	11.155663	11.155814	15		3. 90
	45	11.155964	11.156114	11.156265	0	0	4. 120
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 4 degrees, or Secant of 94 degrees.					

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Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11. 156415	11. 156566	11. 156717	45		1″ = 30
	15	11. 156867	11. 157018	11. 157169	30		2. 60
	30	11. 157320	11. 157471	11. 157622	15		3. 90
	45	11. 157773	11. 157924	11. 158075	0	59	4. 121
1	0	11. 158226	11. 158377	11. 158528	45		1 = 30
	15	11. 158680	11. 158831	11. 158982	30		2. 61
	30	11. 159134	11. 159285	11. 159437	15		3. 91
	45	11. 159589	11. 159740	11. 159892	0	58	4. 121
2	0	11. 160044	11. 160196	11. 160348	45		1 = 30
	15	11. 160500	11. 160652	11. 160804	30		2. 61
	30	11. 160956	11. 161108	11. 161260	15		3. 91
	45	11. 161412	11. 161565	11. 161717	0	57	4. 122
3	0	11. 161870	11. 162022	11. 162175	45		1 = 31
	15	11. 162327	11. 162480	11. 162633	30		2. 61
	30	11. 162785	11. 162938	11. 163091	15		3. 92
	45	11. 163244	11. 163397	11. 163550	0	56	4. 122
4	0	11. 163703	11. 163856	11. 164009	45		1 = 31
	15	11. 164163	11. 164316	11. 164469	30		2. 61
	30	11. 164623	11. 164776	11. 164930	15		3. 92
	45	11. 165083	11. 165237	11. 165391	0	55	4. 123
5	0	11. 165544	11. 165698	11. 165852	45		1 = 31
	15	11. 166006	11. 166160	11. 166314	30		2. 62
	30	11. 166468	11. 166622	11. 166776	15		3. 92
	45	11. 166930	11. 167085	11. 167239	0	54	4. 123
6	0	11. 167393	11. 167548	11. 167702	45		1 = 31
	15	11. 167857	11. 168012	11. 168166	30		2. 62
	30	11. 168321	11. 168476	11. 168631	15		3. 93
	45	11. 168785	11. 168940	11. 169095	0	53	4. 124
7	0	11. 169250	11. 169406	11. 169561	45		1 = 31
	15	11. 169716	11. 169871	11. 170027	30		2. 62
	30	11. 170182	11. 170337	11. 170493	15		3. 93
	45	11. 170649	11. 170804	11. 170960	0	52	4. 124
8	0	11. 171116	11. 171271	11. 171427	45		1 = 31
	15	11. 171583	11. 171739	11. 171895	30		2. 62
	30	11. 172051	11. 172207	11. 172363	15		3. 94
	45	11. 172520	11. 172676	11. 172832	0	51	4. 125
9	0	11. 172989	11. 173145	11. 173302	45		1 = 31
	15	11. 173458	11. 173615	11. 173772	30		2. 63
	30	11. 173928	11. 174085	11. 174242	15		3. 94
	45	11. 174399	11. 174556	11. 174713	0	50	4. 125
10	0	11. 174870	11. 175027	11. 175184	45		1 = 31
	15	11. 175342	11. 175499	11. 175656	30		2. 63
	30	11. 175814	11. 175971	11. 176129	15		3. 94
	45	11. 176286	11. 176444	11. 176602	0	49	4. 126
11	0	11. 176760	11. 176917	11. 177075	45		1 = 32
	15	11. 177233	11. 177391	11. 177549	30		2. 63
	30	11. 177707	11. 177866	11. 178024	15		3. 95
	45	11. 178182	11. 178341	11. 178499	0	48	4. 126
12	0	11. 178657	11. 178816	11. 178975	45		1 = 32
	15	11. 179133	11. 179292	11. 179451	30		2. 64
	30	11. 179609	11. 179768	11. 179927	15		3. 95
	45	11. 180086	11. 180245	11. 180404	0	47	4. 127
13	0	11. 180564	11. 180723	11. 180882	45		1 = 32
	15	11. 181041	11. 181201	11. 181360	30		2. 64
	30	11. 181520	11. 181679	11. 181839	15		3. 96
	45	11. 181999	11. 182159	11. 182318	0	46	4. 128
14	0	11. 182478	11. 182638	11. 182798	45		1 = 32
	15	11. 182958	11. 183118	11. 183279	30		2. 64
	30	11. 183439	11. 183599	11. 183759	15		3. 96
	45	11. 183920	11. 184080	11. 184241	0	45	4. 128
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11. 184401	11. 184562	11. 184723	45		1″ = 32
	15	11. 184884	11. 185044	11. 185205	30		2. 64
	30	11. 185366	11. 185527	11. 185688	15		3. 97
	45	11. 185849	11. 186011	11. 186172	0	44	4. 129
16	0	11. 186333	11. 186495	11. 186656	45		1 = 32
	15	11. 186817	11. 186979	11. 187141	30		2. 65
	30	11. 187302	11. 187464	11. 187626	15		3. 97
	45	11. 187788	11. 187950	11. 188112	0	43	4. 129
17	0	11. 188274	11. 188436	11. 188598	45		1 = 32
	15	11. 188760	11. 188922	11. 189085	30		2. 65
	30	11. 189247	11. 189410	11. 189572	15		3. 97
	45	11. 189735	11. 189897	11. 190060	0	42	4. 130
18	0	11. 190223	11. 190386	11. 190548	45		1 = 33
	15	11. 190711	11. 190874	11. 191038	30		2. 66
	30	11. 191201	11. 191364	11. 191527	15		3. 98
	45	11. 191690	11. 191854	11. 192017	0	41	4. 130
19	0	11. 192181	11. 192344	11. 192508	45		1 = 33
	15	11. 192672	11. 192835	11. 192999	30		2. 66
	30	11. 193163	11. 193327	11. 193491	15		3. 98
	45	11. 193655	11. 193819	11. 193983	0	40	4. 131
20	0	11. 194148	11. 194312	11. 194476	45		1 = 33
	15	11. 194641	11. 194805	11. 194970	30		2. 66
	30	11. 195134	11. 195299	11. 195464	15		3. 99
	45	11. 195629	11. 195794	11. 195959	0	39	4. 132
21	0	11. 196124	11. 196289	11. 196454	45		1 = 33
	15	11. 196619	11. 196784	11. 196949	30		2. 66
	30	11. 197115	11. 197280	11. 197446	15		3. 99
	45	11. 197611	11. 197777	11. 197943	0	38	4. 132
22	0	11. 198108	11. 198274	11. 198440	45		1 = 33
	15	11. 198606	11. 198772	11. 198938	30		2. 66
	30	11. 199104	11. 199271	11. 199437	15		3. 100
	45	11. 199603	11. 199770	11. 199936	0	37	4. 133
23	0	11. 200103	11. 200269	11. 200436	45		1 = 33
	15	11. 200603	11. 200769	11. 200936	30		2. 67
	30	11. 201103	11. 201270	11. 201437	15		3. 100
	45	11. 201604	11. 201771	11. 201939	0	36	4. 134
24	0	11. 202106	11. 202273	11. 202441	45		1 = 34
	15	11. 202608	11. 202776	11. 202943	30		2. 67
	30	11. 203111	11. 203279	11. 203447	15		3. 101
	45	11. 203614	11. 203782	11. 203950	0	35	4. 134
25	0	11. 204119	11. 204287	11. 204455	45		1 = 34
	15	11. 204623	11. 204791	11. 204960	30		2. 67
	30	11. 205128	11. 205297	11. 205466	15		3. 101
	45	11. 205634	11. 205803	11. 205972	0	34	4. 135
26	0	11. 206141	11. 206310	11. 206479	45		1 = 34
	15	11. 206648	11. 206817	11. 206986	30		2. 68
	30	11. 207155	11. 207324	11. 207494	15		3. 102
	45	11. 207663	11. 207833	11. 208002	0	33	4. 135
27	0	11. 208172	11. 208342	11. 208512	45		1 = 34
	15	11. 208682	11. 208851	11. 209021	30		2. 68
	30	11. 209192	11. 209362	11. 209532	15		3. 102
	45	11. 209702	11. 209872	11. 210043	0	32	4. 136
28	0	11. 210213	11. 210384	11. 210554	45		1 = 34
	15	11. 210725	11. 210896	11. 211067	30		2. 68
	30	11. 211237	11. 211408	11. 211579	15		3. 102
	45	11. 211750	11. 211922	11. 212093	0	31	4. 137
29	0	11. 212264	11. 212435	11. 212607	45		1 = 34
	15	11. 212778	11. 212950	11. 213121	30		2. 69
	30	11. 213293	11. 213465	11. 213637	15		3. 103
	45	11. 213809	11. 213981	11. 214153	0	30	4. 137
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

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LOGARITHMIC SECANTS

Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11. 214325	11. 214497	11. 214669	45		1″ = 34
	15	11. 214841	11. 215014	11. 215186	30		2. 69
	30	11. 215359	11. 215531	11. 215704	15		3. 103
	45	11. 215877	11. 216049	11. 216222	0	29	4. 138
31	0	11. 216395	11. 216568	11. 216741	45		1 = 35
	15	11. 216914	11. 217087	11. 217261	30		2. 69
	30	11. 217434	11. 217607	11. 217781	15		3. 104
	45	11. 217954	11. 218128	11. 218302	0	28	4. 139
32	0	11. 218476	11. 218649	11. 218823	45		1 = 35
	15	11. 218997	11. 219171	11. 219345	30		2. 70
	30	11. 219519	11. 219694	11. 219868	15		3 104
	45	11. 220042	11. 220217	11. 220391	0	27	4. 139
33	0	11. 220566	11. 220741	11. 220915	45		1 = 35
	15	11. 221090	11. 221265	11. 221440	30		2. 70
	30	11. 221615	11. 221790	11. 221965	15		3. 105
	45	11. 222140	11. 222316	11. 222491	0	26	4. 140
34	0	11. 222667	11. 222842	11. 223018	45		1 = 35
	15	11. 223193	11. 223369	11. 223545	30		2. 70
	30	11. 223721	11. 223897	11. 224073	15		3. 105
	45	11. 224249	11. 224425	11. 224601	0	25	4. 141
35	0	11. 224777	11. 224954	11. 225130	45		1 = 35
	15	11. 225307	11. 225483	11. 225660	30		2. 71
	30	11. 225837	11. 226013	11. 226190	15		3. 106
	45	11. 226367	11. 226544	11. 226721	0	24	4. 141
36	0	11. 226899	11. 227076	11. 227253	45		1 = 36
	15	11. 227431	11. 227608	11. 227785	30		2. 71
	30	11. 227963	11. 228141	11. 228319	15		3. 107
	45	11. 228496	11. 228674	11. 228852	0	23	4. 142
37	0	11. 229030	11. 229208	11. 229387	45		1 = 36
	15	11. 229565	11. 229743	11. 229922	30		2. 71
	30	11. 230100	11. 230279	11. 230457	15		3. 107
	45	11. 230636	11. 230815	11. 230993	0	22	4. 143
38	0	11. 231172	11. 231351	11. 231530	45		1 = 36
	15	11. 231710	11. 231889	11. 232068	30		2. 72
	30	11. 232247	11. 232427	11. 232606	15		3. 108
	45	11. 232786	11. 232966	11. 233145	0	21	4. 143
39	0	11. 233325	11. 233505	11. 233685	45		1 = 36
	15	11. 233865	11. 234045	11. 234225	30		2. 72
	30	11. 234406	11. 234586	11. 234766	15		3. 108
	45	11. 234947	11. 235128	11. 235308	0	20	4. 144
40	0	11. 235489	11. 235670	11. 235851	45		1 = 36
	15	11. 236031	11. 236212	11. 236394	30		2. 72
	30	11. 236575	11. 236756	11. 236937	15		3. 109
	45	11. 237117	11. 237300	11. 237482	0	19	4. 145
41	0	11. 237663	11. 237845	11. 238027	45		1 = 36
	15	11. 238209	11. 238391	11. 238573	30		2. 73
	30	11. 238755	11. 238937	11. 239119	15		3. 109
	45	11. 239301	11. 239484	11. 239666	0	18	4. 146
42	0	11. 239849	11. 240031	11. 240214	45		1 = 37
	15	11. 240397	11. 240580	11. 240763	30		2. 73
	30	11. 240946	11. 241129	11. 241312	15		3. 110
	45	11. 241495	11. 241678	11. 241862	0	17	4. 146
43	0	11. 242045	11. 242229	11. 242413	45		1 = 37
	15	11. 242596	11. 242780	11. 242964	30		2. 74
	30	11. 243148	11. 243332	11. 243516	15		3. 110
	45	11. 243700	11. 243884	11. 244069	0	16	4. 147
44	0	11. 244253	11. 244438	11. 244622	45		1 = 37
	15	11. 244807	11. 244991	11. 245176	30		2. 74
	30	11. 245361	11. 245546	11. 245731	15		3. 111
	45	11. 245916	11. 246102	11. 246287	0	15	4. 148
		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

Minutes	Seconds	Secant of 86 degrees, or Co-secant of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11. 246472	11. 246658	11. 246843	45		1″ = 37
	15	11. 247029	11. 247214	11. 247400	30		2. 74
	30	11. 247586	11. 247772	11. 247958	15		3. 111
	45	11. 248144	11. 248330	11. 248516	0	14	4. 149
46	0	11. 248703	11. 248889	11. 249076	45		1 = 37
	15	11. 249262	11. 249449	11. 249635	30		2. 75
	30	11. 249822	11. 250009	11. 250196	15		3. 112
	45	11. 250383	11. 250570	11. 250757	0	13	4. 149
47	0	11. 250945	11. 251132	11. 251319	45		1 = 38
	15	11. 251507	11. 251695	11. 251882	30		2. 75
	30	11. 252070	11. 252258	11. 252446	15		3. 113
	45	11. 252634	11. 252822	11. 253010	0	12	4. 150
48	0	11. 253198	11. 253387	11. 253575	45		1 = 38
	15	11. 253764	11. 253952	11. 254141	30		2. 75
	30	11. 254330	11. 254519	11. 254707	15		3. 113
	45	11. 254896	11. 255086	11. 255275	0	11	4. 151
49	0	11. 255464	11. 255653	11. 255843	45		1 = 38
	15	11. 256032	11. 256222	11. 256411	30		2. 76
	30	11. 256601	11. 256791	11. 256981	15		3. 114
	45	11. 257171	11. 257361	11. 257551	0	10	4. 152
50	0	11. 257741	11. 257932	11. 258122	45		1 = 38
	15	11. 258313	11. 258503	11. 258694	30		2. 76
	30	11. 258885	11. 259075	11. 259266	15		3. 114
	45	11. 259457	11. 259648	11. 259840	0	9	4. 153
51	0	11. 260031	11. 260222	11. 260414	45		1 = 38
	15	11. 260605	11. 260797	11. 260988	30		2. 77
	30	11. 261180	11. 261372	11. 261564	15		3. 115
	45	11. 261756	11. 261948	11. 262140	0	8	4. 153
52	0	11. 262332	11. 262525	11. 262717	45		1 = 39
	15	11. 262910	11. 263102	11. 263295	30		2. 77
	30	11. 263488	11. 263681	11. 263874	15		3. 116
	45	11. 264067	11. 264260	11. 264453	0	7	4. 154
53	0	11. 264646	11. 264840	11. 265033	45		1 = 39
	15	11. 265227	11. 265420	11. 265614	30		2. 78
	30	11. 265808	11. 266002	11. 266196	15		3. 116
	45	11. 266390	11. 266584	11. 266778	0	6	4. 155
54	0	11. 266973	11. 267167	11. 267362	45		1 = 39
	15	11. 267556	11. 267751	11. 267946	30		2. 78
	30	11. 268141	11. 268336	11. 268531	15		3. 117
	45	11. 268726	11. 268921	11. 269116	0	5	4. 156
55	0	11. 269312	11. 269507	11. 269703	45		1 = 39
	15	11. 269898	11. 270094	11. 270290	30		2. 78
	30	11. 270486	11. 270682	11. 270878	15		3. 118
	45	11. 271074	11. 271271	11. 271467	0	4	4. 157
56	0	11. 271663	11. 271860	11. 272057	45		1 = 39
	15	11. 272253	11. 272450	11. 272647	30		2. 79
	30	11. 272844	11. 273041	11. 273238	15		3. 118
	45	11. 273436	11. 273633	11. 273830	0	3	4. 158
57	0	11. 274028	11. 274225	11. 274423	45		1 = 40
	15	11. 274621	11. 274819	11. 275017	30		2. 79
	30	11. 275215	11. 275413	11. 275611	15		3. 119
	45	11. 275810	11. 276008	11. 276207	0	2	4. 158
58	0	11. 276405	11. 276604	11. 276803	45		1 = 40
	15	11. 277002	11. 277201	11. 277400	30		2. 80
	30	11. 277599	11. 277798	11. 277998	15		3. 119
	45	11. 278197	11. 278397	11. 278596	0	1	4. 159
59	0	11. 278796	11. 278996	11. 279196	45		1 = 40
	15	11. 279396	11. 279596	11. 279796	30		2. 80
	30	11. 279996	11. 280197	11. 280397	15		3. 120
	45	11. 280598	11. 280798	11. 280999	0	0	4. 160
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 3 degrees, or Secant of 93 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11.281200	11.281401	11.281602	45		1″ = 40
	15	11.281803	11.282004	11.282205	30		2. 81
	30	11.282403	11.282608	11.282810	15		3. 121
	45	11.283011	11.283213	11.283415	0	59	4. 161
1	0	11.283617	11.283819	11.284021	45		1 = 40
	15	11.284223	11.284426	11.284628	30		2. 81
	30	11.284831	11.285033	11.285236	15		3. 121
	45	11.285439	11.285642	11.285845	0	58	4. 162
2	0	11.286048	11.286251	11.286454	45		1 = 41
	15	11.286658	11.286861	11.287065	30		2. 81
	30	11.287268	11.287472	11.287676	15		3. 122
	45	11.287880	11.288084	11.288288	0	57	4. 163
3	0	11.288492	11.288697	11.288901	45		1 = 41
	15	11.289106	11.289310	11.289515	30		2. 82
	30	11.289720	11.289925	11.290130	15		3. 123
	45	11.290335	11.290540	11.290745	0	56	4. 164
4	0	11.290951	11.291156	11.291362	45		1 = 41
	15	11.291568	11.291773	11.291979	30		2. 82
	30	11.292185	11.292391	11.292598	15		3. 124
	45	11.292804	11.293010	11.293217	0	55	4. 165
5	0	11.293423	11.293630	11.293837	45		1 = 41
	15	11.294044	11.294251	11.294458	30		2. 83
	30	11.294665	11.294872	11.295080	15		3. 124
	45	11.295287	11.295495	11.295702	0	54	4. 166
6	0	11.295910	11.296118	11.296326	45		1 = 42
	15	11.296534	11.296742	11.296950	30		2. 83
	30	11.297159	11.297367	11.297576	15		3. 125
	45	11.297784	11.297993	11.298202	0	53	4. 167
7	0	11.298411	11.298620	11.298829	45		1 = 42
	15	11.299039	11.299248	11.299457	30		2. 84
	30	11.299667	11.299877	11.300086	15		3. 126
	45	11.300296	11.300506	11.300716	0	52	4. 168
8	0	11.300927	11.301137	11.301347	45		1 = 42
	15	11.301558	11.301768	11.301979	30		2. 84
	30	11.302190	11.302401	11.302612	15		3. 126
	45	11.302823	11.303034	11.303245	0	51	4. 169
9	0	11.303457	11.303668	11.303880	45		1 = 42
	15	11.304092	11.304304	11.304516	30		2. 85
	30	11.304728	11.304940	11.305152	15		3. 127
	45	11.305364	11.305577	11.305789	0	50	4. 170
10	0	11.306002	11.306215	11.306428	45		1 = 43
	15	11.306641	11.306854	11.307067	30		2. 85
	30	11.307280	11.307494	11.307707	15		3. 128
	45	11.307921	11.308134	11.308348	0	49	4. 171
11	0	11.308562	11.308776	11.308990	45		1 = 43
	15	11.309204	11.309419	11.309633	30		2. 86
	30	11.309848	11.310063	11.310277	15		3. 129
	45	11.310492	11.310707	11.310922	0	48	4. 172
12	0	11.311137	11.311353	11.311568	45		1 = 43
	15	11.311784	11.311999	11.312215	30		2. 86
	30	11.312431	11.312647	11.312863	15		3. 129
	45	11.313079	11.313295	11.313512	0	47	4. 173
13	0	11.313728	11.313945	11.314161	45		1 = 43
	15	11.314378	11.314595	11.314812	30		2. 87
	30	11.315029	11.315247	11.315464	15		3. 130
	45	11.315681	11.315899	11.316117	0	46	4. 174
14	0	11.316335	11.316552	11.316770	45		1 = 44
	15	11.316989	11.317207	11.317425	30		2. 87
	30	11.317644	11.317862	11.318081	15		3. 131
	45	11.318300	11.318519	11.318738	0	45	4. 175
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11.318957	11.319176	11.319395	45		1″ = 40
	15	11.319615	11.319834	11.320054	30		2. 81
	30	11.320274	11.320494	11.320714	15		3. 121
	45	11.320934	11.321154	11.321374	0	44	4. 161
16	0	11.321595	11.321815	11.322036	45		1 = 40
	15	11.322257	11.322478	11.322699	30		2. 81
	30	11.322920	11.323141	11.323362	15		3. 121
	45	11.323584	11.323805	11.324027	0	43	4. 161
17	0	11.324249	11.324471	11.324693	45		1 = 40
	15	11.324915	11.325137	11.325360	30		2. 81
	30	11.325582	11.325805	11.326028	15		3. 121
	45	11.326250	11.326473	11.326696	0	42	4. 162
18	0	11.326920	11.327143	11.327366	45		1 = 41
	15	11.327590	11.327813	11.328037	30		2. 81
	30	11.328261	11.328485	11.328709	15		3. 122
	45	11.328933	11.329158	11.329382	0	41	4. 163
19	0	11.329607	11.329831	11.330056	45		1 = 41
	15	11.330281	11.330506	11.330731	30		2. 82
	30	11.330957	11.331182	11.331407	15		3. 123
	45	11.331633	11.331859	11.332085	0	40	4. 164
20	0	11.332311	11.332537	11.332763	45		1 = 41
	15	11.332989	11.333216	11.333442	30		2. 82
	30	11.333669	11.333896	11.334123	15		3. 123
	45	11.334350	11.334577	11.334804	0	39	4. 164
21	0	11.335032	11.335259	11.335487	45		1 = 41
	15	11.335714	11.335942	11.336170	30		2. 82
	30	11.336398	11.336627	11.336855	15		3. 123
	45	11.337084	11.337312	11.337541	0	38	4. 164
22	0	11.337770	11.337999	11.338228	45		1 = 41
	15	11.338457	11.338686	11.338916	30		2. 82
	30	11.339145	11.339375	11.339605	15		3. 123
	45	11.339835	11.340065	11.340295	0	37	4. 164
23	0	11.340525	11.340756	11.340986	45		1 = 41
	15	11.341217	11.341448	11.341679	30		2. 82
	30	11.341910	11.342141	11.342372	15		3. 123
	45	11.342603	11.342835	11.343067	0	36	4. 164
24	0	11.343298	11.343530	11.343762	45		1 = 41
	15	11.343994	11.344227	11.344459	30		2. 82
	30	11.344692	11.344924	11.345157	15		3. 123
	45	11.345390	11.345623	11.345856	0	35	4. 164
25	0	11.346089	11.346323	11.346556	45		1 = 41
	15	11.346790	11.347024	11.347258	30		2. 82
	30	11.347492	11.347726	11.347960	15		3. 123
	45	11.348194	11.348429	11.348664	0	34	4. 164
26	0	11.348898	11.349133	11.349368	45		1 = 41
	15	11.349604	11.349839	11.350074	30		2. 82
	30	11.350310	11.350545	11.350781	15		3. 123
	45	11.351017	11.351253	11.351489	0	33	4. 164
27	0	11.351726	11.351962	11.352199	45		1 = 41
	15	11.352436	11.352672	11.352909	30		2. 82
	30	11.353146	11.353384	11.353621	15		3. 123
	45	11.353859	11.354096	11.354334	0	32	4. 164
28	0	11.354572	11.354810	11.355048	45		1 = 41
	15	11.355286	11.355525	11.355763	30		2. 82
	30	11.356002	11.356241	11.356480	15		3. 123
	45	11.356719	11.356958	11.357197	0	31	4. 164
29	0	11.357437	11.357676	11.357916	45		1 = 41
	15	11.358156	11.358396	11.358636	30		2. 82
	30	11.358876	11.359116	11.359357	15		3. 123
	45	11.359598	11.359838	11.360079	0	30	4. 164
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

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LOGARITHMIC SECANTS.

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11.360320	11.360562	11.360803	45		1″ = 48
	15	11.361044	11.361286	11.361528	30		2. 97
	30	11.361770	11.362012	11.362254	15		3. 145
	45	11.362496	11.362738	11.362981	0	29	4. 193
1	0	11.363224	11.363466	11.363709	45		1 = 49
	15	11.363952	11.364196	11.364439	30		2. 97
	30	11.364682	11.364926	11.365170	15		3. 146
	45	11.365414	11.365658	11.365902	0	28	4. 195
2	0	11.366146	11.366391	11.366635	45		1 = 49
	15	11.366880	11.367125	11.367370	30		2. 98
	30	11.367615	11.367860	11.368106	15		3. 147
	45	11.368351	11.368597	11.368843	0	27	4. 196
3	0	11.369089	11.369335	11.369581	45		1 = 49
	15	11.369828	11.370074	11.370321	30		2. 99
	30	11.370568	11.370815	11.371062	15		3. 148
	45	11.371309	11.371556	11.371804	0	26	4. 197
4	0	11.372052	11.372299	11.372547	45		1 = 50
	15	11.372795	11.373044	11.373292	30		2. 99
	30	11.373541	11.373789	11.374038	15		3. 149
	45	11.374287	11.374536	11.374785	0	25	4. 199
5	0	11.375035	11.375284	11.375534	45		1 = 50
	15	11.375784	11.376034	11.376284	30		2. 100
	30	11.376534	11.376784	11.377035	15		3. 150
	45	11.377285	11.377536	11.377787	0	24	4. 200
6	0	11.378038	11.378290	11.378541	45		1 = 50
	15	11.378793	11.379044	11.379296	30		2. 101
	30	11.379548	11.379800	11.380052	15		3. 151
	45	11.380305	11.380557	11.380810	0	23	4. 202
7	0	11.381063	11.381316	11.381569	45		1 = 51
	15	11.381823	11.382076	11.382330	30		2. 101
	30	11.382583	11.382837	11.383091	15		3. 152
	45	11.383345	11.383600	11.383854	0	22	4. 203
8	0	11.384109	11.384364	11.384619	45		1 = 51
	15	11.384874	11.385129	11.385384	30		2. 102
	30	11.385640	11.385896	11.386152	15		3. 153
	45	11.386408	11.386664	11.386920	0	21	4. 204
9	0	11.387176	11.387433	11.387690	45		1 = 51
	15	11.387947	11.388204	11.388461	30		2. 103
	30	11.388718	11.388976	11.389234	15		3. 154
	45	11.389491	11.389749	11.390008	0	20	4. 206
10	0	11.390266	11.390524	11.390783	45		1 = 52
	15	11.391042	11.391301	11.391560	30		2. 104
	30	11.391819	11.392078	11.392338	15		3. 155
	45	11.392597	11.392857	11.393117	0	19	4. 207
11	0	11.393377	11.393638	11.393898	45		1 = 52
	15	11.394159	11.394420	11.394681	30		2. 104
	30	11.394942	11.395203	11.395464	15		3. 157
	45	11.395726	11.395987	11.396249	0	18	4. 209
12	0	11.396511	11.396774	11.397036	45		1 = 53
	15	11.397298	11.397561	11.397824	30		2. 105
	30	11.398087	11.398350	11.398613	15		3. 158
	45	11.398877	11.399140	11.399404	0	17	4. 210
13	0	11.399668	11.399932	11.400197	45		1 = 53
	15	11.400461	11.400726	11.400990	30		2. 106
	30	11.401255	11.401520	11.401786	15		3. 159
	45	11.402051	11.402317	11.402582	0	16	4. 212
14	0	11.402848	11.403114	11.403380	45		1 = 53
	15	11.403647	11.403913	11.404180	30		2. 107
	30	11.404447	11.404714	11.404981	15		3. 160
	45	11.405249	11.405516	11.405784	0	15	4. 213
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

Minutes	Seconds	Secant of 87 degrees, or Co-secant of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.406052	11.406320	11.406588	45		1″ = 54
	15	11.406856	11.407125	11.407393	30		2. 108
	30	11.407662	11.407931	11.408201	15		3. 161
	45	11.408470	11.408739	11.409009	0	14	4. 215
46	0	11.409279	11.409549	11.409819	45		1 = 54
	15	11.410090	11.410360	11.410631	30		2. 108
	30	11.410902	11.411173	11.411444	15		3. 162
	45	11.411715	11.411987	11.412259	0	13	4. 217
47	0	11.412531	11.412803	11.413075	45		1 = 55
	15	11.413347	11.413620	11.413893	30		2. 109
	30	11.414165	11.414439	11.414712	15		3. 164
	45	11.414985	11.415259	11.415533	0	12	4. 218
48	0	11.415807	11.416081	11.416355	45		1 = 55
	15	11.416630	11.416904	11.417179	30		2. 110
	30	11.417454	11.417729	11.418005	15		3. 165
	45	11.418280	11.418556	11.418832	0	11	4. 220
49	0	11.419108	11.419384	11.419660	45		1 = 55
	15	11.419937	11.420214	11.420491	30		2. 111
	30	11.420768	11.421045	11.421322	15		3. 166
	45	11.421600	11.421878	11.422156	0	10	4. 222
50	0	11.422434	11.422712	11.422991	45		1 = 56
	15	11.423270	11.423548	11.423828	30		2. 112
	30	11.424107	11.424386	11.424666	15		3. 167
	45	11.424946	11.425226	11.425506	0	9	4. 223
51	0	11.425786	11.426067	11.426347	45		1 = 56
	15	11.426628	11.426909	11.427190	30		2. 113
	30	11.427472	11.427753	11.428035	15		3. 169
	45	11.428317	11.428599	11.428882	0	8	4. 225
52	0	11.429164	11.429447	11.429730	45		1 = 57
	15	11.430013	11.430296	11.430580	30		2. 113
	30	11.430863	11.431147	11.431431	15		3. 170
	45	11.431715	11.432000	11.432284	0	7	4. 227
53	0	11.432569	11.432854	11.433139	45		1 = 57
	15	11.433424	11.433710	11.433995	30		2. 114
	30	11.434281	11.434567	11.434854	15		3. 171
	45	11.435140	11.435427	11.435714	0	6	4. 229
54	0	11.436001	11.436288	11.436575	45		1 = 58
	15	11.436863	11.437150	11.437439	30		2. 115
	30	11.437727	11.438015	11.438303	15		3. 173
	45	11.438592	11.438881	11.439170	0	5	4. 230
55	0	11.439460	11.439749	11.440039	45		1 = 58
	15	11.440329	11.440619	11.440909	30		2. 116
	30	11.441199	11.441490	11.441781	15		3. 174
	45	11.442072	11.442363	11.442655	0	4	4. 232
56	0	11.442946	11.443238	11.443530	45		1 = 59
	15	11.443823	11.444115	11.444407	30		2. 117
	30	11.444700	11.444993	11.445287	15		3. 176
	45	11.445580	11.445874	11.446167	0	3	4. 234
57	0	11.446461	11.446756	11.447050	45		1 = 59
	15	11.447345	11.447639	11.447934	30		2. 118
	30	11.448230	11.448525	11.448821	15		3. 177
	45	11.449117	11.449413	11.449709	0	2	4. 236
58	0	11.450005	11.450302	11.450599	45		1 = 60
	15	11.450896	11.451193	11.451490	30		2. 119
	30	11.451788	11.452086	11.452384	15		3. 179
	45	11.452682	11.452981	11.453279	0	1	4. 238
59	0	11.453578	11.453877	11.454177	45		1 = 60
	15	11.454476	11.454776	11.455076	30		2. 120
	30	11.455376	11.455676	11.455977	15		3. 180
	45	11.456277	11.456578	11.456880	0	0	4. 240
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-secant of 2 degrees, or Secant of 92 degrees.					

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LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
0	0	11.457181	457241	457301	457362	457422	457482	457543	457603	457663	457724	50
	10	11.457784	457845	457905	457965	458026	458086	458147	458207	458267	458328	40
	20	11.458388	458449	458509	458570	458630	458691	458751	458812	458872	458933	30
	30	11.458993	459054	459115	459175	459236	459296	459357	459417	459478	459539	20
	40	11.459599	459660	459721	459781	459842	459903	459963	460024	460085	460145	10
	50	11.460206	460267	460327	460388	460449	460510	460570	460631	460692	460753	0
1	0	11.460814	460874	460935	460996	461057	461118	461179	461239	461300	461361	50
	10	11.461422	461483	461544	461605	461666	461727	461788	461848	461909	461970	40
	20	11.462031	462092	462153	462214	462275	462336	462397	462458	462519	462580	30
	30	11.462641	462703	462764	462825	462886	462947	463008	463069	463130	463191	20
	40	11.463253	463314	463375	463436	463497	463558	463620	463681	463742	463803	10
	50	11.463864	463926	463987	464048	464109	464171	464232	464293	464354	464416	0
2	0	11.464477	464538	464600	464661	464722	464784	464845	464907	464968	465029	50
	10	11.465091	465152	465214	465275	465336	465398	465459	465521	465582	465644	40
	20	11.465705	465767	465828	465890	465951	466013	466074	466136	466197	466259	30
	30	11.466321	466382	466444	466505	466567	466629	466690	466752	466813	466875	20
	40	11.466937	466998	467060	467122	467183	467245	467307	467369	467430	467492	10
	50	11.467554	467616	467677	467739	467801	467863	467925	467986	468048	468110	0
3	0	11.468172	468234	468296	468357	468419	468481	468543	468605	468667	468729	50
	10	11.468791	468853	468915	468976	469038	469100	469162	469224	469286	469348	40
	20	11.469410	469472	469534	469597	469659	469721	469783	469845	469907	469969	30
	30	11.470031	470093	470155	470217	470280	470342	470404	470466	470528	470590	20
	40	11.470653	470715	470777	470839	470901	470964	471026	471088	471150	471213	10
	50	11.471275	471337	471400	471462	471524	471586	471649	471711	471774	471836	0
4	0	11.471898	471961	472023	472085	472148	472210	472273	472335	472398	472460	50
	10	11.472522	472585	472647	472710	472772	472835	472897	472960	473022	473085	40
	20	11.473148	473210	473273	473335	473398	473460	473523	473586	473648	473711	30
	30	11.473774	473836	473899	473962	474024	474087	474150	474212	474275	474338	20
	40	11.474400	474463	474526	474589	474651	474714	474777	474840	474903	474965	10
	50	11.475028	475091	475154	475217	475280	475343	475405	475468	475531	475594	0
5	0	11.475657	475720	475783	475846	475909	475972	476035	476098	476161	476224	50
	10	11.476287	476350	476413	476476	476539	476602	476665	476728	476791	476854	40
	20	11.476917	476980	477043	477107	477170	477233	477296	477359	477422	477485	30
	30	11.477549	477612	477675	477738	477801	477865	477928	477991	478054	478118	20
	40	11.478181	478244	478308	478371	478434	478498	478561	478624	478688	478751	10
	50	11.478814	478878	478941	479005	479068	479131	479195	479258	479322	479385	0
6	0	11.479449	479512	479576	479639	479703	479766	479830	479893	479957	480020	50
	10	11.480084	480147	480211	480274	480338	480402	480465	480529	480593	480656	40
	20	11.480720	480784	480847	480911	480975	481038	481102	481166	481229	481293	30
	30	11.481357	481421	481484	481548	481612	481676	481740	481803	481867	481931	20
	40	11.481995	482059	482123	482186	482250	482314	482378	482442	482506	482570	10
	50	11.482634	482698	482762	482826	482890	482954	483018	483082	483146	483210	0
7	0	11.483274	483338	483402	483466	483530	483594	483658	483722	483786	483850	50
	10	11.483914	483979	484043	484107	484171	484235	484299	484364	484428	484492	40
	20	11.484556	484620	484685	484749	484813	484877	484942	485006	485070	485135	30
	30	11.485199	485263	485327	485392	485456	485521	485585	485649	485714	485778	20
	40	11.485842	485907	485971	486036	486100	486165	486229	486294	486358	486423	10
	50	11.486487	486552	486616	486681	486745	486810	486874	486939	487003	487068	0
8	0	11.487133	487197	487262	487326	487391	487456	487520	487585	487650	487714	50
	10	11.487779	487844	487909	487973	488038	488103	488168	488232	488297	488362	40
	20	11.488427	488491	488556	488621	488686	488751	488816	488880	488945	489010	30
	30	11.489075	489140	489205	489270	489335	489400	489465	489530	489595	489660	20
	40	11.489725	489790	489855	489920	489985	490050	490115	490180	490245	490310	10
	50	11.490375	490440	490505	490570	490635	490701	490766	490831	490896	490961	0
9	0	11.491026	491092	491157	491222	491287	491352	491418	491483	491548	491613	50
	10	11.491679	491744	491809	491875	491940	492005	492071	492136	492201	492267	40
	20	11.492332	492397	492463	492528	492594	492659	492724	492790	492855	492921	30
	30	11.492986	493052	493117	493183	493248	493314	493379	493445	493511	493576	20
	40	11.493642	493707	493773	493838	493904	493970	494035	494101	494167	494232	10
	50	11.494298	494364	494429	494495	494561	494626	494692	494758	494824	494889	0
Minutes	Seconds	10″	9	8″	7″	6″	5″	4″	3″	2″	1″	Seconds

Co-secant of 1 degree, or Secant of 91 degrees.

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LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.

Seconds	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	Seconds	Minutes
0	11.494955	495021	495087	495153	495218	495284	495350	495416	495482	495548	50	
10	11.495614	495679	495745	495811	495877	495943	496009	496075	496141	496207	40	
20	11.496273	496339	496405	496471	496537	496603	496669	496735	496801	496867	30	
30	11.496933	496999	497065	497131	497198	497264	497330	497396	497462	497528	20	
40	11.497594	497661	497727	497793	497859	497925	497992	498058	498124	498190	10	
50	11.498257	498323	498389	498456	498522	498588	498655	498721	498787	498854	0	49
0	11.498920	498986	499053	499119	499186	499252	499319	499385	499451	499518	50	
10	11.499584	499651	499717	499784	499850	499917	499984	500050	500117	500183	40	
20	11.500250	500316	500383	500450	500516	500583	500650	500716	500783	500850	30	
30	11.500916	500983	501050	501116	501183	501250	501317	501383	501450	501517	20	
40	11.501584	501650	501717	501784	501851	501918	501985	502051	502118	502185	10	
50	11.502252	502319	502386	502453	502520	502587	502654	502721	502788	502855	0	48
0	11.502922	502989	503056	503123	503190	503257	503324	503391	503458	503525	50	
10	11.503592	503659	503726	503793	503861	503928	503995	504062	504129	504196	40	
20	11.504264	504331	504398	504465	504532	504600	504667	504734	504802	504869	30	
30	11.504936	505003	505071	505138	505205	505273	505340	505408	505475	505542	20	
40	11.505610	505677	505745	505812	505880	505947	506014	506082	506149	506217	10	
50	11.506284	506352	506420	506487	506555	506622	506690	506757	506825	506893	0	47
0	11.506960	507028	507095	507163	507231	507298	507366	507434	507502	507569	50	
10	11.507637	507705	507772	507840	507908	507976	508044	508111	508179	508247	40	
20	11.508315	508383	508450	508518	508586	508654	508722	508790	508858	508926	30	
30	11.508994	509062	509130	509198	509266	509334	509402	509470	509538	509606	20	
40	11.509674	509742	509810	509878	509946	510014	510082	510150	510218	510287	10	
50	11.510355	510423	510491	510559	510627	510696	510764	510832	510900	510969	0	46
0	11.511037	511105	511173	511242	511310	511378	511447	511515	511583	511652	50	
10	11.511720	511788	511857	511925	511994	512062	512130	512199	512267	512336	40	
20	11.512404	512473	512541	512610	512678	512747	512815	512884	512952	513021	30	
30	11.513090	513158	513227	513295	513364	513433	513501	513570	513639	513707	20	
40	11.513776	513845	513913	513982	514051	514120	514188	514257	514326	514395	10	
50	11.514463	514532	514601	514670	514739	514808	514876	514945	515014	515083	0	45
0	11.515152	515221	515290	515359	515428	515497	515566	515635	515704	515773	50	
10	11.515842	515911	515980	516049	516118	516187	516256	516325	516394	516463	40	
20	11.516533	516602	516671	516740	516809	516878	516948	517017	517086	517155	30	
30	11.517224	517294	517363	517432	517501	517571	517640	517709	517779	517848	20	
40	11.517917	517987	518056	518126	518195	518264	518334	518403	518473	518542	10	
50	11.518612	518681	518750	518820	518889	518959	519029	519098	519168	519237	0	44
0	11.519307	519376	519446	519516	519585	519655	519724	519794	519864	519933	50	
10	11.520003	520073	520142	520212	520282	520352	520421	520491	520561	520631	40	
20	11.520701	520770	520840	520910	520980	521050	521120	521189	521259	521329	30	
30	11.521399	521469	521539	521609	521679	521749	521819	521889	521959	522029	20	
40	11.522099	522169	522239	522309	522379	522449	522519	522589	522659	522729	10	
50	11.522800	522870	522940	523010	523080	523150	523221	523291	523361	523431	0	43
0	11.523502	523572	523642	523712	523783	523853	523923	523994	524064	524134	50	
10	11.524205	524275	524345	524416	524486	524557	524627	524698	524768	524838	40	
20	11.524909	524979	525050	525120	525191	525261	525332	525403	525473	525544	30	
30	11.525614	525685	525756	525826	525897	525967	526038	526109	526179	526250	20	
40	11.526321	526392	526462	526533	526604	526675	526745	526816	526887	526958	10	
50	11.527029	527099	527170	527241	527312	527383	527454	527525	527596	527666	0	42
0	11.527737	527808	527879	527950	528021	528092	528163	528234	528305	528376	50	
10	11.528447	528518	528590	528661	528732	528803	528874	528945	529016	529087	40	
20	11.529159	529230	529301	529372	529443	529515	529586	529657	529728	529800	30	
30	11.529871	529942	530013	530085	530156	530227	530299	530370	530442	530513	20	
40	11.530584	530656	530727	530799	530870	530942	531013	531085	531156	531228	10	
50	11.531299	531371	531442	531514	531585	531657	531728	531800	531872	531943	0	41
0	11.532015	532087	532158	532230	532302	532373	532445	532517	532588	532660	50	
10	11.532732	532804	532876	532947	533019	533091	533163	533235	533306	533378	40	
20	11.533450	533522	533594	533666	533738	533810	533882	533954	534026	534098	30	
30	11.534170	534242	534314	534386	534458	534530	534602	534674	534746	534818	20	
40	11.534890	534962	535035	535107	535179	535251	535323	535395	535468	535540	10	
50	11.535612	535684	535757	535829	535901	535973	536046	536118	536190	536263	0	40
Seconds	10′	9′	8′	7′	6′	5′	4′	3′	2′	1′	Seconds	Minutes

Co-secant of 1 degree, or Secant of 91 degrees.

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LOGARITHMIC SECANTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Secant of 88 degrees, or Co-secant of 178 degrees.										
20	0	11. 536335	536407	536480	536552	536625	536697	536769	536842	536914	536987	50
	10	11. 537059	537132	537204	537277	537349	537422	537494	537567	537640	537712	40
	20	11. 537785	537857	537930	538003	538075	538148	538221	538293	538366	538439	30
	30	11. 538511	538584	538657	538730	538802	538875	538948	539021	539094	539166	20
	40	11. 539239	539312	539385	539458	539531	539604	539677	539749	539822	539895	10
	50	11. 539968	540041	540114	540187	540260	540333	540406	540479	540553	540626	0
21	0	11. 540699	540772	540845	540918	540991	541064	541137	541211	541284	541357	50
	10	11. 541430	541503	541577	541650	541723	541796	541870	541943	542016	542090	40
	20	11. 542163	542236	542310	542383	542456	542530	542603	542677	542750	542824	30
	30	11. 542897	542970	543044	543117	543191	543265	543338	543412	543485	543559	20
	40	11. 543632	543706	543779	543853	543927	544000	544074	544148	544221	544295	10
	50	11. 544369	544443	544516	544590	544664	544738	544811	544885	544959	545033	0
22	0	11. 545107	545180	545254	545328	545402	545476	545550	545624	545698	545772	50
	10	11. 545846	545920	545994	546068	546142	546216	546290	546364	546438	546512	40
	20	11. 546586	546660	546734	546808	546882	546957	547031	547105	547179	547253	30
	30	11. 547327	547402	547476	547550	547624	547699	547773	547847	547922	547996	20
	40	11. 548070	548145	548219	548293	548368	548442	548517	548591	548665	548740	10
	50	11. 548814	548889	548963	549038	549112	549187	549261	549336	549411	549485	0
23	0	11. 549560	549634	549709	549784	549858	549933	550008	550082	550157	550232	50
	10	11. 550306	550381	550456	550531	550605	550680	550755	550830	550905	550979	40
	20	11. 551054	551129	551204	551279	551354	551429	551504	551579	551654	551729	30
	30	11. 551804	551879	551954	552029	552104	552179	552254	552329	552404	552479	20
	40	11. 552554	552629	552704	552779	552855	552930	553005	553080	553155	553231	10
	50	11. 553306	553381	553456	553532	553607	553682	553758	553833	553908	553984	0
24	0	11. 554059	554134	554210	554285	554361	554436	554512	554587	554662	554738	50
	10	11. 554813	554889	554965	555040	555116	555191	555267	555342	555418	555494	40
	20	11. 555569	555645	555721	555796	555872	555948	556023	556099	556175	556251	30
	30	11. 556326	556402	556478	556554	556630	556705	556781	556857	556933	557009	20
	40	11. 557085	557161	557237	557312	557388	557464	557540	557616	557692	557768	10
	50	11. 557844	557920	557997	558073	558149	558225	558301	558377	558453	558529	0
25	0	11. 558606	558682	558758	558834	558910	558987	559063	559139	559215	559292	50
	10	11. 559368	559444	559521	559597	559673	559750	559826	559902	559979	560055	40
	20	11. 560132	560208	560285	560361	560438	560514	560591	560667	560744	560820	30
	30	11. 560897	560973	561050	561127	561203	561280	561356	561433	561510	561586	20
	40	11. 561663	561740	561817	561893	561970	562047	562124	562200	562277	562354	10
	50	11. 562431	562508	562585	562662	562738	562815	562892	562969	563046	563123	0
26	0	11. 563200	563277	563354	563431	563508	563585	563662	563739	563816	563894	50
	10	11. 563971	564048	564125	564202	564279	564356	564434	564511	564588	564665	40
	20	11. 564743	564820	564897	564974	565052	565129	565206	565284	565361	565438	30
	30	11. 565516	565593	565671	565748	565825	565903	565980	566058	566135	566213	20
	40	11. 566290	566368	566446	566523	566601	566678	566756	566833	566911	566989	10
	50	11. 567066	567144	567222	567300	567377	567455	567533	567610	567688	567766	0
27	0	11. 567844	567922	568000	568077	568155	568233	568311	568389	568467	568545	50
	10	11. 568623	568701	568779	568857	568935	569013	569091	569169	569247	569325	40
	20	11. 569403	569481	569559	569637	569715	569794	569872	569950	570028	570106	30
	30	11. 570185	570263	570341	570419	570498	570576	570654	570732	570811	570889	20
	40	11. 570968	571046	571124	571203	571281	571360	571438	571516	571595	571673	10
	50	11. 571752	571831	571909	571988	572066	572145	572223	572302	572381	572459	0
28	0	11. 572538	572617	572695	572774	572853	572931	573010	573089	573168	573246	50
	10	11. 573325	573404	573483	573562	573640	573719	573798	573877	573956	574035	40
	20	11. 574114	574193	574272	574351	574430	574509	574588	574667	574746	574825	30
	30	11. 574904	574983	575062	575141	575220	575300	575379	575458	575537	575616	20
	40	11. 575696	575775	575854	575933	576013	576092	576171	576251	576330	576409	10
	50	11. 576489	576568	576647	576727	576806	576886	576965	577045	577124	577204	0
29	0	11. 577283	577363	577442	577522	577601	577681	577761	577840	577920	577999	50
	10	11. 578079	578159	578238	578318	578398	578478	578557	578637	578717	578797	40
	20	11. 578877	578956	579036	579116	579196	579276	579356	579436	579516	579595	30
	30	11. 579675	579755	579835	579915	579995	580075	580155	580236	580316	580396	20
	40	11. 580476	580556	580636	580716	580796	580877	580957	581037	581117	581197	10
	50	11. 581278	581358	581438	581518	581599	581679	581759	581840	581920	582001	0
Minutes	Seconds	10′	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-secant of 1 degree, or Secant of 91 degrees.										

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LOGARITHMIC SECANTS.

Minutes / Seconds	Secant of 88 degrees; or Co-secant of 178 degrees. 0″	1″	2′	3′	4″	5″	6′	7′	8″	9′	Seconds / Minutes
30 0	11.582081	582161	582242	582322	582403	582483	582564	582644	582725	582805	50
10	11.582886	582966	583047	583127	583208	583289	583369	583450	583531	583611	40
20	11.583692	583773	583853	583934	584015	584096	584177	584257	584338	584419	30
30	11.584500	584581	584662	584742	584823	584904	584985	585066	585147	585228	20
40	11.585309	585390	585471	585552	585633	585714	585795	585877	585958	586039	10
50	11.586120	586201	586282	586364	586445	586526	586607	586688	586770	586851	0 29
31 0	11.586932	587014	587095	587176	587258	587339	587420	587502	587583	587665	50
10	11.587746	587828	587909	587991	588072	588154	588235	588317	588398	588480	40
20	11.588562	588643	588725	588807	588888	588970	589052	589133	589215	589297	30
30	11.589379	589460	589542	589624	589706	589788	589869	589951	590033	590115	20
40	11.590197	590279	590361	590443	590525	590607	590689	590771	590853	590935	10
50	11.591017	591099	591181	591263	591345	591428	591510	591592	591674	591756	0 28
32 0	11.591839	591921	592003	592085	592168	592250	592332	592415	592497	592579	50
10	11.592662	592744	592827	592909	592991	593074	593156	593239	593321	593404	40
20	11.593486	593569	593652	593734	593817	593899	593982	594065	594147	594230	30
30	11.594313	594395	594478	594561	594644	594726	594809	594892	594975	595058	20
40	11.595141	595223	595306	595389	595472	595555	595638	595721	595804	595887	10
50	11.595970	596053	596136	596219	596302	596385	596468	596551	596635	596718	0 27
33 0	11.596801	596884	596967	597051	597134	597217	597300	597384	597467	597550	50
10	11.597634	597717	597800	597884	597967	598050	598134	598217	598301	598384	40
20	11.598468	598551	598635	598718	598802	598885	598969	599053	599136	599220	30
30	11.599304	599387	599471	599555	599638	599722	599806	599890	599973	600057	20
40	11.600141	600225	600309	600393	600476	600560	600644	600728	600812	600896	10
50	11.600980	601064	601148	601232	601316	601400	601484	601568	601652	601737	0 26
34 0	11.601821	601905	601989	602073	602157	602242	602326	602410	602494	602579	50
10	11.602663	602747	602832	602916	603000	603085	603169	603254	603338	603422	40
20	11.603507	603591	603676	603760	603845	603929	604014	604099	604183	604268	30
30	11.604352	604437	604522	604606	604691	604776	604861	604945	605030	605115	20
40	11.605200	605285	605369	605454	605539	605624	605709	605794	605879	605964	10
50	11.606049	606134	606219	606304	606389	606474	606559	606644	606729	606814	0 25
35 0	11.606899	606984	607069	607155	607240	607325	607410	607496	607581	607666	50
10	11.607751	607837	607922	608007	608093	608178	608264	608349	608434	608520	40
20	11.608605	608691	608776	608862	608947	609033	609118	609204	609290	609375	30
30	11.609461	609547	609632	609718	609804	609889	609975	610061	610147	610232	20
40	11.610318	610404	610490	610576	610662	610747	610833	610919	611005	611091	10
50	11.611177	611263	611349	611435	611521	611607	611693	611779	611865	611952	0 24
36 0	11.612038	612124	612210	612296	612383	612469	612555	612641	612728	612814	50
10	11.612900	612986	613073	613159	613246	613332	613418	613505	613591	613678	40
20	11.613764	613851	613937	614024	614110	614197	614284	614370	614457	614543	30
30	11.614630	614717	614803	614890	614977	615064	615150	615237	615324	615411	20
40	11.615498	615584	615671	615758	615845	615932	616019	616106	616193	616280	10
50	11.616367	616454	616541	616628	616715	616802	616889	616976	617064	617151	0 23
37 0	11.617238	617325	617412	617500	617587	617674	617761	617849	617936	618023	50
10	11.618111	618198	618285	618373	618460	618548	618635	618723	618810	618898	40
20	11.618985	619073	619160	619248	619336	619423	619511	619598	619686	619774	30
30	11.619862	619949	620037	620125	620213	620300	620388	620476	620564	620652	20
40	11.620740	620828	620915	621003	621091	621179	621267	621355	621443	621531	10
50	11.621620	621708	621796	621884	621972	622060	622148	622236	622325	622413	0 22
38 0	11.622501	622589	622678	622766	622854	622943	623031	623119	623208	623296	50
10	11.623385	623473	623562	623650	623738	623827	623916	624004	624093	624181	40
20	11.624270	624358	624447	624536	624624	624713	624802	624891	624979	625068	30
30	11.625157	625246	625335	625423	625512	625601	625690	625779	625868	625957	20
40	11.626046	626135	626224	626313	626402	626491	626580	626669	626758	626847	10
50	11.626936	627026	627115	627204	627293	627383	627472	627561	627650	627740	0 21
39 0	11.627829	627918	628008	628097	628187	628276	628365	628455	628544	628634	50
10	11.628723	628813	628902	628992	629082	629171	629261	629351	629440	629530	40
20	11.629620	629709	629799	629889	629979	630068	630158	630248	630338	630428	30
30	11.630518	630608	630697	630787	630877	630967	631057	631147	631237	631327	20
40	11.631418	631508	631598	631688	631778	631868	631958	632049	632139	632229	10
50	11.632319	632410	632500	632590	632681	632771	632861	632952	633042	633133	0 20
Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds / Minutes

Co-secant of 1 degree, or Secant of 91 degrees.

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LOGARITHMIC SECANTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Secant of 88 degrees, or Co-secant of 178 degrees.											
40	0	11.633223	633314	633404	633495	633585	633676	633766	633857	633947	634038	50	
	10	11.634129	634219	634310	634401	634491	634582	634673	634764	634854	634945	40	
	20	11.635036	635127	635218	635309	635400	635490	635581	635672	635763	635854	30	
	30	11.635945	636036	636128	636219	636310	636401	636492	636583	636674	636765	20	
	40	11.636857	636948	637039	637130	637222	637313	637404	637496	637587	637678	10	
	50	11.637770	637861	637953	638044	638136	638227	638319	638410	638502	638593	0	11
41	0	11.638685	638777	638868	638960	639052	639143	639235	639327	639418	639510	50	
	10	11.639602	639694	639786	639877	639969	640061	640153	640245	640337	640429	40	
	20	11.640521	640613	640705	640797	640889	640981	641073	641165	641258	641350	30	
	30	11.641442	641534	641626	641719	641811	641903	641995	642088	642180	642272	20	
	40	11.642365	642457	642550	642642	642735	642827	642919	643012	643105	643197	10	
	50	11.643290	643382	643475	643568	643660	643753	643846	643938	644031	644124	0	11
42	0	11.644216	644309	644402	644495	644588	644681	644774	644866	644959	645052	50	
	10	11.645145	645238	645331	645424	645517	645610	645704	645797	645890	645983	40	
	20	11.646076	646169	646263	646356	646449	646542	646636	646729	646822	646916	30	
	30	11.647009	647102	647196	647289	647383	647476	647570	647663	647757	647850	20	
	40	11.647944	648037	648131	648225	648318	648412	648506	648599	648693	648787	10	
	50	11.648881	648974	649068	649162	649256	649350	649444	649538	649631	649725	0	
43	0	11.649819	649913	650007	650101	650196	650290	650384	650478	650572	650666	50	
	10	11.650760	650855	650949	651043	651137	651232	651326	651420	651515	651609	40	
	20	11.651703	651798	651892	651987	652081	652175	652270	652365	652459	652554	30	
	30	11.652648	652743	652837	652932	653027	653122	653216	653311	653406	653500	20	
	40	11.653595	653690	653785	653880	653975	654070	654165	654259	654354	654449	10	
	50	11.654544	654639	654734	654830	654925	655020	655115	655210	655305	655400	0	
44	0	11.655496	655591	655686	655781	655877	655972	656067	656163	656258	656353	50	
	10	11.656449	656544	656640	656735	656831	656926	657022	657117	657213	657309	40	
	20	11.657404	657500	657596	657691	657787	657883	657979	658074	658170	658266	30	
	30	11.658362	658458	658554	658649	658745	658841	658937	659033	659129	659225	20	
	40	11.659321	659417	659514	659610	659706	659802	659898	659994	660091	660187	10	
	50	11.660283	660379	660476	660572	660668	660765	660861	660958	661054	661151	0	11
45	0	11.661247	661344	661440	661537	661633	661730	661826	661923	662020	662116	50	
	10	11.662213	662310	662407	662503	662600	662697	662794	662891	662987	663084	40	
	20	11.663181	663278	663375	663472	663569	663666	663763	663860	663957	664054	30	
	30	11.664152	664249	664346	664443	664540	664638	664735	664832	664929	665027	20	
	40	11.665124	665221	665319	665416	665514	665611	665709	665806	665904	666001	10	
	50	11.666099	666196	666294	666392	666489	666587	666685	666782	666880	666978	0	
46	0	11.667076	667173	667271	667369	667467	667565	667663	667761	667859	667957	50	
	10	11.668055	668153	668251	668349	668447	668545	668643	668741	668840	668938	40	
	20	11.669036	669134	669233	669331	669429	669528	669626	669724	669823	669921	30	
	30	11.670020	670118	670217	670315	670414	670512	670611	670709	670808	670907	20	
	40	11.671005	671104	671203	671302	671400	671499	671598	671697	671796	671894	10	
	50	11.671993	672092	672191	672290	672389	672488	672587	672686	672785	672884	0	
47	0	11.672984	673083	673182	673281	673380	673480	673579	673678	673777	673877	50	
	10	11.673976	674076	674175	674274	674374	674473	674573	674672	674772	674871	40	
	20	11.674971	675071	675170	675270	675369	675469	675569	675669	675768	675868	30	
	30	11.675968	676068	676168	676268	676367	676467	676567	676667	676767	676867	20	
	40	11.676967	677067	677168	677268	677368	677468	677568	677668	677769	677869	10	
	50	11.677969	678069	678170	678270	678370	678471	678571	678672	678772	678873	0	
48	0	11.678973	679074	679174	679275	679375	679476	679577	679677	679778	679879	50	
	10	11.679979	680080	680181	680282	680383	680483	680584	680685	680786	680887	40	
	20	11.680988	681089	681190	681291	681392	681493	681594	681696	681797	681898	30	
	30	11.681999	682100	682202	682303	682404	682505	682607	682708	682810	682911	20	
	40	11.683012	683114	683215	683317	683418	683520	683622	683723	683825	683927	10	
	50	11.684028	684130	684232	684333	684435	684537	684639	684741	684843	684944	0	
49	0	11.685046	685148	685250	685352	685454	685556	685658	685760	685863	685965	50	
	10	11.686067	686169	686271	686374	686476	686578	686680	686783	686885	686987	40	
	20	11.687090	687192	687295	687397	687500	687602	687705	687807	687910	688013	30	
	30	11.688115	688218	688321	688423	688526	688629	688732	688834	688937	689040	20	
	40	11.689143	689246	689349	689452	689555	689658	689761	689864	689967	690070	10	
	50	11.690173	690276	690379	690483	690586	690689	690792	690896	690999	691102	0	
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″		
		Co-secant of 1 degree, or Secant of 91 degrees.											

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LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
50	0	11.691206	691309	691413	691516	691620	691723	691827	691930	692034	692137	50	
	10	11.692241	692345	692448	692552	692656	692759	692863	692967	693071	693175	40	
	20	11.693279	693382	693486	693590	693694	693798	693902	694006	694110	694214	30	
	30	11.694319	694423	694527	694631	694735	694840	694944	695048	695152	695257	20	
	40	11.695361	695466	695570	695674	695779	695883	695988	696092	696197	696302	10	
	50	11.696406	696511	696616	696720	696825	696930	697035	697139	697244	697349	0	9
51	0	11.697454	697559	697664	697769	697874	697979	698084	698189	698294	698399	50	
	10	11.698504	698609	698714	698820	698925	699030	699135	699241	699346	699451	40	
	20	11.699557	699662	699768	699873	699979	700084	700190	700295	700401	700506	30	
	30	11.700612	700718	700823	700929	701035	701141	701246	701352	701458	701564	20	
	40	11.701670	701776	701882	701988	702094	702200	702306	702412	702518	702624	10	
	50	11.702730	702836	702943	703049	703155	703261	703368	703474	703580	703687	0	8
52	0	11.703793	703900	704006	704113	704219	704326	704432	704539	704646	704752	50	
	10	11.704859	704966	705072	705179	705286	705393	705499	705606	705713	705820	40	
	20	11.705927	706034	706141	706248	706355	706462	706569	706676	706784	706891	30	
	30	11.706998	707105	707212	707320	707427	707534	707642	707749	707857	707964	20	
	40	11.708071	708179	708287	708394	708502	708609	708717	708825	708932	709040	10	
	50	11.709148	709255	709363	709471	709579	709687	709795	709903	710011	710119	0	7
53	0	11.710227	710335	710443	710551	710659	710767	710875	710983	711092	711200	50	
	10	11.711308	711416	711525	711633	711741	711850	711958	712067	712175	712284	40	
	20	11.712392	712501	712609	712718	712827	712935	713044	713153	713262	713370	30	
	30	11.713479	713588	713697	713806	713915	714024	714133	714242	714351	714460	20	
	40	11.714569	714678	714787	714896	715006	715115	715224	715333	715443	715552	10	
	50	11.715661	715771	715880	715990	716099	716209	716318	716428	716537	716647	0	6
54	0	11.716757	716866	716976	717086	717195	717305	717415	717525	717635	717745	50	
	10	11.717855	717964	718074	718184	718294	718405	718515	718625	718735	718845	40	
	20	11.718955	719065	719176	719286	719396	719507	719617	719727	719838	719948	30	
	30	11.720059	720169	720280	720390	720501	720612	720722	720833	720944	721054	20	
	40	11.721165	721276	721387	721498	721608	721719	721830	721941	722052	722163	10	
	50	11.722274	722385	722497	722608	722719	722830	722941	723052	723164	723275	0	5
55	0	11.723386	723498	723609	723721	723832	723943	724055	724166	724278	724390	50	
	10	11.724501	724613	724725	724836	724948	725060	725172	725283	725395	725507	40	
	20	11.725619	725731	725843	725955	726067	726179	726291	726403	726515	726627	30	
	30	11.726740	726852	726964	727076	727189	727301	727413	727526	727638	727751	20	
	40	11.727863	727976	728088	728201	728313	728426	728539	728651	728764	728877	10	
	50	11.728990	729102	729215	729328	729441	729554	729667	729780	729893	730006	0	4
56	0	11.730119	730232	730345	730458	730572	730685	730798	730911	731025	731138	50	
	10	11.731251	731365	731478	731592	731705	731819	731932	732046	732159	732273	40	
	20	11.732387	732500	732614	732728	732841	732955	733069	733183	733297	733411	30	
	30	11.733525	733639	733753	733867	733981	734095	734209	734323	734438	734552	20	
	40	11.734666	734780	734895	735009	735123	735238	735352	735467	735581	735696	10	
	50	11.735810	735925	736040	736154	736269	736384	736498	736613	736728	736843	0	3
57	0	11.736958	737072	737187	737302	737417	737532	737647	737762	737878	737993	50	
	10	11.738108	738223	738338	738454	738569	738684	738800	738915	739030	739146	40	
	20	11.739261	739377	739492	739608	739724	739839	739955	740070	740186	740302	30	
	30	11.740418	740534	740649	740765	740881	740997	741113	741229	741345	741461	20	
	40	11.741577	741693	741810	741926	742042	742158	742274	742391	742507	742624	10	
	50	11.742740	742856	742973	743089	743206	743322	743439	743556	743672	743789	0	2
58	0	11.743906	744022	744139	744256	744373	744490	744607	744724	744841	744958	50	
	10	11.745075	745192	745309	745426	745543	745660	745777	745895	746012	746129	40	
	20	11.746247	746364	746481	746599	746716	746834	746951	747069	747187	747304	30	
	30	11.747422	747540	747657	747775	747893	748011	748129	748246	748364	748482	20	
	40	11.748600	748718	748836	748954	749073	749191	749309	749427	749545	749664	10	
	50	11.749782	749900	750019	750137	750255	750374	750492	750611	750730	750848	0	1
59	0	11.750967	751085	751204	751323	751442	751560	751679	751798	751917	752036	50	
	10	11.752155	752274	752393	752512	752631	752750	752869	752988	753108	753227	40	
	20	11.753346	753466	753585	753704	753824	753943	754063	754182	754302	754421	30	
	30	11.754541	754661	754780	754900	755020	755139	755259	755379	755499	755619	20	
	40	11.755739	755859	755979	756099	756219	756339	756459	756579	756700	756820	10	
	50	11.756940	757060	757181	757301	757421	757542	757662	757783	757903	758024	0	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes

Co-secant of 1 degree, or Secant of 91 degrees.

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LOGARITHMIC SECANTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Secant of 89 degrees, or Co-secant of 179 degrees.										
0	0	11.758145	758265	758386	758507	758627	758748	758869	758990	759111	759232	50
	10	11.759353	759474	759595	759716	759837	759958	760079	760200	760321	760443	40
	20	11.760564	760685	760807	760928	761049	761171	761292	761414	761535	761657	30
	30	11.761779	761900	762022	762144	762265	762387	762509	762631	762753	762875	20
	40	11.762997	763119	763241	763363	763485	763607	763729	763851	763974	764096	10
	50	11.764218	764341	764463	764585	764708	764830	764953	765075	765198	765320	0
1	0	11.765443	765566	765689	765811	765934	766057	766180	766303	766426	766549	50
	10	11.766672	766795	766918	767041	767164	767287	767410	767534	767657	767780	40
	20	11.767903	768027	768150	768274	768397	768521	768644	768768	768892	769015	30
	30	11.769139	769263	769386	769510	769634	769758	769882	770006	770130	770254	20
	40	11.770378	770502	770626	770750	770874	770999	771123	771247	771372	771496	10
	50	11.771620	771745	771869	771994	772118	772243	772368	772492	772617	772742	0
2	0	11.772866	772991	773116	773241	773366	773491	773616	773741	773866	773991	50
	10	11.774116	774241	774366	774492	774617	774742	774868	774993	775118	775244	40
	20	11.775369	775495	775620	775746	775872	775997	776123	776249	776375	776500	30
	30	11.776626	776752	776878	777004	777130	777256	777382	777508	777634	777761	20
	40	11.777887	778013	778139	778266	778392	778518	778645	778771	778898	779024	10
	50	11.779151	779278	779404	779531	779658	779784	779911	780038	780165	780292	0
3	0	11.780419	780546	780673	780800	780927	781054	781181	781309	781436	781563	50
	10	11.781690	781818	781945	782073	782200	782328	782455	782583	782710	782838	40
	20	11.782966	783094	783221	783349	783477	783605	783733	783861	783989	784117	30
	30	11.784245	784373	784501	784629	784758	784886	785014	785143	785271	785399	20
	40	11.785528	785656	785785	785913	786042	786171	786299	786428	786557	786686	10
	50	11.786815	786943	787072	787201	787330	787459	787588	787717	787847	787976	0
4	0	11.788105	788234	788364	788493	788622	788752	788881	789011	789140	789270	50
	10	11.789399	789529	789659	789788	789918	790048	790178	790308	790438	790568	40
	20	11.790698	790828	790958	791088	791218	791348	791478	791609	791739	791869	30
	30	11.792000	792130	792261	792391	792522	792652	792783	792914	793044	793175	20
	40	11.793306	793437	793567	793698	793829	793960	794091	794222	794353	794485	10
	50	11.794616	794747	794878	795009	795141	795272	795404	795535	795667	795798	0
5	0	11.795930	796061	796193	796325	796456	796588	796720	796852	796984	797116	50
	10	11.797248	797380	797512	797644	797776	797908	798040	798173	798305	798437	40
	20	11.798570	798702	798834	798967	799099	799232	799365	799497	799630	799763	30
	30	11.799896	800028	800161	800294	800427	800560	800693	800826	800959	801092	20
	40	11.801226	801359	801492	801625	801759	801892	802026	802159	802293	802426	10
	50	11.802560	802693	802827	802961	803094	803228	803362	803496	803630	803764	0
6	0	11.803898	804032	804166	804300	804434	804569	804703	804837	804972	805106	50
	10	11.805240	805375	805509	805644	805778	805913	806048	806182	806317	806452	40
	20	11.806587	806722	806857	806992	807127	807262	807397	807532	807667	807802	30
	30	11.807938	808073	808208	808344	808479	808615	808750	808886	809021	809157	20
	40	11.809293	809428	809564	809700	809836	809972	810108	810244	810380	810516	10
	50	11.810652	810788	810924	811060	811197	811333	811469	811606	811742	811879	0
7	0	11.812015	812152	812288	812425	812562	812699	812835	812972	813109	813246	50
	10	11.813383	813520	813657	813794	813931	814068	814206	814343	814480	814618	40
	20	11.814755	814892	815030	815167	815305	815443	815580	815718	815856	815994	30
	30	11.816131	816269	816407	816545	816683	816821	816959	817098	817236	817374	20
	40	11.817512	817651	817789	817927	818066	818204	818343	818481	818620	818759	10
	50	11.818897	819036	819175	819314	819453	819592	819731	819870	820009	820148	0
8	0	11.820287	820426	820566	820705	820844	820984	821123	821262	821402	821542	50
	10	11.821681	821821	821961	822100	822240	822380	822520	822660	822800	822940	40
	20	11.823080	823220	823360	823500	823640	823781	823921	824061	824202	824342	30
	30	11.824483	824623	824764	824905	825045	825186	825327	825468	825609	825750	20
	40	11.825891	826032	826173	826314	826455	826596	826737	826879	827020	827161	10
	50	11.827303	827444	827586	827727	827869	828011	828152	828294	828436	828578	0
9	0	11.828720	828862	829004	829146	829288	829430	829572	829714	829856	829999	50
	10	11.830141	830283	830426	830568	830711	830854	830996	831139	831282	831424	40
	20	11.831567	831710	831853	831996	832139	832282	832425	832568	832712	832855	30
	30	11.832998	833141	833285	833428	833572	833715	833859	834002	834146	834290	20
	40	11.834434	834577	834721	834865	835009	835153	835297	835441	835586	835730	10
	50	11.835874	836018	836163	836307	836451	836596	836741	836885	837030	837174	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-secant of 0 degree, or Secant of 90 degrees.										

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LOGARITHMIC SECANTS.

Secant of 89 degrees, or Co-secant of 179 degrees.

Minutes	Seconds	0′	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
0	0	11.837319	837464	837609	837754	837899	838044	838189	838334	838479	838624	50	
	10	11.838769	838914	839060	839205	839350	839496	839641	839787	839933	840078	40	
	20	11.840224	840370	840515	840661	840807	840953	841099	841245	841391	841537	30	
	30	11.841684	841830	841976	842123	842269	842415	842562	842708	842855	843002	20	
	40	11.843148	843295	843442	843589	843736	843882	844029	844176	844324	844471	10	
	50	11.844618	844765	844912	845060	845207	845355	845502	845650	845797	845945	0	49
1	0	11.846092	846240	846388	846536	846684	846832	846980	847128	847276	847424	50	
	10	11.847572	847720	847869	848017	848165	848314	848462	848611	848759	848908	40	
	20	11.849057	849205	849354	849503	849652	849801	849950	850099	850248	850397	30	
	30	11.850547	850696	850845	850994	851144	851293	851443	851592	851742	851892	20	
	40	11.852041	852191	852341	852491	852641	852791	852941	853091	853241	853391	10	
	50	11.853541	853692	853842	853992	854143	854293	854444	854595	854745	854896	0	48
2	0	11.855047	855198	855348	855499	855650	855801	855952	856104	856255	856406	50	
	10	11.856557	856709	856860	857011	857163	857314	857466	857618	857769	857921	40	
	20	11.858073	858225	858377	858529	858681	858833	858985	859137	859289	859442	30	
	30	11.859594	859746	859899	860051	860204	860357	860509	860662	860815	860968	20	
	40	11.861120	861273	861426	861579	861733	861886	862039	862192	862345	862499	10	
	50	11.862652	862806	862959	863113	863267	863420	863574	863728	863882	864036	0	47
3	0	11.864190	864344	864498	864652	864806	864960	865114	865269	865423	865578	50	
	10	11.865732	865887	866041	866196	866351	866506	866660	866815	866970	867125	40	
	20	11.867280	867436	867591	867746	867901	868057	868212	868367	868523	868678	30	
	30	11.868834	868990	869146	869301	869457	869613	869769	869925	870081	870237	20	
	40	11.870393	870550	870706	870862	871019	871175	871332	871488	871645	871802	10	
	50	11.871958	872115	872272	872429	872586	872743	872900	873057	873214	873372	0	46
4	0	11.873529	873686	873844	874001	874159	874316	874474	874632	874790	874947	50	
	10	11.875105	875263	875421	875579	875737	875896	876054	876212	876370	876529	40	
	20	11.876687	876846	877004	877163	877322	877480	877639	877798	877957	878116	30	
	30	11.878275	878434	878593	878753	878912	879071	879231	879390	879550	879709	20	
	40	11.879869	880028	880188	880348	880508	880668	880828	880988	881148	881308	10	
	50	11.881468	881629	881789	881949	882110	882270	882431	882591	882752	882913	0	45
5	0	11.883074	883235	883396	883557	883718	883879	884040	884201	884362	884524	50	
	10	11.884685	884847	885008	885170	885331	885493	885655	885817	885979	886140	40	
	20	11.886303	886465	886627	886789	886951	887113	887276	887438	887601	887763	30	
	30	11.887926	888089	888251	888414	888577	888740	888903	889066	889229	889392	20	
	40	11.889555	889719	889882	890046	890209	890373	890536	890700	890864	891027	10	
	50	11.891191	891355	891519	891683	891847	892011	892176	892340	892504	892669	0	44
6	0	11.892833	892998	893162	893327	893491	893656	893821	893986	894151	894316	50	
	10	11.894481	894646	894811	894977	895142	895307	895473	895638	895804	895970	40	
	20	11.896135	896301	896467	896633	896799	896965	897131	897297	897464	897630	30	
	30	11.897796	897963	898129	898296	898462	898629	898796	898962	899129	899296	20	
	40	11.899463	899630	899797	899965	900132	900299	900467	900634	900802	900969	10	
	50	11.901137	901304	901472	901640	901808	901976	902144	902312	902480	902648	0	43
7	0	11.902817	902985	903153	903322	903491	903659	903828	903997	904165	904334	50	
	10	11.904503	904672	904841	905010	905180	905349	905518	905688	905857	906027	40	
	20	11.906196	906366	906536	906705	906875	907045	907215	907385	907555	907726	30	
	30	11.907896	908066	908237	908407	908578	908748	908919	909090	909261	909431	20	
	40	11.909602	909773	909944	910116	910287	910458	910629	910801	910972	911144	10	
	50	11.911315	911487	911659	911831	912003	912175	912347	912519	912691	912863	0	42
8	0	11.913035	913208	913380	913553	913725	913898	914071	914243	914416	914589	50	
	10	11.914762	914935	915108	915281	915455	915628	915801	915975	916148	916322	40	
	20	11.916496	916669	916843	917017	917191	917365	917539	917713	917888	918062	30	
	30	11.918236	918411	918585	918760	918934	919109	919284	919459	919634	919809	20	
	40	11.919984	920159	920334	920510	920685	920860	921036	921211	921387	921563	10	
	50	11.921739	921914	922090	922266	922442	922618	922795	922971	923147	923324	0	41
9	0	11.923500	923677	923853	924030	924207	924384	924561	924738	924915	925092	50	
	10	11.925269	925447	925624	925801	925979	926156	926334	926512	926690	926867	40	
	20	11.927045	927223	927401	927580	927758	927936	928115	928293	928472	928650	30	
	30	11.928829	929008	929186	929365	929544	929723	929902	930082	930261	930440	20	
	40	11.930620	930799	930979	931158	931338	931518	931698	931878	932058	932238	10	
	50	11.932418	932598	932778	932959	933139	933320	933500	933681	933862	934043	0	40
Seconds	Minutes	10′	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes

Co-secant of 0 degree, or Secant of 90 degrees.

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LOGARITHMIC SECANTS.

Secant of 89 degrees, or Co-secant of 179 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
20	0	11.934224	934405	934586	934767	934948	935129	935311	935492	935674	935855	50
	10	11.936037	936219	936400	936582	936764	936946	937129	937311	937493	937675	40
	20	11.937858	938040	938223	938406	938588	938771	938954	939137	939320	939503	30
	30	11.939686	939870	940053	940236	940420	940603	940787	940971	941155	941339	20
	40	11.941523	941707	941891	942075	942259	942444	942628	942813	942997	943182	10
	50	11.943367	943551	943736	943921	944106	944292	944477	944662	944848	945033	0
21	0	11.945219	945404	945590	945776	945962	946147	946333	946520	946706	946892	50
	10	11.947078	947265	947451	947638	947825	948011	948198	948385	948572	948759	40
	20	11.948946	949133	949321	949508	949696	949883	950071	950259	950446	950634	30
	30	11.950822	951010	951198	951387	951575	951763	951952	952140	952329	952517	20
	40	11.952706	952895	953084	953273	953462	953651	953841	954030	954219	954409	10
	50	11.954599	954788	954978	955168	955358	955548	955738	955928	956118	956309	0
22	0	11.956499	956690	956880	957071	957262	957452	957643	957834	958026	958217	50
	10	11.958408	958599	958791	958982	959174	959366	959557	959749	959941	960133	40
	20	11.960325	960518	960710	960902	961095	961287	961480	961673	961865	962058	30
	30	11.962251	962444	962637	962831	963024	963217	963411	963604	963798	963992	20
	40	11.964186	964380	964574	964768	964962	965156	965350	965545	965739	965934	10
	50	11.966129	966323	966518	966713	966908	967103	967299	967494	967689	967885	0
23	0	11.968080	968276	968472	968668	968864	969060	969256	969452	969648	969845	50
	10	11.970041	970238	970434	970631	970828	971025	971222	971419	971616	971813	40
	20	11.972011	972208	972406	972603	972801	972999	973197	973395	973593	973791	30
	30	11.973989	974187	974386	974584	974783	974982	975181	975379	975578	975778	20
	40	11.975977	976176	976375	976575	976774	976974	977174	977373	977573	977773	10
	50	11.977973	978174	978374	978574	978775	978975	979176	979377	979577	979778	0
24	0	11.979979	980180	980382	980583	980784	980986	981187	981389	981591	981793	50
	10	11.981994	982197	982399	982601	982803	983006	983208	983411	983613	983816	40
	20	11.984019	984222	984425	984628	984832	985035	985238	985442	985646	985849	30
	30	11.986053	986257	986461	986665	986870	987074	987278	987483	987687	987892	20
	40	11.988097	988302	988507	988712	988917	989122	989328	989533	989739	989944	10
	50	11.990150	990356	990562	990768	990974	991181	991387	991593	991800	992007	0
25	0	11.992213	992420	992627	992834	993041	993249	993456	993663	993871	994078	50
	10	11.994286	994494	994702	994910	995118	995326	995535	995743	995952	996160	40
	20	11.996369	996578	996787	996996	997205	997414	997624	997833	998043	998252	30
	30	11.998462	998672	998882	999092	999302	999512	999723	999933	000144	000354	20
	40	12.000565	000776	000987	001198	001409	001620	001832	002043	002255	002467	10
	50	12.002678	002890	003102	003314	003527	003739	003951	004164	004376	004589	0
26	0	12.004802	005015	005228	005441	005654	005868	006081	006295	006508	006722	50
	10	12.006936	007150	007364	007578	007793	008007	008222	008436	008651	008866	40
	20	12.009081	009296	009511	009726	009941	010157	010373	010588	010804	011020	30
	30	12.011236	011452	011668	011885	012101	012318	012534	012751	012968	013185	20
	40	12.013402	013619	013836	014054	014271	014489	014707	014925	015143	015361	10
	50	12.015579	015797	016015	016234	016453	016671	016890	017109	017328	017547	0
27	0	12.017767	017986	018205	018425	018645	018865	019085	019305	019525	019745	50
	10	12.019965	020186	020407	020627	020848	021069	021290	021511	021733	021954	40
	20	12.022176	022397	022619	022841	023063	023285	023507	023729	023952	024174	30
	30	12.024397	024620	024843	025066	025289	025512	025735	025959	026182	026406	20
	40	12.026630	026854	027078	027302	027526	027750	027975	028200	028424	028649	10
	50	12.028874	029099	029324	029550	029775	030001	030226	030452	030678	030904	0
28	0	12.031130	031356	031583	031809	032036	032263	032489	032716	032943	033171	50
	10	12.033398	033625	033853	034081	034308	034536	034764	034992	035221	035449	40
	20	12.035678	035906	036135	036364	036593	036822	037051	037281	037510	037740	30
	30	12.037969	038199	038429	038659	038889	039120	039350	039581	039811	040042	20
	40	12.040273	040504	040735	040967	041198	041430	041661	041893	042125	042357	10
	50	12.042589	042822	043054	043287	043519	043752	043985	044218	044451	044685	0
29	0	12.044918	045152	045385	045619	045853	046087	046321	046556	046790	047024	50
	10	12.047259	047494	047729	047964	048199	048435	048670	048906	049141	049377	40
	20	12.049613	049849	050085	050322	050558	050795	051031	051268	051505	051742	30
	30	12.051980	052217	052455	052692	052930	053168	053406	053644	053882	054121	20
	40	12.054359	054598	054837	055076	055315	055554	055793	056033	056272	056512	10
	50	12.056752	056992	057232	057472	057713	057953	058194	058435	058676	058917	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds

Co-secant of 0 degree, or Secant of 90 degrees.

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LOGARITHMIC SECANTS.

Seconds	Secant of 89 degrees, or Co-secant of 179 degrees.										Seconds	Minutes
	0′	1″	2′	3″	4″	5″	6″	7′	8″	9″		
0	12. 059158	059399	059641	059882	060124	060366	060608	060850	061093	061335	50	
10	12. 061578	061820	062063	062306	062549	062792	063036	063279	063523	063767	40	
20	12. 064010	064255	064499	064743	064987	065232	065477	065722	065967	066212	30	
30	12. 066457	066703	066948	067194	067440	067686	067932	068178	068424	068671	20	
40	12. 068918	069165	069411	069659	069906	070153	070401	070648	070896	071144	10	
50	12. 071392	071640	071889	072137	072386	072635	072884	073133	073382	073631	0	29
0	12. 073881	074131	074380	074630	074880	075131	075381	075632	075882	076133	50	
10	12. 076384	076635	076886	077138	077389	077641	077893	078145	078397	078649	40	
20	12. 078902	079154	079407	079660	079913	080166	080419	080673	080926	081180	30	
30	12. 081434	081688	081942	082197	082451	082706	082960	083215	083470	083726	20	
40	12. 083981	084237	084492	084748	085004	085260	085517	085773	086030	086286	10	
50	12. 086543	086800	087057	087315	087572	087830	088088	088346	088604	088862	0	28
0	12. 089121	089379	089638	089897	090156	090415	090674	090934	091194	091453	50	
10	12. 091713	091973	092234	092494	092755	093016	093277	093538	093799	094060	40	
20	12. 094322	094583	094845	095107	095369	095632	095894	096157	096420	096683	30	
30	12. 096946	097209	097472	097736	098000	098264	098528	098792	099057	099321	20	
40	12. 099586	099851	100116	100381	100646	100912	101178	101443	101709	101976	10	
50	12. 102242	102509	102775	103042	103309	103576	103844	104111	104379	104647	0	27
0	12. 104915	105183	105451	105720	105988	106257	106526	106795	107064	107334	50	
10	12. 107604	107873	108143	108414	108684	108954	109225	109496	109767	110038	40	
20	12. 110309	110581	110853	111125	111397	111669	111941	112214	112486	112759	30	
30	12. 113032	113305	113579	113852	114126	114400	114674	114948	115223	115497	20	
40	12. 115772	116047	116322	116598	116873	117149	117425	117701	117977	118253	10	
50	12. 118530	118806	119083	119360	119637	119915	120192	120470	120748	121026	0	26
0	12. 121305	121583	121862	122141	122420	122699	122978	123258	123537	123817	50	
10	12. 124097	124378	124658	124939	125220	125501	125782	126063	126345	126626	40	
20	12. 126908	127190	127473	127755	128038	128321	128604	128887	129170	129454	30	
30	12. 129738	130022	130306	130590	130875	131159	131444	131729	132014	132300	20	
40	12. 132585	132871	133157	133443	133730	134016	134303	134590	134877	135165	10	
50	12. 135452	135740	136028	136316	136604	136892	137181	137470	137759	138048	0	25
0	12. 138338	138627	138917	139207	139497	139788	140078	140369	140660	140951	50	
10	12. 141243	141534	141826	142118	142410	142702	142995	143288	143581	143874	40	
20	12. 144167	144461	144754	145048	145342	145637	145931	146226	146521	146816	30	
30	12. 147111	147407	147703	147999	148295	148591	148888	149184	149481	149778	20	
40	12. 150076	150373	150671	150969	151267	151566	151864	152163	152462	152761	10	
50	12. 153061	153360	153660	153960	154260	154561	154861	155162	155463	155765	0	24
0	12. 156066	156368	156670	156972	157274	157577	157879	158182	158486	158789	50	
10	12. 159093	159396	159700	160005	160309	160614	160919	161224	161529	161834	40	
20	12. 162140	162446	162752	163059	163365	163672	163979	164286	164594	164901	30	
30	12. 165209	165517	165826	166134	166443	166752	167061	167371	167680	167990	20	
40	12. 168300	168611	168921	169232	169543	169854	170166	170477	170789	171101	10	
50	12. 171414	171726	172039	172352	172665	172979	173292	173606	173920	174235	0	23
0	12. 174549	174864	175179	175494	175810	176126	176442	176758	177074	177391	50	
10	12. 177708	178025	178342	178660	178978	179296	179614	179932	180251	180570	40	
20	12. 180889	181209	181528	181848	182169	182489	182810	183130	183452	183773	30	
30	12. 184094	184416	184738	185061	185383	185706	186029	186352	186676	186999	20	
40	12. 187323	187648	187972	188297	188622	188947	189272	189598	189924	190250	10	
50	12. 190576	190903	191230	191557	191885	192212	192540	192868	193197	193525	0	22
0	12. 193854	194183	194513	194842	195172	195502	195833	196163	196494	196825	50	
10	12. 197157	197488	197820	198152	198485	198817	199150	199484	199817	200151	40	
20	12. 200485	200819	201153	201488	201823	202158	202494	202829	203165	203502	30	
30	12. 203838	204175	204512	204849	205187	205525	205863	206201	206540	206879	20	
40	12. 207218	207557	207897	208237	208577	208918	209258	209599	209941	210282	10	
50	12. 210624	210966	211309	211651	211994	212337	212681	213024	213368	213713	0	21
0	12. 214057	214402	214747	215092	215438	215784	216130	216477	216823	217170	50	
10	12. 217518	217865	218213	218561	218910	219258	219607	219957	220306	220656	40	
20	12. 221006	221356	221707	222058	222409	222761	223113	223465	223817	224170	30	
30	12. 224523	224876	225229	225583	225937	226292	226646	227001	227356	227712	20	
40	12. 228068	228424	228780	229137	229494	229851	230209	230567	230925	231283	10	
50	12. 231642	232001	232361	232720	233080	233441	233801	234162	234523	234885	0	20
Seconds	10′	9′	8′	7″	6′	5″	4′	3″	2′	1″	Seconds	Minutes
	Co-secant of 0 degree, or Secant of 90 degrees.											

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LOGARITHMIC SECANTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Secant of 89 degrees, or Co-secant of 179 degrees.										
40	0	12. 235246	235608	235971	236333	236696	237060	237423	237787	238151	238516	50
	10	12. 238881	239246	239611	239977	240343	240709	241076	241443	241810	242178	40
	20	12. 242545	242914	243282	243651	244020	244390	244759	245129	245500	245871	30
	30	12. 246242	246613	246985	247357	247729	248101	248474	248848	249221	249595	20
	40	12. 249969	250344	250719	251094	251470	251845	252222	252598	252975	253352	10
	50	12. 253729	254107	254485	254864	255243	255622	256001	256381	256761	257142	0
41	0	12. 257523	257904	258285	258667	259049	259431	259814	260197	260581	260965	50
	10	12. 261349	261733	262118	262503	262889	263275	263661	264047	264434	264822	40
	20	12. 265209	265597	265985	266374	266763	267152	267542	267932	268322	268713	30
	30	12. 269104	269496	269888	270280	270672	271065	271458	271852	272246	272640	20
	40	12. 273034	273429	273825	274221	274617	275013	275410	275807	276204	276602	10
	50	12. 277001	277399	277798	278198	278597	278997	279398	279799	280200	280601	0
42	0	12. 281003	281406	281808	282211	282615	283019	283423	283827	284232	284638	50
	10	12. 285043	285449	285856	286263	286670	287077	287485	287894	288303	288712	40
	20	12. 289121	289531	289941	290352	290763	291175	291586	291999	292411	292824	30
	30	12. 293238	293651	294066	294480	294895	295311	295726	296143	296559	296976	20
	40	12. 297394	297811	298230	298648	299067	299487	299906	300327	300747	301168	10
	50	12. 301590	302012	302434	302856	303280	303703	304127	304551	304976	305401	0
43	0	12. 305827	306253	306679	307106	307533	307961	308389	308817	309246	309676	50
	10	12. 310105	310536	310966	311397	311829	312261	312693	313126	313559	313993	40
	20	12. 314427	314861	315296	315732	316167	316604	317040	317478	317915	318353	30
	30	12. 318792	319230	319670	320110	320550	320991	321432	321873	322315	322758	20
	40	12. 323201	323644	324088	324532	324977	325422	325868	326314	326760	327207	10
	50	12. 327655	328103	328551	329000	329450	329899	330350	330800	331252	331703	0
44	0	12. 332155	332608	333061	333515	333969	334423	334878	335334	335790	336246	50
	10	12. 336703	337160	337618	338077	338535	338995	339455	339915	340376	340837	40
	20	12. 341299	341761	342224	342687	343151	343615	344080	344545	345011	345477	30
	30	12. 345944	346411	346879	347347	347816	348285	348755	349225	349696	350167	20
	40	12. 350639	351111	351584	352057	352531	353005	353480	353956	354432	354908	10
	50	12. 355385	355863	356341	356819	357298	357778	358258	358739	359220	359702	0
45	0	12. 360184	360667	361150	361634	362118	362603	363089	363575	364062	364549	50
	10	12. 365036	365525	366014	366503	366993	367483	367974	368466	368958	369450	40
	20	12. 369944	370438	370932	371427	371922	372418	372915	373412	373910	374408	30
	30	12. 374907	375407	375907	376407	376908	377410	377913	378416	378919	379423	20
	40	12. 379928	380433	380939	381446	381953	382460	382968	383477	383987	384497	10
	50	12. 385007	385519	386030	386543	387056	387570	388084	388599	389114	389630	0
46	0	12. 390147	390664	391182	391701	392220	392740	393260	393781	394303	394825	50
	10	12. 395348	395872	396396	396921	397446	397972	398499	399026	399554	400083	40
	20	12. 400612	401142	401673	402204	402736	403269	403802	404336	404870	405405	30
	30	12. 405941	406478	407015	407553	408091	408630	409170	409711	410252	410794	20
	40	12. 411336	411879	412423	412968	413513	414059	414606	415153	415701	416250	10
	50	12. 416799	417349	417900	418451	419004	419556	420110	420664	421219	421775	0
47	0	12. 422332	422889	423447	424005	424564	425124	425685	426247	426809	427372	50
	10	12. 427935	428500	429065	429631	430197	430765	431333	431902	432471	433041	40
	20	12. 433612	434184	434757	435330	435904	436479	437055	437631	438208	438786	30
	30	12. 439365	439944	440524	441105	441687	442270	442853	443437	444022	444608	20
	40	12. 445194	445782	446370	446959	447548	448139	448730	449322	449915	450509	10
	50	12. 451103	451698	452295	452892	453489	454088	454688	455288	455889	456491	0
48	0	12. 457093	457697	458302	458907	459513	460120	460728	461336	461946	462556	50
	10	12. 463168	463780	464393	465007	465621	466237	466853	467471	468089	468708	40
	20	12. 469328	469949	470570	471193	471817	472441	473066	473693	474320	474948	30
	30	12. 475577	476207	476837	477469	478102	478735	479370	480005	480642	481279	20
	40	12. 481917	482556	483196	483837	484479	485122	485766	486411	487057	487703	10
	50	12. 488351	489000	489649	490300	490952	491604	492258	492912	493568	494224	0
49	0	12. 494882	495540	496200	496861	497522	498185	498848	499513	500178	500845	50
	10	12. 501512	502181	502851	503522	504193	504866	505540	506215	506891	507568	40
	20	12. 508246	508925	509605	510286	510969	511652	512337	513022	513709	514396	30
	30	12. 515085	515775	516466	517158	517851	518546	519241	519938	520635	521334	20
	40	12. 522034	522735	523437	524141	524845	525551	526257	526965	527674	528385	10
	50	12. 529096	529808	530522	531237	531953	532670	533389	534108	534829	535551	0
Minutes	Seconds	10′	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-secant of 0 degree, or Secant of 90 degrees.										

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LOGARITHMIC SECANTS.

Seconds	Secant of 89 degrees, or Co-secant of 179 degrees.										Seconds	Minutes
	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′		
0	12.536274	536999	537725	538451	539179	539909	540639	541371	542104	542838	50	
10	12.543574	544310	545048	545788	546528	547270	548013	548757	549503	550250	40	
20	12.550998	551747	552498	553250	554003	554758	555514	556271	557030	557790	30	
30	12.558551	559313	560077	560843	561609	562377	563147	563917	564689	565463	20	
40	12.566238	567014	567791	568570	569351	570133	570916	571700	572487	573274	10	
50	12.574063	574853	575645	576438	577233	578029	578827	579626	580426	581228	0	9
0	12.582032	582837	583643	584451	585261	586072	586884	587698	588514	589331	50	
10	12.590150	590970	591792	592615	593440	594266	595094	595924	596755	597588	40	
20	12.598422	599258	600096	600935	601776	602618	603462	604308	605156	606005	30	
30	12.606855	607708	608562	609418	610275	611134	611995	612858	613722	614588	20	
40	12.615456	616325	617196	618069	618944	619820	620699	621579	622460	623344	10	
50	12.624229	625117	626006	626897	627789	628684	629580	630478	631378	632280	0	8
0	12.633184	634090	634998	635907	636819	637732	638647	639564	640483	641405	50	
10	12.642328	643253	644180	645109	646040	646972	647907	648844	649783	650725	40	
20	12.651668	652613	653560	654509	655461	656414	657370	658327	659287	660249	30	
30	12.661213	662179	663147	664118	665091	666065	667042	668022	669003	669987	20	
40	12.670973	671961	672951	673944	674939	675936	676936	677938	678942	679948	10	
50	12.680957	681968	682982	683998	685016	686036	687060	688085	689113	690143	0	7
0	12.691176	692211	693249	694289	695332	696377	697425	698475	699528	700584	50	
10	12.701642	702702	703765	704831	705899	706970	708044	709120	710199	711281	40	
20	12.712365	713452	714542	715635	716730	717828	718929	720033	721139	722249	30	
30	12.723361	724476	725594	726714	727838	728965	730094	731227	732362	733500	20	
40	12.734642	735786	736934	738084	739237	740394	741554	742716	743882	745051	10	
50	12.746224	747399	748577	749759	750944	752132	753324	754519	755717	756918	0	6
0	12.758123	759331	760542	761757	762975	764197	765422	766651	767883	769118	50	
10	12.770357	771600	772846	774096	775349	776606	777867	779131	780399	781671	40	
20	12.782946	784226	785509	786795	788086	789380	790679	791981	793287	794597	30	
30	12.795911	797229	798551	799878	801208	802542	803880	805223	806569	807920	20	
40	12.809275	810635	811998	813366	814738	816115	817496	818881	820271	821665	10	
50	12.823064	824467	825875	827287	828704	830125	831552	832983	834418	835859	0	5
0	12.837304	838754	840209	841669	843134	844603	846078	847558	849042	850532	50	
10	12.852027	853527	855033	856543	858059	859580	861107	862639	864176	865719	40	
20	12.867267	868821	870380	871945	873516	875093	876675	878263	879856	881456	30	
30	12.883061	884673	886290	887914	889544	891179	892821	894469	896124	897785	20	
40	12.899452	901125	902805	904492	906185	907885	909591	911305	913025	914751	10	
50	12.916485	918226	919974	921728	923490	925259	927035	928819	930610	932408	0	4
0	12.934214	936027	937848	939677	941513	943357	945209	947069	948937	950813	50	
10	12.952697	954590	956490	958399	960317	962243	964177	966120	968072	970033	40	
20	12.972002	973981	975969	977965	979971	981987	984011	986046	988089	990143	30	
30	12.992206	994279	996362	998455	$\bar{0}00558$	$\bar{0}02671$	$\bar{0}04795$	$\bar{0}06929$	$\bar{0}09074$	$\bar{0}11229$	20	
40	13.013395	015572	017760	019959	022169	024391	026623	028868	031124	033392	10	
50	13.035672	037963	040267	042584	044912	047253	049607	051974	054354	056747	0	3
0	13.059153	061572	064005	066452	068912	071387	073876	076379	078897	081429	50	
10	13.083976	086538	089116	091709	094317	096941	099581	102238	104910	107599	40	
20	13.110305	113028	115768	118525	121301	124093	126904	129734	132582	135448	30	
30	13.138334	141239	144163	147108	150072	153057	156063	159089	162137	165206	20	
40	13.168297	171410	174546	177705	180886	184091	187320	190573	193851	197154	10	
50	13.200482	203835	207215	210621	214055	217515	221003	224520	228065	231640	0	2
0	13.235244	238878	242543	246239	249967	253727	257520	261347	265207	269102	50	
10	13.273032	276999	281001	285041	289119	293236	297392	301588	305825	310104	40	
20	13.314425	318790	323199	327653	332154	336701	341297	345942	350637	355384	30	
30	13.360183	365035	369942	374906	379927	385006	390146	395347	400611	405940	20	
40	13.411335	416798	422330	427934	433612	439364	445193	451102	457093	463167	10	
50	13.469327	475576	481916	488350	494881	501512	508245	515085	522033	529095	0	1
0	13.536274	543573	550997	558550	566237	574062	582031	590149	598422	606855	50	
10	13.615455	624229	633184	642327	651667	661213	670972	680957	691176	701641	40	
20	13.712365	723360	734641	746223	758123	770357	782946	795911	809275	823063	30	
30	13.837304	852027	867267	883061	899452	916485	934214	952697	972002	992206	20	
40	14.013395	035672	059153	083976	110305	138334	168297	200482	235244	273032	10	
50	14.314425	360183	411335	469327	536274	615455	712365	837304	$\bar{0}13395$	$\bar{3}14425$	0	
Seconds	10′	9′	8′	7′	6′	5′	4′	3′	2′	1′	Seconds	Minutes
	Co-secant of 0 degree, or Secant of 90 degrees.											

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Minutes	Seconds	Sine of 0 degree, or Co-sine of 90 degrees.										Seconds
		0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	
0	0	0.000000	4.685575	4.986605	5.162696	5.287635	5.384545	5.463726	5.530673	5.588665	5.639817	50
	10	5.685575	5.726968	5.764756	5.799518	5.831703	5.861666	5.889695	5.916024	5.940847	5.964329	40
	20	5.986605	6.007794	6.027998	6.047303	6.065786	6.083515	6.100548	6.116939	6.132733	6.147973	30
	30	6.162696	6.176937	6.190725	6.204089	6.217054	6.229643	6.241877	6.253777	6.265359	6.276640	20
	40	6.287635	6.298359	6.308824	6.319043	6.329028	6.338787	6.348333	6.357673	6.366816	6.375771	10
	50	6.384545	6.393145	6.401578	6.409851	6.417969	6.425938	6.433763	6.441450	6.449003	6.456427	0
1	0	6.463726	6.470905	6.477967	6.484915	6.491755	6.498488	6.505119	6.511650	6.518084	6.524424	50
	10	6.530673	6.536833	6.542907	6.548898	6.554807	6.560636	6.566388	6.572066	6.577670	6.583202	40
	20	6.588665	6.594060	6.599389	6.604653	6.609854	6.614994	6.620073	6.625094	6.630058	6.634965	30
	30	6.639817	6.644616	6.649363	6.654058	6.658703	6.663299	6.667846	6.672347	6.676801	6.681210	20
	40	6.685575	6.689896	6.694175	6.698412	6.702608	6.706764	6.710881	6.714959	6.718999	6.723001	10
	50	6.726968	6.730898	6.734793	6.738653	6.742480	6.746273	6.750033	6.753761	6.757457	6.761122	0
2	0	6.764756	6.768360	6.771935	6.775480	6.778997	6.782485	6.785945	6.789379	6.792785	6.796165	50
	10	6.799518	6.802846	6.806149	6.809427	6.812680	6.815909	6.819114	6.822295	6.825454	6.828590	40
	20	6.831703	6.834794	6.837863	6.840911	6.843937	6.846943	6.849928	6.852892	6.855837	6.858761	30
	30	6.861666	6.864552	6.867418	6.870266	6.873096	6.875907	6.878699	6.881475	6.884232	6.886972	20
	40	6.889695	6.892401	6.895090	6.897762	6.900419	6.903059	6.905683	6.908291	6.910884	6.913462	10
	50	6.916024	6.918571	6.921103	6.923621	6.926124	6.928613	6.931088	6.933548	6.935995	6.938428	0
3	0	6.940847	6.943253	6.945646	6.948026	6.950393	6.952747	6.955088	6.957416	6.959733	6.962037	50
	10	6.964328	6.966608	6.968876	6.971132	6.973377	6.975609	6.977831	6.980041	6.982240	6.984428	40
	20	6.986605	6.988771	6.990926	6.993071	6.995205	6.997329	6.999442	7.001545	7.003638	7.005721	30
	30	7.007794	7.009857	7.011911	7.013954	7.015989	7.018013	7.020029	7.022035	7.024031	7.026019	20
	40	7.027998	7.029967	7.031928	7.033880	7.035823	7.037757	7.039683	7.041601	7.043510	7.045410	10
	50	7.047303	7.049187	7.051063	7.052931	7.054791	7.056643	7.058487	7.060323	7.062152	7.063973	0
4	0	7.065786	7.067592	7.069390	7.071181	7.072965	7.074741	7.076510	7.078272	7.080026	7.081774	50
	10	7.083515	7.085249	7.086975	7.088695	7.090409	7.092115	7.093815	7.095508	7.097195	7.098875	40
	20	7.100548	7.102215	7.103876	7.105531	7.107179	7.108821	7.110456	7.112086	7.113710	7.115327	30
	30	7.116939	7.118544	7.120144	7.121737	7.123325	7.124907	7.126484	7.128055	7.129620	7.131179	20
	40	7.132733	7.134281	7.135824	7.137361	7.138893	7.140420	7.141941	7.143457	7.144967	7.146473	10
	50	7.147973	7.149468	7.150958	7.152442	7.153922	7.155397	7.156866	7.158331	7.159791	7.161246	0
5	0	7.162696	7.164141	7.165582	7.167017	7.168448	7.169875	7.171296	7.172713	7.174125	7.175533	50
	10	7.176936	7.178335	7.179729	7.181119	7.182504	7.183885	7.185262	7.186634	7.188002	7.189365	40
	20	7.190725	7.192080	7.193431	7.194777	7.196120	7.197458	7.198792	7.200122	7.201449	7.202771	30
	30	7.204089	7.205403	7.206713	7.208019	7.209321	7.210620	7.211914	7.213205	7.214491	7.215774	20
	40	7.217054	7.218329	7.219601	7.220869	7.222133	7.223394	7.224651	7.225904	7.227154	7.228400	10
	50	7.229643	7.230882	7.232117	7.233349	7.234578	7.235803	7.237025	7.238243	7.239458	7.240669	0
6	0	7.241877	7.243082	7.244283	7.245481	7.246676	7.247868	7.249056	7.250241	7.251423	7.252601	50
	10	7.253776	7.254949	7.256118	7.257284	7.258446	7.259606	7.260763	7.261916	7.263066	7.264214	40
	20	7.265358	7.266500	7.267638	7.268773	7.269906	7.271035	7.272162	7.273286	7.274406	7.275524	30
	30	7.276639	7.277751	7.278861	7.279967	7.281071	7.282172	7.283270	7.284365	7.285458	7.286548	20
	40	7.287635	7.288719	7.289801	7.290880	7.291956	7.293030	7.294101	7.295169	7.296235	7.297298	10
	50	7.298358	7.299416	7.300472	7.301525	7.302575	7.303623	7.304668	7.305711	7.306751	7.307788	0
7	0	7.308824	7.309857	7.310887	7.311915	7.312940	7.313964	7.314984	7.316002	7.317018	7.318032	50
	10	7.319043	7.320052	7.321058	7.322062	7.323064	7.324064	7.325061	7.326056	7.327049	7.328039	40
	20	7.329027	7.330013	7.330997	7.331978	7.332958	7.333935	7.334909	7.335882	7.336853	7.337821	30
	30	7.338787	7.339751	7.340713	7.341673	7.342630	7.343586	7.344539	7.345491	7.346440	7.347387	20
	40	7.348332	7.349275	7.350217	7.351156	7.352093	7.353028	7.353960	7.354891	7.355820	7.356747	10
	50	7.357672	7.358595	7.359517	7.360436	7.361353	7.362268	7.363181	7.364093	7.365002	7.365910	0
8	0	7.366816	7.367720	7.368622	7.369522	7.370420	7.371316	7.372211	7.373103	7.373994	7.374883	50
	10	7.375771	7.376656	7.377540	7.378421	7.379301	7.380180	7.381056	7.381931	7.382804	7.383675	40
	20	7.384544	7.385412	7.386278	7.387142	7.388005	7.388866	7.389725	7.390582	7.391438	7.392291	30
	30	7.393145	7.393995	7.394844	7.395692	7.396538	7.397382	7.398224	7.399065	7.399904	7.400742	20
	40	7.401578	7.402412	7.403245	7.404076	7.404906	7.405734	7.406560	7.407385	7.408208	7.409030	10
	50	7.409850	7.410669	7.411486	7.412302	7.413116	7.413928	7.414739	7.415549	7.416357	7.417163	0
9	0	7.417968	7.418772	7.419574	7.420374	7.421173	7.421971	7.422767	7.423562	7.424355	7.425147	50
	10	7.425937	7.426726	7.427513	7.428300	7.429084	7.429867	7.430649	7.431430	7.432209	7.432988	40
	20	7.433762	7.434537	7.435311	7.436083	7.436853	7.437623	7.438391	7.439157	7.439923	7.440687	30
	30	7.441449	7.442210	7.442970	7.443729	7.444486	7.445242	7.445997	7.446750	7.447502	7.448253	20
	40	7.449002	7.449750	7.450497	7.451243	7.451987	7.452730	7.453472	7.454212	7.454952	7.455690	10
	50	7.456426	7.457162	7.457896	7.458629	7.459361	7.460091	7.460821	7.461549	7.462275	7.463001	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-sine of 89 degrees, or Sine of 179 degrees.										

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Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 0 degree, or Cosine of 90 degrees.											
0	0	7.463726	7.464449	7.465171	7.465892	7.466611	7.467330	7.468047	7.468763	7.469478	7.470192	50	
	10	7.470904	7.471615	7.472326	7.473035	7.473743	7.474449	7.475155	7.475859	7.476563	7.477265	40	
	20	7.477966	7.478666	7.479365	7.480062	7.480759	7.481454	7.482149	7.482842	7.483534	7.484225	30	
	30	7.484915	7.485604	7.486291	7.486978	7.487663	7.488348	7.489031	7.489714	7.490395	7.491075	20	
	40	7.491754	7.492432	7.493109	7.493785	7.494460	7.495134	7.495807	7.496478	7.497149	7.497819	10	
	50	7.498488	7.499155	7.499822	7.500487	7.501152	7.501815	7.502478	7.503139	7.503800	7.504460	0	49
1	0	7.505118	7.505776	7.506432	7.507088	7.507742	7.508396	7.509048	7.509700	7.510351	7.511000	50	
	10	7.511649	7.512297	7.512943	7.513589	7.514234	7.514878	7.515521	7.516163	7.516804	7.517444	40	
	20	7.518083	7.518721	7.519358	7.519995	7.520630	7.521265	7.521898	7.522531	7.523163	7.523793	30	
	30	7.524423	7.525052	7.525680	7.526307	7.526934	7.527559	7.528183	7.528807	7.529430	7.530051	20	
	40	7.530672	7.531292	7.531911	7.532529	7.533147	7.533763	7.534379	7.534993	7.535607	7.536220	10	
	50	7.536832	7.537444	7.538054	7.538664	7.539272	7.539880	7.540487	7.541093	7.541698	7.542303	0	48
2	0	7.542907	7.543509	7.544111	7.544712	7.545312	7.545912	7.546511	7.547108	7.547705	7.548302	50	
	10	7.548897	7.549491	7.550085	7.550678	7.551270	7.551861	7.552452	7.553041	7.553630	7.554218	40	
	20	7.554806	7.555392	7.555978	7.556563	7.557147	7.557730	7.558313	7.558895	7.559476	7.560056	30	
	30	7.560635	7.561214	7.561792	7.562369	7.562945	7.563521	7.564096	7.564670	7.565243	7.565816	20	
	40	7.566388	7.566959	7.567529	7.568098	7.568667	7.569235	7.569803	7.570369	7.570935	7.571500	10	
	50	7.572065	7.572628	7.573191	7.573753	7.574315	7.574876	7.575436	7.575995	7.576553	7.577111	0	47
3	0	7.577668	7.578225	7.578781	7.579336	7.579890	7.580444	7.580996	7.581549	7.582100	7.582651	50	
	10	7.583201	7.583750	7.584299	7.584847	7.585394	7.585941	7.586487	7.587032	7.587577	7.588121	40	
	20	7.588664	7.589206	7.589748	7.590289	7.590830	7.591370	7.591909	7.592447	7.592985	7.593522	30	
	30	7.594059	7.594595	7.595130	7.595664	7.596198	7.596731	7.597264	7.597796	7.598327	7.598858	20	
	40	7.599388	7.599917	7.600446	7.600974	7.601501	7.602028	7.602554	7.603079	7.603604	7.604128	10	
	50	7.604652	7.605175	7.605697	7.606219	7.606740	7.607260	7.607780	7.608299	7.608818	7.609336	0	46
4	0	7.609853	7.610370	7.610886	7.611401	7.611916	7.612430	7.612944	7.613457	7.613970	7.614481	50	
	10	7.614993	7.615503	7.616013	7.616523	7.617032	7.617540	7.618047	7.618554	7.619061	7.619567	40	
	20	7.620072	7.620577	7.621081	7.621584	7.622087	7.622590	7.623092	7.623593	7.624093	7.624593	30	
	30	7.625093	7.625592	7.626090	7.626588	7.627085	7.627582	7.628078	7.628573	7.629068	7.629562	20	
	40	7.630056	7.630550	7.631042	7.631534	7.632026	7.632517	7.633007	7.633497	7.633986	7.634475	10	
	50	7.634964	7.635451	7.635938	7.636425	7.636911	7.637397	7.637882	7.638366	7.638850	7.639333	0	45
5	0	7.639816	7.640298	7.640780	7.641261	7.641742	7.642222	7.642702	7.643181	7.643659	7.644137	50	
	10	7.644615	7.645092	7.645568	7.646044	7.646520	7.646995	7.647469	7.647943	7.648416	7.648889	40	
	20	7.649361	7.649833	7.650304	7.650775	7.651245	7.651715	7.652184	7.652653	7.653121	7.653589	30	
	30	7.654056	7.654523	7.654989	7.655455	7.655920	7.656385	7.656849	7.657313	7.657776	7.658239	20	
	40	7.658701	7.659163	7.659624	7.660085	7.660545	7.661005	7.661465	7.661923	7.662382	7.662840	10	
	50	7.663297	7.663754	7.664210	7.664666	7.665122	7.665577	7.666031	7.666485	7.666939	7.667392	0	44
6	0	7.667845	7.668297	7.668748	7.669200	7.669650	7.670101	7.670550	7.671000	7.671449	7.671897	50	
	10	7.672345	7.672793	7.673240	7.673686	7.674132	7.674578	7.675023	7.675468	7.675912	7.676356	40	
	20	7.676799	7.677242	7.677685	7.678127	7.678568	7.679009	7.679450	7.679890	7.680330	7.680770	30	
	30	7.681208	7.681647	7.682085	7.682522	7.682960	7.683396	7.683833	7.684268	7.684704	7.685139	20	
	40	7.685573	7.686007	7.686441	7.686874	7.687307	7.687739	7.688171	7.688603	7.689034	7.689464	10	
	50	7.689895	7.690324	7.690754	7.691183	7.691611	7.692039	7.692467	7.692894	7.693321	7.693747	0	43
7	0	7.694173	7.694599	7.695024	7.695449	7.695873	7.696297	7.696720	7.697144	7.697566	7.697988	50	
	10	7.698410	7.698832	7.699253	7.699673	7.700094	7.700513	7.700933	7.701352	7.701770	7.702189	40	
	20	7.702606	7.703024	7.703441	7.703857	7.704274	7.704689	7.705105	7.705520	7.705934	7.706349	30	
	30	7.706762	7.707176	7.707589	7.708001	7.708414	7.708825	7.709237	7.709648	7.710059	7.710469	20	
	40	7.710879	7.711288	7.711697	7.712106	7.712515	7.712923	7.713330	7.713737	7.714144	7.714551	10	
	50	7.714957	7.715362	7.715768	7.716173	7.716577	7.716981	7.717385	7.717789	7.718192	7.718594	0	42
8	0	7.718997	7.719399	7.719800	7.720201	7.720602	7.721003	7.721403	7.721802	7.722202	7.722601	50	
	10	7.722999	7.723398	7.723796	7.724193	7.724590	7.724987	7.725383	7.725779	7.726175	7.726571	40	
	20	7.726966	7.727360	7.727754	7.728148	7.728542	7.728935	7.729328	7.729720	7.730112	7.730504	30	
	30	7.730896	7.731287	7.731678	7.732068	7.732458	7.732848	7.733237	7.733626	7.734015	7.734403	20	
	40	7.734791	7.735178	7.735566	7.735953	7.736339	7.736725	7.737111	7.737497	7.737882	7.738267	10	
	50	7.738651	7.739035	7.739419	7.739803	7.740186	7.740569	7.740951	7.741333	7.741715	7.742096	0	41
9	0	7.742477	7.742858	7.743239	7.743619	7.743999	7.744378	7.744757	7.745136	7.745515	7.745893	50	
	10	7.746271	7.746648	7.747025	7.747402	7.747778	7.748155	7.748530	7.748906	7.749281	7.749656	40	
	20	7.750031	7.750405	7.750779	7.751152	7.751526	7.751899	7.752271	7.752643	7.753015	7.753387	30	
	30	7.753758	7.754129	7.754500	7.754871	7.755241	7.755610	7.755980	7.756349	7.756718	7.757086	20	
	40	7.757455	7.757822	7.758190	7.758557	7.758924	7.759291	7.759657	7.760023	7.760389	7.760754	10	
	50	7.761119	7.761484	7.761849	7.762213	7.762577	7.762940	7.763304	7.763667	7.764029	7.764392	0	40
		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Cosine of 89 degrees, or Sine of 179 degrees.											

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Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 0 degree, or Co-sine of 90 degrees.											
20	0	7.764754	7.765115	7.765477	7.765838	7.766199	7.766559	7.766920	7.767280	7.767639	7.767999	50	
	10	7.768358	7.768717	7.769075	7.769433	7.769791	7.770149	7.770506	7.770863	7.771220	7.771576	40	
	20	7.771932	7.772288	7.772644	7.772999	7.773354	7.773708	7.774063	7.774417	7.774771	7.775124	30	
	30	7.775477	7.775830	7.776183	7.776535	7.776887	7.777239	7.777591	7.777942	7.778293	7.778644	20	
	40	7.778994	7.779344	7.779694	7.780043	7.780393	7.780742	7.781090	7.781439	7.781787	7.782135	10	
	50	7.782482	7.782830	7.783177	7.783523	7.783870	7.784216	7.784562	7.784908	7.785253	7.785598	0	39
21	0	7.785943	7.786287	7.786632	7.786976	7.787319	7.787663	7.788006	7.788349	7.788691	7.789034	50	
	10	7.789376	7.789718	7.790059	7.790401	7.790742	7.791082	7.791423	7.791763	7.792103	7.792443	40	
	20	7.792782	7.793121	7.793460	7.793799	7.794137	7.794475	7.794813	7.795151	7.795488	7.795825	30	
	30	7.796162	7.796498	7.796835	7.797171	7.797506	7.797842	7.798177	7.798512	7.798847	7.799181	20	
	40	7.799515	7.799849	7.800183	7.800516	7.800850	7.801183	7.801515	7.801848	7.802180	7.802512	10	
	50	7.802843	7.803175	7.803506	7.803837	7.804167	7.804498	7.804828	7.805158	7.805487	7.805817	0	38
22	0	7.806146	7.806475	7.806803	7.807132	7.807460	7.807788	7.808115	7.808443	7.808770	7.809097	50	
	10	7.809424	7.809750	7.810076	7.810402	7.810728	7.811053	7.811378	7.811703	7.812028	7.812352	40	
	20	7.812677	7.813001	7.813324	7.813648	7.813971	7.814294	7.814617	7.814939	7.815262	7.815584	30	
	30	7.815906	7.816227	7.816548	7.816870	7.817190	7.817511	7.817831	7.818152	7.818472	7.818791	20	
	40	7.819111	7.819430	7.819749	7.820068	7.820386	7.820704	7.821022	7.821340	7.821658	7.821975	10	
	50	7.822292	7.822609	7.822926	7.823242	7.823558	7.823874	7.824190	7.824506	7.824821	7.825136	0	37
23	0	7.825451	7.825765	7.826080	7.826394	7.826708	7.827021	7.827335	7.827648	7.827961	7.828274	50	
	10	7.828586	7.828899	7.829211	7.829523	7.829834	7.830146	7.830457	7.830768	7.831079	7.831389	40	
	20	7.831700	7.832010	7.832320	7.832629	7.832939	7.833248	7.833557	7.833866	7.834174	7.834483	30	
	30	7.834791	7.835099	7.835406	7.835714	7.836021	7.836328	7.836635	7.836941	7.837248	7.837554	20	
	40	7.837860	7.838166	7.838471	7.838776	7.839081	7.839386	7.839691	7.839995	7.840300	7.840604	10	
	50	7.840907	7.841211	7.841514	7.841818	7.842121	7.842423	7.842726	7.843028	7.843330	7.843632	0	36
24	0	7.843934	7.844235	7.844537	7.844838	7.845139	7.845439	7.845740	7.846040	7.846340	7.846640	50	
	10	7.846939	7.847239	7.847538	7.847837	7.848136	7.848434	7.848733	7.849031	7.849329	7.849627	40	
	20	7.849924	7.850222	7.850519	7.850816	7.851112	7.851409	7.851705	7.852001	7.852297	7.852593	30	
	30	7.852889	7.853184	7.853479	7.853774	7.854069	7.854363	7.854658	7.854952	7.855246	7.855539	20	
	40	7.855833	7.856126	7.856419	7.856712	7.857005	7.857298	7.857590	7.857882	7.858174	7.858466	10	
	50	7.858757	7.859049	7.859340	7.859631	7.859922	7.860212	7.860503	7.860793	7.861083	7.861373	0	35
25	0	7.861662	7.861952	7.862241	7.862530	7.862819	7.863108	7.863396	7.863684	7.863972	7.864260	50	
	10	7.864548	7.864835	7.865123	7.865410	7.865697	7.865984	7.866270	7.866557	7.866843	7.867129	40	
	20	7.867415	7.867700	7.867986	7.868271	7.868556	7.868841	7.869125	7.869410	7.869694	7.869978	30	
	30	7.870262	7.870546	7.870830	7.871113	7.871396	7.871679	7.871962	7.872245	7.872527	7.872810	20	
	40	7.873092	7.873374	7.873655	7.873937	7.874218	7.874499	7.874780	7.875061	7.875342	7.875622	10	
	50	7.875903	7.876183	7.876463	7.876742	7.877022	7.877301	7.877580	7.877859	7.878138	7.878417	0	34
26	0	7.878695	7.878974	7.879252	7.879530	7.879808	7.880085	7.880363	7.880640	7.880917	7.881194	50	
	10	7.881470	7.881747	7.882023	7.882299	7.882575	7.882851	7.883127	7.883402	7.883678	7.883953	40	
	20	7.884228	7.884503	7.884777	7.885052	7.885326	7.885600	7.885874	7.886148	7.886421	7.886695	30	
	30	7.886968	7.887241	7.887514	7.887786	7.888059	7.888331	7.888603	7.888875	7.889147	7.889419	20	
	40	7.889691	7.889962	7.890233	7.890504	7.890775	7.891046	7.891316	7.891586	7.891857	7.892127	10	
	50	7.892396	7.892666	7.892936	7.893205	7.893474	7.893743	7.894012	7.894280	7.894549	7.894817	0	33
27	0	7.895085	7.895353	7.895621	7.895889	7.896156	7.896424	7.896691	7.896958	7.897225	7.897491	50	
	10	7.897758	7.898024	7.898291	7.898557	7.898822	7.899088	7.899354	7.899619	7.899884	7.900149	40	
	20	7.900414	7.900679	7.900943	7.901208	7.901472	7.901736	7.902000	7.902264	7.902528	7.902791	30	
	30	7.903054	7.903317	7.903580	7.903843	7.904106	7.904368	7.904631	7.904893	7.905155	7.905417	20	
	40	7.905678	7.905940	7.906201	7.906462	7.906723	7.906984	7.907245	7.907506	7.907766	7.908027	10	
	50	7.908287	7.908547	7.908806	7.909066	7.909326	7.909585	7.909844	7.910103	7.910362	7.910621	0	32
28	0	7.910879	7.911138	7.911396	7.911654	7.911912	7.912170	7.912428	7.912685	7.912943	7.913200	50	
	10	7.913457	7.913714	7.913970	7.914227	7.914483	7.914740	7.914996	7.915252	7.915508	7.915763	40	
	20	7.916019	7.916274	7.916530	7.916785	7.917040	7.917294	7.917549	7.917803	7.918058	7.918312	30	
	30	7.918566	7.918820	7.919074	7.919327	7.919581	7.919834	7.920087	7.920340	7.920593	7.920846	20	
	40	7.921098	7.921351	7.921603	7.921855	7.922107	7.922359	7.922611	7.922862	7.923114	7.923365	10	
	50	7.923616	7.923867	7.924118	7.924368	7.924619	7.924869	7.925120	7.925370	7.925620	7.925869	0	31
29	0	7.926119	7.926369	7.926618	7.926867	7.927116	7.927365	7.927614	7.927863	7.928111	7.928360	50	
	10	7.928608	7.928856	7.929104	7.929352	7.929599	7.929847	7.930094	7.930341	7.930589	7.930835	40	
	20	7.931082	7.931329	7.931576	7.931822	7.932068	7.932314	7.932560	7.932806	7.933052	7.933297	30	
	30	7.933543	7.933788	7.934033	7.934278	7.934523	7.934768	7.935013	7.935257	7.935501	7.935745	20	
	40	7.935990	7.936233	7.936477	7.936721	7.936964	7.937208	7.937451	7.937694	7.937937	7.938180	10	
	50	7.938422	7.938665	7.938907	7.939150	7.939392	7.939634	7.939876	7.940118	7.940359	7.940601	0	30
		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″		
		Co-sine of 89 degrees, or Sine of 179 degrees.											

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Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 0 degree, or Cosine of 90 degrees.											
30	0	7.940842	7.941083	7.941324	7.941565	7.941806	7.942047	7.942287	7.942528	7.942768	7.943008	50	
	10	7.943248	7.943488	7.943728	7.943967	7.944207	7.944446	7.944685	7.944924	7.945163	7.945402	40	
	20	7.945641	7.945879	7.946118	7.946356	7.946594	7.946832	7.947070	7.947308	7.947545	7.947783	30	
	30	7.948020	7.948258	7.948495	7.948732	7.948969	7.949205	7.949442	7.949678	7.949915	7.950151	20	
	40	7.950387	7.950623	7.950859	7.951094	7.951330	7.951565	7.951801	7.952036	7.952271	7.952506	10	
	50	7.952741	7.952976	7.953210	7.953444	7.953679	7.953913	7.954147	7.954381	7.954615	7.954848	0	29
31	0	7.955082	7.955315	7.955549	7.955782	7.956015	7.956248	7.956481	7.956713	7.956946	7.957178	50	
	10	7.957411	7.957643	7.957875	7.958107	7.958339	7.958570	7.958802	7.959033	7.959265	7.959496	40	
	20	7.959727	7.959958	7.960189	7.960419	7.960650	7.960880	7.961111	7.961341	7.961571	7.961801	30	
	30	7.962031	7.962260	7.962490	7.962719	7.962949	7.963178	7.963407	7.963636	7.963865	7.964094	20	
	40	7.964322	7.964551	7.964779	7.965008	7.965236	7.965464	7.965692	7.965919	7.966147	7.966375	10	
	50	7.966602	7.966829	7.967057	7.967284	7.967511	7.967737	7.967964	7.968191	7.968417	7.968644	0	28
32	0	7.968870	7.969096	7.969322	7.969548	7.969774	7.969999	7.970225	7.970450	7.970676	7.970901	50	
	10	7.971126	7.971351	7.971576	7.971800	7.972025	7.972250	7.972474	7.972698	7.972922	7.973146	40	
	20	7.973370	7.973594	7.973818	7.974041	7.974265	7.974488	7.974711	7.974934	7.975157	7.975380	30	
	30	7.975603	7.975826	7.976048	7.976271	7.976493	7.976715	7.976937	7.977159	7.977381	7.977603	20	
	40	7.977824	7.978046	7.978267	7.978489	7.978710	7.978931	7.979152	7.979373	7.979593	7.979814	10	
	50	7.980035	7.980255	7.980475	7.980695	7.980915	7.981135	7.981355	7.981575	7.981795	7.982014	0	27
33	0	7.982233	7.982453	7.982672	7.982891	7.983110	7.983329	7.983547	7.983766	7.983985	7.984203	50	
	10	7.984421	7.984639	7.984857	7.985075	7.985293	7.985511	7.985729	7.985946	7.986164	7.986381	40	
	20	7.986598	7.986815	7.987032	7.987249	7.987466	7.987682	7.987899	7.988115	7.988332	7.988548	30	
	30	7.988764	7.988980	7.989196	7.989412	7.989627	7.989843	7.990059	7.990274	7.990489	7.990704	20	
	40	7.990919	7.991134	7.991349	7.991564	7.991778	7.991993	7.992207	7.992422	7.992636	7.992850	10	
	50	7.993064	7.993278	7.993492	7.993705	7.993919	7.994132	7.994346	7.994559	7.994772	7.994985	0	26
34	0	7.995198	7.995411	7.995624	7.995836	7.996049	7.996261	7.996473	7.996686	7.996898	7.997110	50	
	10	7.997322	7.997533	7.997745	7.997957	7.998168	7.998380	7.998591	7.998802	7.999013	7.999224	40	
	20	7.999435	7.999646	7.999856	8.000067	8.000277	8.000488	8.000698	8.000908	8.001118	8.001328	30	
	30	8.001538	8.001748	8.001957	8.002167	8.002376	8.002586	8.002795	8.003004	8.003213	8.003422	20	
	40	8.003631	8.003840	8.004048	8.004257	8.004465	8.004674	8.004882	8.005090	8.005298	8.005506	10	
	50	8.005714	8.005922	8.006129	8.006337	8.006544	8.006751	8.006959	8.007166	8.007373	8.007580	0	25
35	0	8.007787	8.007993	8.008200	8.008407	8.008613	8.008819	8.009026	8.009232	8.009438	8.009644	50	
	10	8.009850	8.010056	8.010261	8.010467	8.010672	8.010878	8.011083	8.011288	8.011493	8.011698	40	
	20	8.011903	8.012108	8.012313	8.012517	8.012722	8.012926	8.013130	8.013335	8.013539	8.013743	30	
	30	8.013947	8.014151	8.014354	8.014558	8.014762	8.014965	8.015168	8.015372	8.015575	8.015778	20	
	40	8.015981	8.016184	8.016387	8.016589	8.016792	8.016994	8.017197	8.017399	8.017601	8.017803	10	
	50	8.018006	8.018207	8.018409	8.018611	8.018813	8.019014	8.019216	8.019417	8.019618	8.019820	0	24
36	0	8.020021	8.020222	8.020423	8.020623	8.020824	8.021025	8.021225	8.021426	8.021626	8.021826	50	
	10	8.022027	8.022227	8.022427	8.022627	8.022826	8.023026	8.023226	8.023425	8.023625	8.023824	40	
	20	8.024023	8.024222	8.024422	8.024621	8.024819	8.025018	8.025217	8.025416	8.025614	8.025813	30	
	30	8.026011	8.026209	8.026407	8.026605	8.026803	8.027001	8.027199	8.027397	8.027594	8.027792	20	
	40	8.027989	8.028187	8.028384	8.028581	8.028778	8.028975	8.029172	8.029369	8.029566	8.029762	10	
	50	8.029959	8.030155	8.030352	8.030548	8.030744	8.030940	8.031136	8.031332	8.031528	8.031724	0	23
37	0	8.031920	8.032115	8.032311	8.032506	8.032701	8.032897	8.033092	8.033287	8.033482	8.033677	50	
	10	8.033871	8.034066	8.034261	8.034455	8.034650	8.034844	8.035038	8.035232	8.035426	8.035620	40	
	20	8.035814	8.036008	8.036202	8.036396	8.036589	8.036783	8.036976	8.037169	8.037363	8.037556	30	
	30	8.037749	8.037942	8.038135	8.038327	8.038520	8.038713	8.038905	8.039098	8.039290	8.039482	20	
	40	8.039675	8.039867	8.040059	8.040251	8.040443	8.040634	8.040826	8.041018	8.041209	8.041401	10	
	50	8.041592	8.041783	8.041974	8.042166	8.042357	8.042548	8.042738	8.042929	8.043120	8.043310	0	22
38	0	8.043501	8.043691	8.043882	8.044072	8.044262	8.044452	8.044642	8.044832	8.045022	8.045212	50	
	10	8.045401	8.045591	8.045781	8.045970	8.046159	8.046349	8.046538	8.046727	8.046916	8.047105	40	
	20	8.047294	8.047483	8.047671	8.047860	8.048048	8.048237	8.048425	8.048613	8.048802	8.048990	30	
	30	8.049178	8.049366	8.049554	8.049741	8.049929	8.050117	8.050304	8.050492	8.050679	8.050867	20	
	40	8.051054	8.051241	8.051428	8.051615	8.051802	8.051989	8.052175	8.052362	8.052549	8.052735	10	
	50	8.052922	8.053108	8.053294	8.053480	8.053667	8.053853	8.054038	8.054224	8.054410	8.054596	0	21
39	0	8.054781	8.054967	8.055152	8.055338	8.055523	8.055708	8.055894	8.056079	8.056264	8.056449	50	
	10	8.056633	8.056818	8.057003	8.057187	8.057372	8.057556	8.057741	8.057925	8.058109	8.058293	40	
	20	8.058477	8.058661	8.058845	8.059029	8.059213	8.059397	8.059580	8.059764	8.059947	8.060130	30	
	30	8.060314	8.060497	8.060680	8.060863	8.061046	8.061229	8.061412	8.061594	8.061777	8.061960	20	
	40	8.062142	8.062325	8.062507	8.062689	8.062871	8.063054	8.063236	8.063418	8.063600	8.063781	10	
	50	8.063963	8.064145	8.064326	8.064508	8.064689	8.064871	8.065052	8.065233	8.065414	8.065595	0	20
Seconds		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Cosine of 89 degrees, or sine of 179 degrees.											

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Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Sine of 0 degree, or Co-sine of 90 degrees.										
40	0	8.065776	8.065957	8.066138	8.066319	8.066500	8.066680	8.066861	8.067041	8.067222	8.067402	50
	10	8.067582	8.067762	8.067942	8.068122	8.068302	8.068482	8.068662	8.068842	8.069021	8.069201	40
	20	8.069380	8.069560	8.069739	8.069918	8.070098	8.070277	8.070456	8.070635	8.070814	8.070992	30
	30	8.071171	8.071350	8.071528	8.071707	8.071885	8.072064	8.072242	8.072420	8.072599	8.072777	20
	40	8.072955	8.073133	8.073310	8.073488	8.073666	8.073844	8.074021	8.074199	8.074376	8.074553	10
	50	8.074731	8.074908	8.075085	8.075262	8.075439	8.075616	8.075793	8.075970	8.076147	8.076323	0
41	0	8.076500	8.076676	8.076853	8.077029	8.077205	8.077382	8.077558	8.077734	8.077910	8.078086	50
	10	8.078261	8.078437	8.078613	8.078789	8.078964	8.079140	8.079315	8.079490	8.079666	8.079841	40
	20	8.080016	8.080191	8.080366	8.080541	8.080716	8.080891	8.081066	8.081240	8.081415	8.081589	30
	30	8.081764	8.081938	8.082112	8.082287	8.082461	8.082635	8.082809	8.082983	8.083157	8.083331	20
	40	8.083504	8.083678	8.083852	8.084025	8.084199	8.084372	8.084545	8.084719	8.084892	8.085065	10
	50	8.085238	8.085411	8.085584	8.085757	8.085929	8.086102	8.086275	8.086447	8.086620	8.086792	0
42	0	8.086965	8.087137	8.087309	8.087481	8.087653	8.087825	8.087997	8.088169	8.088341	8.088513	50
	10	8.088685	8.088856	8.089028	8.089199	8.089371	8.089542	8.089713	8.089884	8.090056	8.090227	40
	20	8.090398	8.090569	8.090739	8.090910	8.091081	8.091252	8.091422	8.091593	8.091763	8.091934	30
	30	8.092104	8.092274	8.092445	8.092615	8.092785	8.092955	8.093125	8.093295	8.093464	8.093634	20
	40	8.093804	8.093973	8.094143	8.094312	8.094482	8.094651	8.094820	8.094990	8.095159	8.095328	10
	50	8.095497	8.095666	8.095835	8.096003	8.096172	8.096341	8.096509	8.096678	8.096847	8.097015	0
43	0	8.097183	8.097352	8.097520	8.097688	8.097856	8.098024	8.098192	8.098360	8.098528	8.098696	50
	10	8.098863	8.099031	8.099198	8.099366	8.099533	8.099701	8.099868	8.100035	8.100203	8.100370	40
	20	8.100537	8.100704	8.100871	8.101038	8.101204	8.101371	8.101538	8.101704	8.101871	8.102037	30
	30	8.102204	8.102370	8.102536	8.102703	8.102869	8.103035	8.103201	8.103367	8.103533	8.103699	20
	40	8.103865	8.104030	8.104196	8.104362	8.104527	8.104693	8.104858	8.105023	8.105189	8.105354	10
	50	8.105519	8.105684	8.105849	8.106014	8.106179	8.106344	8.106509	8.106673	8.106838	8.107002	0
44	0	8.107167	8.107331	8.107496	8.107660	8.107824	8.107989	8.108153	8.108317	8.108481	8.108645	50
	10	8.108809	8.108973	8.109136	8.109300	8.109464	8.109627	8.109791	8.109954	8.110118	8.110281	40
	20	8.110445	8.110608	8.110771	8.110934	8.111097	8.111260	8.111423	8.111586	8.111749	8.111911	30
	30	8.112074	8.112237	8.112399	8.112562	8.112724	8.112887	8.113049	8.113211	8.113373	8.113535	20
	40	8.113697	8.113860	8.114021	8.114183	8.114345	8.114507	8.114669	8.114830	8.114992	8.115153	10
	50	8.115315	8.115476	8.115638	8.115799	8.115960	8.116121	8.116282	8.116443	8.116604	8.116765	0
45	0	8.116926	8.117087	8.117248	8.117409	8.117569	8.117730	8.117890	8.118051	8.118211	8.118371	50
	10	8.118532	8.118692	8.118852	8.119012	8.119172	8.119332	8.119492	8.119652	8.119812	8.119972	40
	20	8.120131	8.120291	8.120450	8.120610	8.120769	8.120929	8.121088	8.121247	8.121407	8.121566	30
	30	8.121725	8.121884	8.122043	8.122202	8.122361	8.122520	8.122678	8.122837	8.122996	8.123154	20
	40	8.123313	8.123471	8.123630	8.123788	8.123946	8.124104	8.124263	8.124421	8.124579	8.124737	10
	50	8.124895	8.125053	8.125210	8.125368	8.125526	8.125684	8.125841	8.125999	8.126156	8.126314	0
46	0	8.126471	8.126628	8.126786	8.126943	8.127100	8.127257	8.127414	8.127571	8.127728	8.127885	50
	10	8.128042	8.128198	8.128355	8.128512	8.128668	8.128825	8.128981	8.129138	8.129294	8.129450	40
	20	8.129607	8.129763	8.129919	8.130075	8.130231	8.130387	8.130543	8.130699	8.130854	8.131010	30
	30	8.131166	8.131322	8.131477	8.131633	8.131788	8.131943	8.132099	8.132254	8.132409	8.132564	20
	40	8.132720	8.132875	8.133030	8.133185	8.133340	8.133494	8.133649	8.133804	8.133959	8.134113	10
	50	8.134268	8.134422	8.134577	8.134731	8.134886	8.135040	8.135194	8.135348	8.135502	8.135656	0
47	0	8.135810	8.135964	8.136118	8.136272	8.136426	8.136580	8.136733	8.136887	8.137041	8.137194	50
	10	8.137348	8.137501	8.137655	8.137808	8.137961	8.138114	8.138267	8.138421	8.138574	8.138727	40
	20	8.138880	8.139032	8.139185	8.139338	8.139491	8.139643	8.139796	8.139949	8.140101	8.140254	30
	30	8.140406	8.140558	8.140711	8.140863	8.141015	8.141167	8.141319	8.141471	8.141623	8.141775	20
	40	8.141927	8.142079	8.142231	8.142382	8.142534	8.142686	8.142837	8.142989	8.143140	8.143291	10
	50	8.143443	8.143594	8.143745	8.143896	8.144048	8.144199	8.144350	8.144501	8.144652	8.144802	0
48	0	8.144953	8.145104	8.145255	8.145405	8.145556	8.145707	8.145857	8.146008	8.146158	8.146308	50
	10	8.146459	8.146609	8.146759	8.146909	8.147059	8.147209	8.147359	8.147509	8.147659	8.147809	40
	20	8.147959	8.148108	8.148258	8.148408	8.148557	8.148707	8.148856	8.149006	8.149155	8.149304	30
	30	8.149453	8.149603	8.149752	8.149901	8.150050	8.150199	8.150348	8.150497	8.150646	8.150795	20
	40	8.150943	8.151092	8.151241	8.151389	8.151538	8.151686	8.151835	8.151983	8.152131	8.152280	10
	50	8.152428	8.152576	8.152724	8.152872	8.153020	8.153168	8.153316	8.153464	8.153612	8.153760	0
49	0	8.153908	8.154055	8.154203	8.154350	8.154498	8.154645	8.154793	8.154940	8.155088	8.155235	50
	10	8.155382	8.155529	8.155676	8.155824	8.155971	8.156118	8.156264	8.156411	8.156558	8.156705	40
	20	8.156852	8.156998	8.157145	8.157292	8.157438	8.157585	8.157731	8.157877	8.158024	8.158170	30
	30	8.158316	8.158463	8.158609	8.158755	8.158901	8.159047	8.159193	8.159339	8.159485	8.159630	20
	40	8.159776	8.159922	8.160067	8.160213	8.160359	8.160504	8.160650	8.160795	8.160940	8.161086	10
	50	8.161231	8.161376	8.161521	8.161666	8.161811	8.161956	8.162101	8.162246	8.162391	8.162536	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-sine of 89 degrees, or Sine of 179 degrees.										

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 0 degree, or Co-sine of 90 degrees.											
50	0	8.162681	8.162826	8.162970	8.163115	8.163259	8.163404	8.163549	8.163693	8.163837	8.163982	50	
	10	8.164126	8.164270	8.164414	8.164559	8.164703	8.164847	8.164991	8.165135	8.165279	8.165423	40	
	20	8.165566	8.165710	8.165854	8.165998	8.166141	8.166285	8.166428	8.166572	8.166715	8.166859	30	
	30	8.167002	8.167145	8.167288	8.167432	8.167575	8.167718	8.167861	8.168004	8.168147	8.168290	20	
	40	8.168433	8.168576	8.168718	8.168861	8.169004	8.169146	8.169289	8.169432	8.169574	8.169717	10	
	50	8.169859	8.170001	8.170144	8.170286	8.170428	8.170570	8.170712	8.170854	8.170996	8.171138	0	9
51	0	8.171280	8.171422	8.171564	8.171706	8.171848	8.171989	8.172131	8.172273	8.172414	8.172556	50	
	10	8.172697	8.172839	8.172980	8.173121	8.173263	8.173404	8.173545	8.173686	8.173827	8.173968	40	
	20	8.174109	8.174250	8.174391	8.174532	8.174673	8.174814	8.174955	8.175095	8.175236	8.175377	30	
	30	8.175517	8.175658	8.175798	8.175939	8.176079	8.176219	8.176360	8.176500	8.176640	8.176780	20	
	40	8.176920	8.177060	8.177200	8.177340	8.177480	8.177620	8.177760	8.177900	8.178039	8.178179	10	
	50	8.178319	8.178458	8.178598	8.178738	8.178877	8.179016	8.179156	8.179295	8.179434	8.179574	0	8
52	0	8.179713	8.179852	8.179991	8.180130	8.180269	8.180408	8.180547	8.180686	8.180825	8.180964	50	
	10	8.181103	8.181241	8.181380	8.181519	8.181657	8.181796	8.181934	8.182073	8.182211	8.182349	40	
	20	8.182488	8.182626	8.182764	8.182902	8.183041	8.183179	8.183317	8.183455	8.183593	8.183731	30	
	30	8.183869	8.184006	8.184144	8.184282	8.184420	8.184557	8.184695	8.184833	8.184970	8.185108	20	
	40	8.185245	8.185382	8.185520	8.185657	8.185794	8.185932	8.186069	8.186206	8.186343	8.186480	10	
	50	8.186617	8.186754	8.186891	8.187028	8.187165	8.187301	8.187438	8.187575	8.187712	8.187848	0	7
53	0	8.187985	8.188121	8.188258	8.188394	8.188531	8.188667	8.188803	8.188940	8.189076	8.189212	50	
	10	8.189348	8.189484	8.189620	8.189756	8.189892	8.190028	8.190164	8.190300	8.190436	8.190572	40	
	20	8.190707	8.190843	8.190979	8.191114	8.191250	8.191385	8.191521	8.191656	8.191792	8.191927	30	
	30	8.192062	8.192198	8.192333	8.192468	8.192603	8.192738	8.192873	8.193008	8.193143	8.193278	20	
	40	8.193413	8.193548	8.193683	8.193818	8.193952	8.194087	8.194222	8.194356	8.194491	8.194625	10	
	50	8.194760	8.194894	8.195028	8.195163	8.195297	8.195431	8.195566	8.195700	8.195834	8.195968	0	6
54	0	8.196102	8.196236	8.196370	8.196504	8.196638	8.196772	8.196906	8.197039	8.197173	8.197307	50	
	10	8.197440	8.197574	8.197707	8.197841	8.197974	8.198108	8.198241	8.198375	8.198508	8.198641	40	
	20	8.198774	8.198908	8.199041	8.199174	8.199307	8.199440	8.199573	8.199706	8.199839	8.199972	30	
	30	8.200104	8.200237	8.200370	8.200503	8.200635	8.200768	8.200901	8.201033	8.201166	8.201298	20	
	40	8.201430	8.201563	8.201695	8.201827	8.201960	8.202092	8.202224	8.202356	8.202488	8.202620	10	
	50	8.202752	8.202884	8.203016	8.203148	8.203280	8.203412	8.203544	8.203675	8.203807	8.203939	0	5
55	0	8.204070	8.204202	8.204333	8.204465	8.204596	8.204728	8.204859	8.204991	8.205122	8.205253	50	
	10	8.205384	8.205515	8.205647	8.205778	8.205909	8.206040	8.206171	8.206302	8.206433	8.206563	40	
	20	8.206694	8.206825	8.206956	8.207086	8.207217	8.207348	8.207478	8.207609	8.207739	8.207870	30	
	30	8.208000	8.208131	8.208261	8.208391	8.208522	8.208652	8.208782	8.208912	8.209042	8.209172	20	
	40	8.209302	8.209432	8.209562	8.209692	8.209822	8.209952	8.210082	8.210212	8.210341	8.210471	10	
	50	8.210601	8.210730	8.210860	8.210989	8.211119	8.211248	8.211378	8.211507	8.211636	8.211766	0	4
56	0	8.211895	8.212024	8.212153	8.212283	8.212412	8.212541	8.212670	8.212799	8.212928	8.213057	50	
	10	8.213185	8.213314	8.213443	8.213572	8.213701	8.213829	8.213958	8.214087	8.214215	8.214344	40	
	20	8.214472	8.214601	8.214729	8.214857	8.214986	8.215114	8.215242	8.215371	8.215499	8.215627	30	
	30	8.215755	8.215883	8.216011	8.216139	8.216267	8.216395	8.216523	8.216651	8.216779	8.216906	20	
	40	8.217034	8.217162	8.217290	8.217417	8.217545	8.217672	8.217800	8.217927	8.218055	8.218182	10	
	50	8.218310	8.218437	8.218564	8.218691	8.218819	8.218946	8.219073	8.219200	8.219327	8.219454	0	3
57	0	8.219581	8.219708	8.219835	8.219962	8.220089	8.220216	8.220342	8.220469	8.220596	8.220722	50	
	10	8.220849	8.220976	8.221102	8.221229	8.221355	8.221482	8.221608	8.221734	8.221861	8.221987	40	
	20	8.222113	8.222239	8.222366	8.222492	8.222618	8.222744	8.222870	8.222996	8.223122	8.223248	30	
	30	8.223374	8.223500	8.223625	8.223751	8.223877	8.224003	8.224128	8.224254	8.224380	8.224505	20	
	40	8.224631	8.224756	8.224882	8.225007	8.225132	8.225258	8.225383	8.225508	8.225634	8.225759	10	
	50	8.225884	8.226009	8.226134	8.226259	8.226384	8.226509	8.226634	8.226759	8.226884	8.227009	0	2
58	0	8.227134	8.227258	8.227383	8.227508	8.227632	8.227757	8.227882	8.228006	8.228131	8.228255	50	
	10	8.228380	8.228504	8.228628	8.228753	8.228877	8.229001	8.229126	8.229250	8.229374	8.229498	40	
	20	8.229622	8.229746	8.229870	8.229994	8.230118	8.230242	8.230366	8.230490	8.230614	8.230737	30	
	30	8.230861	8.230985	8.231108	8.231232	8.231356	8.231479	8.231603	8.231726	8.231850	8.231973	20	
	40	8.232097	8.232220	8.232343	8.232466	8.232590	8.232713	8.232836	8.232959	8.233082	8.233205	10	
	50	8.233328	8.233451	8.233574	8.233697	8.233820	8.233943	8.234066	8.234189	8.234311	8.234434	0	1
59	0	8.234557	8.234680	8.234802	8.234925	8.235047	8.235170	8.235292	8.235415	8.235537	8.235659	50	
	10	8.235782	8.235904	8.236026	8.236149	8.236271	8.236393	8.236515	8.236637	8.236759	8.236881	40	
	20	8.237003	8.237125	8.237247	8.237369	8.237491	8.237613	8.237735	8.237856	8.237978	8.238100	30	
	30	8.238221	8.238343	8.238465	8.238586	8.238708	8.238829	8.238951	8.239072	8.239193	8.239315	20	
	40	8.239436	8.239557	8.239679	8.239800	8.239921	8.240042	8.240163	8.240284	8.240405	8.240526	10	
	50	8.240647	8.240768	8.240889	8.241010	8.241131	8.241252	8.241373	8.241493	8.241614	8.241735	0	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-sine of 89 degrees, or Sine of 179 degrees.											

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Sine of 0 degree, or Co-sine of 90 degrees.										
40	0	8.065776	8.065957	8.066138	8.066319	8.066500	8.066680	8.066861	8.067041	8.067222	8.067402	50
	10	8.067582	8.067762	8.067942	8.068122	8.068302	8.068482	8.068662	8.068842	8.069021	8.069201	40
	20	8.069380	8.069560	8.069739	8.069918	8.070098	8.070277	8.070456	8.070635	8.070814	8.070992	30
	30	8.071171	8.071350	8.071528	8.071707	8.071885	8.072064	8.072242	8.072420	8.072599	8.072777	20
	40	8.072955	8.073133	8.073310	8.073488	8.073666	8.073844	8.074021	8.074199	8.074376	8.074553	10
	50	8.074731	8.074908	8.075085	8.075262	8.075439	8.075616	8.075793	8.075970	8.076147	8.076323	0
41	0	8.076500	8.076676	8.076853	8.077029	8.077205	8.077382	8.077558	8.077734	8.077910	8.078086	50
	10	8.078261	8.078437	8.078613	8.078789	8.078964	8.079140	8.079315	8.079490	8.079666	8.079841	40
	20	8.080016	8.080191	8.080366	8.080541	8.080716	8.080891	8.081066	8.081240	8.081415	8.081589	30
	30	8.081764	8.081938	8.082112	8.082287	8.082461	8.082635	8.082809	8.082983	8.083157	8.083331	20
	40	8.083504	8.083678	8.083852	8.084025	8.084199	8.084372	8.084545	8.084719	8.084892	8.085065	10
	50	8.085238	8.085411	8.085584	8.085757	8.085929	8.086102	8.086275	8.086447	8.086620	8.086792	0
42	0	8.086965	8.087137	8.087309	8.087481	8.087653	8.087825	8.087997	8.088169	8.088341	8.088513	50
	10	8.088685	8.088856	8.089028	8.089199	8.089371	8.089542	8.089713	8.089884	8.090056	8.090227	40
	20	8.090398	8.090569	8.090739	8.090910	8.091081	8.091252	8.091422	8.091593	8.091763	8.091934	30
	30	8.092104	8.092274	8.092445	8.092615	8.092785	8.092955	8.093125	8.093295	8.093464	8.093634	20
	40	8.093804	8.093973	8.094143	8.094312	8.094482	8.094651	8.094820	8.094990	8.095159	8.095328	10
	50	8.095497	8.095666	8.095835	8.096003	8.096172	8.096341	8.096509	8.096678	8.096847	8.097015	0
43	0	8.097183	8.097352	8.097520	8.097688	8.097856	8.098024	8.098192	8.098360	8.098528	8.098696	50
	10	8.098863	8.099031	8.099198	8.099366	8.099533	8.099701	8.099868	8.100035	8.100203	8.100370	40
	20	8.100537	8.100704	8.100871	8.101038	8.101204	8.101371	8.101538	8.101704	8.101871	8.102037	30
	30	8.102204	8.102370	8.102536	8.102703	8.102869	8.103035	8.103201	8.103367	8.103533	8.103699	20
	40	8.103865	8.104030	8.104196	8.104362	8.104527	8.104693	8.104858	8.105023	8.105189	8.105354	10
	50	8.105519	8.105684	8.105849	8.106014	8.106179	8.106344	8.106509	8.106673	8.106838	8.107002	0
44	0	8.107167	8.107331	8.107496	8.107660	8.107824	8.107989	8.108153	8.108317	8.108481	8.108645	50
	10	8.108809	8.108973	8.109136	8.109300	8.109464	8.109627	8.109791	8.109954	8.110118	8.110281	40
	20	8.110445	8.110608	8.110771	8.110934	8.111097	8.111260	8.111423	8.111586	8.111749	8.111911	30
	30	8.112074	8.112237	8.112399	8.112562	8.112724	8.112887	8.113049	8.113211	8.113373	8.113535	20
	40	8.113697	8.113860	8.114021	8.114183	8.114345	8.114507	8.114669	8.114830	8.114992	8.115153	10
	50	8.115315	8.115476	8.115638	8.115799	8.115960	8.116121	8.116282	8.116443	8.116604	8.116765	0
45	0	8.116926	8.117087	8.117248	8.117409	8.117569	8.117730	8.117890	8.118051	8.118211	8.118371	50
	10	8.118532	8.118692	8.118852	8.119012	8.119172	8.119332	8.119492	8.119652	8.119812	8.119972	40
	20	8.120131	8.120291	8.120450	8.120610	8.120769	8.120929	8.121088	8.121247	8.121407	8.121566	30
	30	8.121725	8.121884	8.122043	8.122202	8.122361	8.122520	8.122678	8.122837	8.122996	8.123154	20
	40	8.123313	8.123471	8.123630	8.123788	8.123946	8.124104	8.124263	8.124421	8.124579	8.124737	10
	50	8.124895	8.125053	8.125210	8.125368	8.125526	8.125684	8.125841	8.125999	8.126156	8.126314	0
46	0	8.126471	8.126628	8.126786	8.126943	8.127100	8.127257	8.127414	8.127571	8.127728	8.127885	50
	10	8.128042	8.128198	8.128355	8.128512	8.128668	8.128825	8.128981	8.129138	8.129294	8.129450	40
	20	8.129607	8.129763	8.129919	8.130075	8.130231	8.130387	8.130543	8.130699	8.130854	8.131010	30
	30	8.131166	8.131322	8.131477	8.131633	8.131788	8.131943	8.132099	8.132254	8.132409	8.132564	20
	40	8.132720	8.132875	8.133030	8.133185	8.133340	8.133494	8.133649	8.133804	8.133959	8.134113	10
	50	8.134268	8.134422	8.134577	8.134731	8.134886	8.135040	8.135194	8.135348	8.135502	8.135656	0
47	0	8.135810	8.135964	8.136118	8.136272	8.136426	8.136580	8.136733	8.136887	8.137041	8.137194	50
	10	8.137348	8.137501	8.137655	8.137808	8.137961	8.138114	8.138267	8.138421	8.138574	8.138727	40
	20	8.138880	8.139032	8.139185	8.139338	8.139491	8.139643	8.139796	8.139949	8.140101	8.140254	30
	30	8.140406	8.140558	8.140711	8.140863	8.141015	8.141167	8.141319	8.141471	8.141623	8.141775	20
	40	8.141927	8.142079	8.142231	8.142382	8.142534	8.142686	8.142837	8.142989	8.143140	8.143291	10
	50	8.143443	8.143594	8.143745	8.143896	8.144048	8.144199	8.144350	8.144501	8.144652	8.144802	0
48	0	8.144953	8.145104	8.145255	8.145405	8.145556	8.145707	8.145857	8.146008	8.146158	8.146308	50
	10	8.146459	8.146609	8.146759	8.146909	8.147059	8.147209	8.147359	8.147509	8.147659	8.147809	40
	20	8.147959	8.148108	8.148258	8.148408	8.148557	8.148707	8.148856	8.149006	8.149155	8.149304	30
	30	8.149453	8.149603	8.149752	8.149901	8.150050	8.150199	8.150348	8.150497	8.150646	8.150795	20
	40	8.150943	8.151092	8.151241	8.151389	8.151538	8.151686	8.151835	8.151983	8.152131	8.152280	10
	50	8.152428	8.152576	8.152724	8.152872	8.153020	8.153168	8.153316	8.153464	8.153612	8.153760	0
49	0	8.153908	8.154055	8.154203	8.154350	8.154498	8.154645	8.154793	8.154940	8.155088	8.155235	50
	10	8.155382	8.155529	8.155676	8.155824	8.155971	8.156118	8.156264	8.156411	8.156558	8.156705	40
	20	8.156852	8.156998	8.157145	8.157292	8.157438	8.157585	8.157731	8.157877	8.158024	8.158170	30
	30	8.158316	8.158463	8.158609	8.158755	8.158901	8.159047	8.159193	8.159339	8.159485	8.159630	20
	40	8.159776	8.159922	8.160067	8.160213	8.160359	8.160504	8.160650	8.160795	8.160940	8.161086	10
	50	8.161231	8.161376	8.161521	8.161666	8.161811	8.161956	8.162101	8.162246	8.162391	8.162536	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-sine of 89 degrees, or Sine of 179 degrees.										

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 0 degree, or Co-sine of 90 degrees.											
50	0	8.162681	8.162826	8.162970	8.163115	8.163259	8.163404	8.163549	8.163693	8.163837	8.163982	50	
	10	8.164126	8.164270	8.164414	8.164559	8.164703	8.164847	8.164991	8.165135	8.165279	8.165423	40	
	20	8.165566	8.165710	8.165854	8.165998	8.166141	8.166285	8.166428	8.166572	8.166715	8.166859	30	
	30	8.167002	8.167145	8.167288	8.167432	8.167575	8.167718	8.167861	8.168004	8.168147	8.168290	20	
	40	8.168433	8.168576	8.168718	8.168861	8.169004	8.169146	8.169289	8.169432	8.169574	8.169717	10	
	50	8.169859	8.170001	8.170144	8.170286	8.170428	8.170570	8.170712	8.170854	8.170996	8.171138	0	9
51	0	8.171280	8.171422	8.171564	8.171706	8.171848	8.171989	8.172131	8.172273	8.172414	8.172556	50	
	10	8.172697	8.172839	8.172980	8.173121	8.173263	8.173404	8.173545	8.173686	8.173827	8.173968	40	
	20	8.174109	8.174250	8.174391	8.174532	8.174673	8.174814	8.174955	8.175095	8.175236	8.175377	30	
	30	8.175517	8.175658	8.175798	8.175939	8.176079	8.176219	8.176360	8.176500	8.176640	8.176780	20	
	40	8.176920	8.177060	8.177200	8.177340	8.177480	8.177620	8.177760	8.177900	8.178039	8.178179	10	
	50	8.178319	8.178458	8.178598	8.178738	8.178877	8.179016	8.179156	8.179295	8.179434	8.179574	0	8
52	0	8.179713	8.179852	8.179991	8.180130	8.180269	8.180408	8.180547	8.180686	8.180825	8.180964	50	
	10	8.181103	8.181241	8.181380	8.181519	8.181657	8.181796	8.181934	8.182073	8.182211	8.182349	40	
	20	8.182488	8.182626	8.182764	8.182902	8.183041	8.183179	8.183317	8.183455	8.183593	8.183731	30	
	30	8.183869	8.184006	8.184144	8.184282	8.184420	8.184557	8.184695	8.184833	8.184970	8.185108	20	
	40	8.185245	8.185382	8.185520	8.185657	8.185794	8.185932	8.186069	8.186206	8.186343	8.186480	10	
	50	8.186617	8.186754	8.186891	8.187028	8.187165	8.187301	8.187438	8.187575	8.187712	8.187848	0	7
53	0	8.187985	8.188121	8.188258	8.188394	8.188531	8.188667	8.188803	8.188940	8.189076	8.189212	50	
	10	8.189348	8.189484	8.189620	8.189756	8.189892	8.190028	8.190164	8.190300	8.190436	8.190572	40	
	20	8.190707	8.190843	8.190979	8.191114	8.191250	8.191385	8.191521	8.191656	8.191792	8.191927	30	
	30	8.192062	8.192198	8.192333	8.192468	8.192603	8.192738	8.192873	8.193008	8.193143	8.193278	20	
	40	8.193413	8.193548	8.193683	8.193818	8.193952	8.194087	8.194222	8.194356	8.194491	8.194625	10	
	50	8.194760	8.194894	8.195028	8.195163	8.195297	8.195431	8.195566	8.195700	8.195834	8.195968	0	6
54	0	8.196102	8.196236	8.196370	8.196504	8.196638	8.196772	8.196906	8.197039	8.197173	8.197307	50	
	10	8.197440	8.197574	8.197707	8.197841	8.197974	8.198108	8.198241	8.198375	8.198508	8.198641	40	
	20	8.198774	8.198908	8.199041	8.199174	8.199307	8.199440	8.199573	8.199706	8.199839	8.199972	30	
	30	8.200104	8.200237	8.200370	8.200503	8.200635	8.200768	8.200901	8.201033	8.201166	8.201298	20	
	40	8.201430	8.201563	8.201695	8.201827	8.201960	8.202092	8.202224	8.202356	8.202488	8.202620	10	
	50	8.202752	8.202884	8.203016	8.203148	8.203280	8.203412	8.203544	8.203675	8.203807	8.203939	0	5
55	0	8.204070	8.204202	8.204333	8.204465	8.204596	8.204728	8.204859	8.204991	8.205122	8.205253	50	
	10	8.205384	8.205515	8.205647	8.205778	8.205909	8.206040	8.206171	8.206302	8.206433	8.206563	40	
	20	8.206694	8.206825	8.206956	8.207086	8.207217	8.207348	8.207478	8.207609	8.207739	8.207870	30	
	30	8.208000	8.208131	8.208261	8.208391	8.208522	8.208652	8.208782	8.208912	8.209042	8.209172	20	
	40	8.209302	8.209432	8.209562	8.209692	8.209822	8.209952	8.210082	8.210212	8.210341	8.210471	10	
	50	8.210601	8.210730	8.210860	8.210989	8.211119	8.211248	8.211378	8.211507	8.211636	8.211766	0	4
56	0	8.211895	8.212024	8.212153	8.212283	8.212412	8.212541	8.212670	8.212799	8.212928	8.213057	50	
	10	8.213185	8.213314	8.213443	8.213572	8.213701	8.213829	8.213958	8.214087	8.214215	8.214344	40	
	20	8.214472	8.214601	8.214729	8.214857	8.214986	8.215114	8.215242	8.215371	8.215499	8.215627	30	
	30	8.215755	8.215883	8.216011	8.216139	8.216267	8.216395	8.216523	8.216651	8.216779	8.216906	20	
	40	8.217034	8.217162	8.217290	8.217417	8.217545	8.217672	8.217800	8.217927	8.218055	8.218182	10	
	50	8.218310	8.218437	8.218564	8.218691	8.218819	8.218946	8.219073	8.219200	8.219327	8.219454	0	3
57	0	8.219581	8.219708	8.219835	8.219962	8.220089	8.220216	8.220342	8.220469	8.220596	8.220722	50	
	10	8.220849	8.220976	8.221102	8.221229	8.221355	8.221482	8.221608	8.221734	8.221861	8.221987	40	
	20	8.222113	8.222239	8.222366	8.222492	8.222618	8.222744	8.222870	8.222996	8.223122	8.223248	30	
	30	8.223374	8.223500	8.223625	8.223751	8.223877	8.224003	8.224128	8.224254	8.224380	8.224505	20	
	40	8.224631	8.224756	8.224882	8.225007	8.225132	8.225258	8.225383	8.225508	8.225634	8.225759	10	
	50	8.225884	8.226009	8.226134	8.226259	8.226384	8.226509	8.226634	8.226759	8.226884	8.227009	0	2
58	0	8.227134	8.227258	8.227383	8.227508	8.227632	8.227757	8.227882	8.228006	8.228131	8.228255	50	
	10	8.228380	8.228504	8.228628	8.228753	8.228877	8.229001	8.229126	8.229250	8.229374	8.229498	40	
	20	8.229622	8.229746	8.229870	8.229994	8.230118	8.230242	8.230366	8.230490	8.230614	8.230737	30	
	30	8.230861	8.230985	8.231108	8.231232	8.231356	8.231479	8.231603	8.231726	8.231850	8.231973	20	
	40	8.232097	8.232220	8.232343	8.232466	8.232590	8.232713	8.232836	8.232959	8.233082	8.233205	10	
	50	8.233328	8.233451	8.233574	8.233697	8.233820	8.233943	8.234066	8.234189	8.234311	8.234434	0	1
59	0	8.234557	8.234680	8.234802	8.234925	8.235047	8.235170	8.235292	8.235415	8.235537	8.235659	50	
	10	8.235782	8.235904	8.236026	8.236149	8.236271	8.236393	8.236515	8.236637	8.236759	8.236881	40	
	20	8.237003	8.237125	8.237247	8.237369	8.237491	8.237613	8.237735	8.237856	8.237978	8.238100	30	
	30	8.238221	8.238343	8.238465	8.238586	8.238708	8.238829	8.238951	8.239072	8.239193	8.239315	20	
	40	8.239436	8.239557	8.239679	8.239800	8.239921	8.240042	8.240163	8.240284	8.240405	8.240526	10	
	50	8.240647	8.240768	8.240889	8.241010	8.241131	8.241252	8.241373	8.241493	8.241614	8.241735	0	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-sine of 89 degrees, or Sine of 179 degrees.											

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 1 degree, or Co-sine of 91 degrees. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
0	0	8. 241855	8. 241976	8. 242097	8. 242217	8. 242338	8. 242458	8. 242579	8. 242699	8. 242819	8. 242940	50	
	10	8. 243060	8. 243180	8. 243300	8. 243421	8. 243541	8. 243661	8. 243781	8. 243901	8. 244021	8. 244141	40	
	20	8. 244261	8. 244381	8. 244501	8. 244621	8. 244741	8. 244861	8. 244980	8. 245100	8. 245220	8. 245339	30	
	30	8. 245459	8. 245579	8. 245698	8. 245818	8. 245937	8. 246057	8. 246176	8. 246296	8. 246415	8. 246534	20	
	40	8. 246654	8. 246773	8. 246892	8. 247012	8. 247131	8. 247250	8. 247369	8. 247488	8. 247607	8. 247726	10	
	50	8. 247845	8. 247964	8. 248083	8. 248202	8. 248321	8. 248440	8. 248558	8. 248677	8. 248796	8. 248915	0	5
1	0	8. 249033	8. 249152	8. 249270	8. 249389	8. 249508	8. 249626	8. 249745	8. 249863	8. 249981	8. 250100	50	
	10	8. 250218	8. 250336	8. 250455	8. 250573	8. 250691	8. 250809	8. 250927	8. 251046	8. 251164	8. 251282	40	
	20	8. 251400	8. 251518	8. 251636	8. 251754	8. 251871	8. 251989	8. 252107	8. 252225	8. 252343	8. 252460	30	
	30	8. 252578	8. 252696	8. 252813	8. 252931	8. 253049	8. 253166	8. 253284	8. 253401	8. 253519	8. 253636	20	
	40	8. 253753	8. 253871	8. 253988	8. 254105	8. 254223	8. 254340	8. 254457	8. 254574	8. 254691	8. 254808	10	
	50	8. 254925	8. 255042	8. 255159	8. 255276	8. 255393	8. 255510	8. 255627	8. 255744	8. 255861	8. 255978	0	5
2	0	8. 256094	8. 256211	8. 256328	8. 256444	8. 256561	8. 256678	8. 256794	8. 256911	8. 257027	8. 257144	50	
	10	8. 257260	8. 257376	8. 257493	8. 257609	8. 257726	8. 257842	8. 257958	8. 258074	8. 258190	8. 258307	40	
	20	8. 258423	8. 258539	8. 258655	8. 258771	8. 258887	8. 259003	8. 259119	8. 259235	8. 259351	8. 259466	30	
	30	8. 259582	8. 259698	8. 259814	8. 259930	8. 260045	8. 260161	8. 260276	8. 260392	8. 260508	8. 260623	20	
	40	8. 260739	8. 260854	8. 260970	8. 261085	8. 261200	8. 261316	8. 261431	8. 261546	8. 261662	8. 261777	10	
	50	8. 261892	8. 262007	8. 262122	8. 262238	8. 262353	8. 262468	8. 262583	8. 262698	8. 262813	8. 262928	0	5
3	0	8. 263042	8. 263157	8. 263272	8. 263387	8. 263502	8. 263616	8. 263731	8. 263846	8. 263960	8. 264075	50	
	10	8. 264190	8. 264304	8. 264419	8. 264533	8. 264648	8. 264762	8. 264877	8. 264991	8. 265105	8. 265220	40	
	20	8. 265334	8. 265448	8. 265562	8. 265677	8. 265791	8. 265905	8. 266019	8. 266133	8. 266247	8. 266361	30	
	30	8. 266475	8. 266589	8. 266703	8. 266817	8. 266931	8. 267045	8. 267159	8. 267272	8. 267386	8. 267500	20	
	40	8. 267613	8. 267727	8. 267841	8. 267954	8. 268068	8. 268181	8. 268295	8. 268408	8. 268522	8. 268635	10	
	50	8. 268749	8. 268862	8. 268975	8. 269089	8. 269202	8. 269315	8. 269428	8. 269542	8. 269655	8. 269768	0	5
4	0	8. 269881	8. 269994	8. 270107	8. 270220	8. 270333	8. 270446	8. 270559	8. 270672	8. 270785	8. 270898	50	
	10	8. 271010	8. 271123	8. 271236	8. 271349	8. 271461	8. 271574	8. 271687	8. 271799	8. 271912	8. 272024	40	
	20	8. 272137	8. 272249	8. 272362	8. 272474	8. 272587	8. 272699	8. 272811	8. 272924	8. 273036	8. 273148	30	
	30	8. 273260	8. 273373	8. 273485	8. 273597	8. 273709	8. 273821	8. 273933	8. 274045	8. 274157	8. 274269	20	
	40	8. 274381	8. 274493	8. 274605	8. 274717	8. 274828	8. 274940	8. 275052	8. 275164	8. 275275	8. 275387	10	
	50	8. 275499	8. 275610	8. 275722	8. 275834	8. 275945	8. 276057	8. 276168	8. 276279	8. 276391	8. 276502	0	
5	0	8. 276614	8. 276725	8. 276836	8. 276948	8. 277059	8. 277170	8. 277281	8. 277392	8. 277503	8. 277615	50	
	10	8. 277726	8. 277837	8. 277948	8. 278059	8. 278170	8. 278281	8. 278392	8. 278502	8. 278613	8. 278724	40	
	20	8. 278835	8. 278946	8. 279056	8. 279167	8. 279278	8. 279388	8. 279499	8. 279610	8. 279720	8. 279831	30	
	30	8. 279941	8. 280052	8. 280162	8. 280273	8. 280383	8. 280493	8. 280604	8. 280714	8. 280824	8. 280935	20	
	40	8. 281045	8. 281155	8. 281265	8. 281375	8. 281485	8. 281595	8. 281706	8. 281816	8. 281926	8. 282036	10	
	50	8. 282145	8. 282255	8. 282365	8. 282475	8. 282585	8. 282695	8. 282805	8. 282914	8. 283024	8. 283134	0	
6	0	8. 283243	8. 283353	8. 283463	8. 283572	8. 283682	8. 283791	8. 283901	8. 284010	8. 284120	8. 284229	50	
	10	8. 284339	8. 284448	8. 284557	8. 284667	8. 284776	8. 284885	8. 284994	8. 285104	8. 285213	8. 285322	40	
	20	8. 285431	8. 285540	8. 285649	8. 285758	8. 285867	8. 285976	8. 286085	8. 286194	8. 286303	8. 286412	30	
	30	8. 286521	8. 286630	8. 286738	8. 286847	8. 286956	8. 287065	8. 287173	8. 287282	8. 287391	8. 287499	20	
	40	8. 287608	8. 287716	8. 287825	8. 287933	8. 288042	8. 288150	8. 288259	8. 288367	8. 288475	8. 288584	10	
	50	8. 288692	8. 288800	8. 288908	8. 289017	8. 289125	8. 289233	8. 289341	8. 289449	8. 289557	8. 289665	0	
7	0	8. 289773	8. 289881	8. 289989	8. 290097	8. 290205	8. 290313	8. 290421	8. 290529	8. 290637	8. 290745	50	
	10	8. 290852	8. 290960	8. 291068	8. 291175	8. 291283	8. 291391	8. 291498	8. 291606	8. 291713	8. 291821	40	
	20	8. 291929	8. 292036	8. 292143	8. 292251	8. 292358	8. 292466	8. 292573	8. 292680	8. 292788	8. 292895	30	
	30	8. 293002	8. 293109	8. 293216	8. 293324	8. 293431	8. 293538	8. 293645	8. 293752	8. 293859	8. 293966	20	
	40	8. 294073	8. 294180	8. 294287	8. 294394	8. 294501	8. 294607	8. 294714	8. 294821	8. 294928	8. 295034	10	
	50	8. 295141	8. 295248	8. 295354	8. 295461	8. 295568	8. 295674	8. 295781	8. 295887	8. 295994	8. 296100	0	
8	0	8. 296207	8. 296313	8. 296420	8. 296526	8. 296632	8. 296739	8. 296845	8. 296951	8. 297057	8. 297164	50	
	10	8. 297270	8. 297376	8. 297482	8. 297588	8. 297694	8. 297800	8. 297906	8. 298012	8. 298118	8. 298224	40	
	20	8. 298330	8. 298436	8. 298542	8. 298648	8. 298754	8. 298859	8. 298965	8. 299071	8. 299177	8. 299282	30	
	30	8. 299388	8. 299494	8. 299599	8. 299705	8. 299810	8. 299916	8. 300021	8. 300127	8. 300232	8. 300338	20	
	40	8. 300443	8. 300549	8. 300654	8. 300759	8. 300865	8. 300970	8. 301075	8. 301180	8. 301286	8. 301391	10	
	50	8. 301496	8. 301601	8. 301706	8. 301811	8. 301916	8. 302021	8. 302126	8. 302231	8. 302336	8. 302441	0	
9	0	8. 302546	8. 302651	8. 302756	8. 302861	8. 302965	8. 303070	8. 303175	8. 303280	8. 303384	8. 303489	50	
	10	8. 303594	8. 303698	8. 303803	8. 303908	8. 304012	8. 304117	8. 304221	8. 304326	8. 304430	8. 304534	40	
	20	8. 304639	8. 304743	8. 304848	8. 304952	8. 305056	8. 305160	8. 305265	8. 305369	8. 305473	8. 305577	30	
	30	8. 305681	8. 305786	8. 305890	8. 305994	8. 306098	8. 306202	8. 306306	8. 306410	8. 306514	8. 306618	20	
	40	8. 306721	8. 306825	8. 306929	8. 307033	8. 307137	8. 307241	8. 307344	8. 307448	8. 307552	8. 307655	10	
	50	8. 307759	8. 307863	8. 307966	8. 308070	8. 308173	8. 308277	8. 308380	8. 308484	8. 308587	8. 308691	0	
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″		

Co-sine of 88 degrees, or Sine of 178 degrees.

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 1 degree, or Co-sine of 91 degrees. 0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
10	0	8.308794	8.308898	8.309001	8.309104	8.309208	8.309311	8.309414	8.309517	8.309621	8.309724	50	
	10	8.309827	8.309930	8.310033	8.310136	8.310239	8.310342	8.310445	8.310548	8.310651	8.310754	40	
	20	8.310857	8.310960	8.311063	8.311166	8.311268	8.311371	8.311474	8.311577	8.311679	8.311782	30	
	30	8.311885	8.311987	8.312090	8.312193	8.312295	8.312398	8.312500	8.312603	8.312705	8.312808	20	
	40	8.312910	8.313013	8.313115	8.313217	8.313320	8.313422	8.313524	8.313626	8.313729	8.313831	10	
	50	8.313933	8.314035	8.314137	8.314240	8.314342	8.314444	8.314546	8.314648	8.314750	8.314852	0	49
11	0	8.314954	8.315056	8.315157	8.315259	8.315361	8.315463	8.315565	8.315667	8.315768	8.315870	50	
	10	8.315972	8.316073	8.316175	8.316277	8.316378	8.316480	8.316582	8.316683	8.316785	8.316886	40	
	20	8.316988	8.317089	8.317190	8.317292	8.317393	8.317495	8.317596	8.317697	8.317798	8.317900	30	
	30	8.318001	8.318102	8.318203	8.318304	8.318406	8.318507	8.318608	8.318709	8.318810	8.318911	20	
	40	8.319012	8.319113	8.319214	8.319315	8.319416	8.319517	8.319617	8.319718	8.319819	8.319920	10	
	50	8.320021	8.320121	8.320222	8.320323	8.320423	8.320524	8.320625	8.320725	8.320826	8.320926	0	48
12	0	8.321027	8.321127	8.321228	8.321328	8.321429	8.321529	8.321630	8.321730	8.321830	8.321931	50	
	10	8.322031	8.322131	8.322231	8.322332	8.322432	8.322532	8.322632	8.322732	8.322832	8.322933	40	
	20	8.323033	8.323133	8.323233	8.323333	8.323433	8.323533	8.323633	8.323732	8.323832	8.323932	30	
	30	8.324032	8.324132	8.324232	8.324331	8.324431	8.324531	8.324631	8.324730	8.324830	8.324929	20	
	40	8.325029	8.325129	8.325228	8.325328	8.325427	8.325527	8.325626	8.325726	8.325825	8.325924	10	
	50	8.326024	8.326123	8.326223	8.326322	8.326421	8.326520	8.326620	8.326719	8.326818	8.326917	0	47
13	0	8.327016	8.327116	8.327215	8.327314	8.327413	8.327512	8.327611	8.327710	8.327809	8.327908	50	
	10	8.328007	8.328106	8.328204	8.328303	8.328402	8.328501	8.328600	8.328698	8.328797	8.328896	40	
	20	8.328995	8.329093	8.329192	8.329291	8.329389	8.329488	8.329586	8.329685	8.329783	8.329882	30	
	30	8.329980	8.330079	8.330177	8.330276	8.330374	8.330472	8.330571	8.330669	8.330767	8.330866	20	
	40	8.330964	8.331062	8.331160	8.331259	8.331357	8.331455	8.331553	8.331651	8.331749	8.331847	10	
	50	8.331945	8.332043	8.332141	8.332239	8.332337	8.332435	8.332533	8.332631	8.332729	8.332827	0	46
14	0	8.332924	8.333022	8.333120	8.333218	8.333315	8.333413	8.333511	8.333608	8.333706	8.333804	50	
	10	8.333901	8.333999	8.334096	8.334194	8.334291	8.334389	8.334486	8.334584	8.334681	8.334779	40	
	20	8.334876	8.334973	8.335071	8.335168	8.335265	8.335362	8.335460	8.335557	8.335654	8.335751	30	
	30	8.335848	8.335946	8.336043	8.336140	8.336237	8.336334	8.336431	8.336528	8.336625	8.336722	20	
	40	8.336819	8.336916	8.337013	8.337109	8.337206	8.337303	8.337400	8.337497	8.337593	8.337690	10	
	50	8.337787	8.337884	8.337980	8.338077	8.338174	8.338270	8.338367	8.338463	8.338560	8.338656	0	45
15	0	8.338753	8.338849	8.338946	8.339042	8.339139	8.339235	8.339332	8.339428	8.339524	8.339621	50	
	10	8.339717	8.339813	8.339909	8.340006	8.340102	8.340198	8.340294	8.340390	8.340486	8.340583	40	
	20	8.340679	8.340775	8.340871	8.340967	8.341063	8.341159	8.341255	8.341351	8.341446	8.341542	30	
	30	8.341638	8.341734	8.341830	8.341926	8.342021	8.342117	8.342213	8.342309	8.342404	8.342500	20	
	40	8.342596	8.342691	8.342787	8.342883	8.342978	8.343074	8.343169	8.343265	8.343360	8.343456	10	
	50	8.343551	8.343647	8.343742	8.343837	8.343933	8.344028	8.344123	8.344219	8.344314	8.344409	0	44
16	0	8.344504	8.344600	8.344695	8.344790	8.344885	8.344980	8.345075	8.345170	8.345266	8.345361	50	
	10	8.345456	8.345551	8.345646	8.345741	8.345835	8.345930	8.346025	8.346120	8.346215	8.346310	40	
	20	8.346405	8.346500	8.346594	8.346689	8.346784	8.346878	8.346973	8.347068	8.347163	8.347257	30	
	30	8.347352	8.347446	8.347541	8.347635	8.347730	8.347825	8.347919	8.348013	8.348108	8.348202	20	
	40	8.348297	8.348391	8.348485	8.348580	8.348674	8.348768	8.348863	8.348957	8.349051	8.349145	10	
	50	8.349240	8.349334	8.349428	8.349522	8.349616	8.349710	8.349804	8.349899	8.349993	8.350087	0	43
17	0	8.350181	8.350275	8.350369	8.350462	8.350556	8.350650	8.350744	8.350838	8.350932	8.351026	50	
	10	8.351119	8.351213	8.351307	8.351401	8.351494	8.351588	8.351682	8.351775	8.351869	8.351963	40	
	20	8.352056	8.352150	8.352243	8.352337	8.352430	8.352524	8.352617	8.352711	8.352804	8.352898	30	
	30	8.352991	8.353084	8.353178	8.353271	8.353364	8.353458	8.353551	8.353644	8.353737	8.353831	20	
	40	8.353924	8.354017	8.354110	8.354203	8.354296	8.354390	8.354483	8.354576	8.354669	8.354762	10	
	50	8.354855	8.354948	8.355041	8.355134	8.355226	8.355319	8.355412	8.355505	8.355598	8.355691	0	42
18	0	8.355784	8.355876	8.355969	8.356062	8.356154	8.356247	8.356340	8.356432	8.356525	8.356618	50	
	10	8.356710	8.356803	8.356895	8.356988	8.357081	8.357173	8.357265	8.357358	8.357450	8.357543	40	
	20	8.357635	8.357728	8.357820	8.357912	8.358005	8.358097	8.358189	8.358281	8.358374	8.358466	30	
	30	8.358558	8.358650	8.358742	8.358835	8.358927	8.359019	8.359111	8.359203	8.359295	8.359387	20	
	40	8.359479	8.359571	8.359663	8.359755	8.359847	8.359939	8.360031	8.360123	8.360214	8.360306	10	
	50	8.360398	8.360490	8.360582	8.360673	8.360765	8.360857	8.360948	8.361040	8.361132	8.361223	0	41
19	0	8.361315	8.361407	8.361498	8.361590	8.361681	8.361773	8.361864	8.361956	8.362047	8.362139	50	
	10	8.362230	8.362322	8.362413	8.362504	8.362596	8.362687	8.362778	8.362870	8.362961	8.363052	40	
	20	8.363143	8.363235	8.363326	8.363417	8.363508	8.363599	8.363690	8.363781	8.363872	8.363964	30	
	30	8.364055	8.364146	8.364237	8.364328	8.364419	8.364510	8.364600	8.364691	8.364782	8.364873	20	
	40	8.364964	8.365055	8.365146	8.365236	8.365327	8.365418	8.365509	8.365599	8.365690	8.365781	10	
	50	8.365871	8.365962	8.366053	8.366143	8.366234	8.366324	8.366415	8.366505	8.366596	8.366686	0	40
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes

Co-sine of 88 degrees, or Sine of 178 degrees.

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LOGARITHMIC SINES.

Sine of 1 degree, or Co-sine of 91 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
20	0	8.366777	8.366867	8.366958	8.367048	8.367139	8.367229	8.367319	8.367410	8.367500	8.367590	50
	10	8.367681	8.367771	8.367861	8.367951	8.368042	8.368132	8.368222	8.368312	8.368402	8.368492	40
	20	8.368582	8.368673	8.368763	8.368853	8.368943	8.369033	8.369123	8.369213	8.369303	8.369392	30
	30	8.369482	8.369572	8.369662	8.369752	8.369842	8.369932	8.370021	8.370111	8.370201	8.370291	20
	40	8.370380	8.370470	8.370560	8.370649	8.370739	8.370829	8.370918	8.371008	8.371098	8.371187	10
	50	8.371277	8.371366	8.371456	8.371545	8.371635	8.371724	8.371813	8.371903	8.371992	8.372082	0
21	0	8.372171	8.372260	8.372350	8.372439	8.372528	8.372617	8.372707	8.372796	8.372885	8.372974	50
	10	8.373064	8.373153	8.373242	8.373331	8.373420	8.373509	8.373598	8.373687	8.373776	8.373865	40
	20	8.373954	8.374043	8.374132	8.374221	8.374310	8.374399	8.374488	8.374577	8.374665	8.374754	30
	30	8.374843	8.374932	8.375021	8.375109	8.375198	8.375287	8.375376	8.375464	8.375553	8.375642	20
	40	8.375730	8.375819	8.375907	8.375996	8.376084	8.376173	8.376262	8.376350	8.376438	8.376527	10
	50	8.376615	8.376704	8.376792	8.376881	8.376969	8.377057	8.377146	8.377234	8.377322	8.377411	0
22	0	8.377499	8.377587	8.377675	8.377764	8.377852	8.377940	8.378028	8.378116	8.378204	8.378292	50
	10	8.378380	8.378469	8.378557	8.378645	8.378733	8.378821	8.378909	8.378997	8.379085	8.379172	40
	20	8.379260	8.379348	8.379436	8.379524	8.379612	8.379700	8.379787	8.379875	8.379963	8.380051	30
	30	8.380138	8.380226	8.380314	8.380402	8.380489	8.380577	8.380664	8.380752	8.380840	8.380927	20
	40	8.381015	8.381102	8.381190	8.381277	8.381365	8.381452	8.381540	8.381627	8.381715	8.381802	10
	50	8.381889	8.381977	8.382064	8.382151	8.382239	8.382326	8.382413	8.382500	8.382588	8.382675	0
23	0	8.382762	8.382849	8.382936	8.383024	8.383111	8.383198	8.383285	8.383372	8.383459	8.383546	50
	10	8.383633	8.383720	8.383807	8.383894	8.383981	8.384068	8.384155	8.384242	8.384329	8.384416	40
	20	8.384502	8.384589	8.384676	8.384763	8.384850	8.384936	8.385023	8.385110	8.385197	8.385283	30
	30	8.385370	8.385457	8.385543	8.385630	8.385716	8.385803	8.385890	8.385976	8.386063	8.386149	20
	40	8.386236	8.386322	8.386409	8.386495	8.386582	8.386668	8.386754	8.386841	8.386927	8.387014	10
	50	8.387100	8.387186	8.387272	8.387359	8.387445	8.387531	8.387617	8.387704	8.387790	8.387876	0
24	0	8.387962	8.388048	8.388135	8.388221	8.388307	8.388393	8.388479	8.388565	8.388651	8.388737	50
	10	8.388823	8.388909	8.388995	8.389081	8.389167	8.389253	8.389338	8.389424	8.389510	8.389596	40
	20	8.389682	8.389768	8.389853	8.389939	8.390025	8.390111	8.390196	8.390282	8.390368	8.390453	30
	30	8.390539	8.390625	8.390710	8.390796	8.390882	8.390967	8.391053	8.391138	8.391224	8.391309	20
	40	8.391395	8.391480	8.391566	8.391651	8.391736	8.391822	8.391907	8.391993	8.392078	8.392163	10
	50	8.392249	8.392334	8.392419	8.392504	8.392590	8.392675	8.392760	8.392845	8.392931	8.393016	0
25	0	8.393101	8.393186	8.393271	8.393356	8.393441	8.393526	8.393611	8.393696	8.393781	8.393866	50
	10	8.393951	8.394036	8.394121	8.394206	8.394291	8.394376	8.394461	8.394546	8.394631	8.394715	40
	20	8.394800	8.394885	8.394970	8.395055	8.395139	8.395224	8.395309	8.395394	8.395478	8.395563	30
	30	8.395648	8.395732	8.395817	8.395901	8.395986	8.396071	8.396155	8.396240	8.396324	8.396409	20
	40	8.396493	8.396578	8.396662	8.396746	8.396831	8.396915	8.397000	8.397084	8.397168	8.397253	10
	50	8.397337	8.397421	8.397506	8.397590	8.397674	8.397758	8.397843	8.397927	8.398011	8.398095	0
26	0	8.398179	8.398263	8.398348	8.398432	8.398516	8.398600	8.398684	8.398768	8.398852	8.398936	50
	10	8.399020	8.399104	8.399188	8.399272	8.399356	8.399440	8.399524	8.399607	8.399691	8.399778	40
	20	8.399859	8.399943	8.400027	8.400110	8.400194	8.400278	8.400362	8.400445	8.400529	8.400613	30
	30	8.400696	8.400780	8.400864	8.400947	8.401031	8.401115	8.401198	8.401282	8.401365	8.401449	20
	40	8.401532	8.401616	8.401699	8.401783	8.401866	8.401950	8.402033	8.402116	8.402200	8.402283	10
	50	8.402366	8.402450	8.402533	8.402616	8.402700	8.402783	8.402866	8.402949	8.403033	8.403116	0
27	0	8.403199	8.403282	8.403365	8.403449	8.403532	8.403615	8.403698	8.403781	8.403864	8.403947	50
	10	8.404030	8.404113	8.404196	8.404279	8.404362	8.404445	8.404528	8.404611	8.404694	8.404777	40
	20	8.404859	8.404942	8.405025	8.405108	8.405191	8.405274	8.405356	8.405439	8.405522	8.405605	30
	30	8.405687	8.405770	8.405853	8.405935	8.406018	8.406101	8.406183	8.406266	8.406348	8.406431	20
	40	8.406514	8.406596	8.406679	8.406761	8.406844	8.406926	8.407009	8.407091	8.407173	8.407256	10
	50	8.407338	8.407421	8.407503	8.407585	8.407668	8.407750	8.407832	8.407915	8.407997	8.408079	0
28	0	8.408161	8.408244	8.408326	8.408408	8.408490	8.408572	8.408655	8.408737	8.408819	8.408901	50
	10	8.408983	8.409065	8.409147	8.409229	8.409311	8.409393	8.409475	8.409557	8.409639	8.409721	40
	20	8.409803	8.409885	8.409967	8.410049	8.410131	8.410212	8.410294	8.410376	8.410458	8.410540	30
	30	8.410621	8.410703	8.410785	8.410867	8.410948	8.411030	8.411112	8.411193	8.411275	8.411357	20
	40	8.411438	8.411520	8.411602	8.411683	8.411765	8.411846	8.411928	8.412009	8.412091	8.412172	10
	50	8.412254	8.412335	8.412417	8.412498	8.412580	8.412661	8.412742	8.412824	8.412905	8.412986	0
29	0	8.413068	8.413149	8.413230	8.413312	8.413393	8.413474	8.413555	8.413636	8.413718	8.413799	50
	10	8.413880	8.413961	8.414042	8.414123	8.414205	8.414286	8.414367	8.414448	8.414529	8.414610	40
	20	8.414691	8.414772	8.414853	8.414934	8.415015	8.415096	8.415177	8.415258	8.415338	8.415419	30
	30	8.415500	8.415581	8.415662	8.415743	8.415823	8.415904	8.415985	8.416066	8.416147	8.416227	20
	40	8.416308	8.416389	8.416469	8.416550	8.416631	8.416711	8.416792	8.416873	8.416953	8.417034	10
	50	8.417114	8.417195	8.417275	8.417356	8.417436	8.417517	8.417597	8.417678	8.417758	8.417839	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds

Co-sine of 88 degrees, or Sine of 178 degrees.

Digitized by Google

LOGARITHMIC SINES.

Minutes / Seconds	Sine of 1 degree, or Co-sine of 91 degrees.										Seconds / Minutes
	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	
0 0	8.417919	8.417999	8.418080	8.418160	8.418241	8.418321	8.418401	8.418482	8.418562	8.418642	50
10	8.418722	8.418803	8.418883	8.418963	8.419043	8.419123	8.419204	8.419284	8.419364	8.419444	40
20	8.419524	8.419604	8.419684	8.419764	8.419845	8.419925	8.420005	8.420085	8.420165	8.420245	30
30	8.420325	8.420405	8.420484	8.420564	8.420644	8.420724	8.420804	8.420884	8.420964	8.421044	20
40	8.421123	8.421203	8.421283	8.421363	8.421443	8.421522	8.421602	8.421682	8.421762	8.421841	10
50	8.421921	8.422001	8.422080	8.422160	8.422239	8.422319	8.422399	8.422478	8.422558	8.422637	0 29
1 0	8.422717	8.422796	8.422876	8.422955	8.423035	8.423114	8.423194	8.423273	8.423353	8.423432	50
10	8.423511	8.423591	8.423670	8.423749	8.423829	8.423908	8.423987	8.424067	8.424146	8.424225	40
20	8.424304	8.424384	8.424463	8.424542	8.424621	8.424700	8.424780	8.424859	8.424938	8.425017	30
30	8.425096	8.425175	8.425254	8.425333	8.425412	8.425491	8.425570	8.425649	8.425728	8.425807	20
40	8.425886	8.425965	8.426044	8.426123	8.426202	8.426281	8.426360	8.426438	8.426517	8.426596	10
50	8.426675	8.426754	8.426832	8.426911	8.426990	8.427069	8.427147	8.427226	8.427305	8.427383	0 28
2 0	8.427462	8.427541	8.427619	8.427698	8.427777	8.427855	8.427934	8.428012	8.428091	8.428169	50
10	8.428248	8.428327	8.428405	8.428484	8.428562	8.428640	8.428719	8.428797	8.428876	8.428954	40
20	8.429032	8.429111	8.429189	8.429268	8.429346	8.429424	8.429502	8.429581	8.429659	8.429737	30
30	8.429815	8.429894	8.429972	8.430050	8.430128	8.430206	8.430285	8.430363	8.430441	8.430519	20
40	8.430597	8.430675	8.430753	8.430831	8.430909	8.430987	8.431065	8.431143	8.431221	8.431299	10
50	8.431377	8.431455	8.431533	8.431611	8.431689	8.431767	8.431845	8.431923	8.432000	8.432078	0 27
3 0	8.432156	8.432234	8.432312	8.432390	8.432467	8.432545	8.432623	8.432700	8.432778	8.432856	50
10	8.432934	8.433011	8.433089	8.433167	8.433244	8.433322	8.433399	8.433477	8.433554	8.433632	40
20	8.433710	8.433787	8.433865	8.433942	8.434020	8.434097	8.434175	8.434252	8.434329	8.434407	30
30	8.434484	8.434562	8.434639	8.434716	8.434794	8.434871	8.434948	8.435026	8.435103	8.435180	20
40	8.435257	8.435335	8.435412	8.435489	8.435566	8.435644	8.435721	8.435798	8.435875	8.435952	10
50	8.436029	8.436106	8.436184	8.436261	8.436338	8.436415	8.436492	8.436569	8.436646	8.436723	0 26
4 0	8.436800	8.436877	8.436954	8.437031	8.437108	8.437185	8.437262	8.437338	8.437415	8.437492	50
10	8.437569	8.437646	8.437723	8.437800	8.437876	8.437953	8.438030	8.438107	8.438183	8.438260	40
20	8.438337	8.438414	8.438490	8.438567	8.438644	8.438720	8.438797	8.438873	8.438950	8.439027	30
30	8.439103	8.439180	8.439256	8.439333	8.439409	8.439486	8.439562	8.439639	8.439715	8.439792	20
40	8.439868	8.439945	8.440021	8.440098	8.440174	8.440250	8.440327	8.440403	8.440479	8.440556	10
50	8.440632	8.440708	8.440785	8.440861	8.440937	8.441013	8.441090	8.441166	8.441242	8.441318	0 25
5 0	8.441394	8.441471	8.441547	8.441623	8.441699	8.441775	8.441851	8.441927	8.442003	8.442080	50
10	8.442156	8.442232	8.442308	8.442384	8.442460	8.442536	8.442612	8.442688	8.442763	8.442839	40
20	8.442915	8.442991	8.443067	8.443143	8.443219	8.443295	8.443370	8.443446	8.443522	8.443598	30
30	8.443674	8.443749	8.443825	8.443901	8.443977	8.444052	8.444128	8.444204	8.444279	8.444355	20
40	8.444431	8.444506	8.444582	8.444658	8.444733	8.444809	8.444884	8.444960	8.445035	8.445111	10
50	8.445187	8.445262	8.445338	8.445413	8.445488	8.445564	8.445639	8.445715	8.445790	8.445866	0 24
6 0	8.445941	8.446016	8.446092	8.446167	8.446242	8.446318	8.446393	8.446468	8.446544	8.446619	50
10	8.446694	8.446769	8.446845	8.446920	8.446995	8.447070	8.447145	8.447221	8.447296	8.447371	40
20	8.447446	8.447521	8.447596	8.447671	8.447746	8.447821	8.447896	8.447971	8.448046	8.448121	30
30	8.448196	8.448271	8.448346	8.448421	8.448496	8.448571	8.448646	8.448721	8.448796	8.448871	20
40	8.448946	8.449021	8.449095	8.449170	8.449245	8.449320	8.449395	8.449469	8.449544	8.449619	10
50	8.449694	8.449768	8.449843	8.449918	8.449992	8.450067	8.450142	8.450216	8.450291	8.450366	0 23
7 0	8.450440	8.450515	8.450589	8.450664	8.450739	8.450813	8.450888	8.450962	8.451037	8.451111	50
10	8.451186	8.451260	8.451335	8.451409	8.451483	8.451558	8.451632	8.451707	8.451781	8.451855	40
20	8.451930	8.452004	8.452078	8.452153	8.452227	8.452301	8.452376	8.452450	8.452524	8.452598	30
30	8.452673	8.452747	8.452821	8.452895	8.452969	8.453043	8.453118	8.453192	8.453266	8.453340	20
40	8.453414	8.453488	8.453562	8.453636	8.453710	8.453784	8.453858	8.453932	8.454006	8.454080	10
50	8.454154	8.454228	8.454302	8.454376	8.454450	8.454524	8.454598	8.454672	8.454746	8.454820	0 22
8 0	8.454893	8.454967	8.455041	8.455115	8.455189	8.455262	8.455336	8.455410	8.455484	8.455557	50
10	8.455631	8.455705	8.455779	8.455852	8.455926	8.456000	8.456073	8.456147	8.456221	8.456294	40
20	8.456368	8.456441	8.456515	8.456588	8.456662	8.456735	8.456809	8.456883	8.456956	8.457030	30
30	8.457103	8.457176	8.457250	8.457323	8.457397	8.457470	8.457544	8.457617	8.457690	8.457764	20
40	8.457837	8.457910	8.457984	8.458057	8.458130	8.458204	8.458277	8.458350	8.458423	8.458497	10
50	8.458570	8.458643	8.458716	8.458789	8.458863	8.458936	8.459009	8.459082	8.459155	8.459228	0 21
9 0	8.459301	8.459374	8.459447	8.459521	8.459594	8.459667	8.459740	8.459813	8.459886	8.459959	50
10	8.460032	8.460105	8.460178	8.460251	8.460323	8.460396	8.460469	8.460542	8.460615	8.460688	40
20	8.460761	8.460834	8.460906	8.460979	8.461052	8.461125	8.461198	8.461270	8.461343	8.461416	30
30	8.461489	8.461561	8.461634	8.461707	8.461779	8.461852	8.461925	8.461997	8.462070	8.462143	20
40	8.462215	8.462288	8.462360	8.462433	8.462506	8.462578	8.462651	8.462723	8.462796	8.462868	10
50	8.462941	8.463013	8.463086	8.463158	8.463231	8.463303	8.463375	8.463448	8.463520	8.463593	0 20
Minutes / Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds / Minutes
	Co-sine of 88 degrees, or Sine of 178 degrees.										

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9	Seconds	Proportional Parts
		Sine of 1 degree, or Co-sine of 91 degrees.											
40	0	8.463665	8.463737	8.463810	8.463882	8.463954	8.464027	8.464099	8.464171	8.464243	8.464316	50	
	10	8.464388	8.464460	8.464532	8.464605	8.464677	8.464749	8.464821	8.464893	8.464965	8.465038	40	
	20	8.465110	8.465182	8.465254	8.465326	8.465398	8.465470	8.465542	8.465614	8.465686	8.465758	30	
	30	8.465830	8.465902	8.465974	8.466046	8.466118	8.466190	8.466262	8.466334	8.466406	8.466478	20	
	40	8.466550	8.466622	8.466694	8.466765	8.466837	8.466909	8.466981	8.467053	8.467124	8.467196	10	
	50	8.467268	8.467340	8.467412	8.467483	8.467555	8.467627	8.467698	8.467770	8.467842	8.467913	0	
41	0	8.467985	8.468057	8.468128	8.468200	8.468272	8.468343	8.468415	8.468486	8.468558	8.468629	50	
	10	8.468701	8.468772	8.468844	8.468915	8.468987	8.469058	8.469130	8.469201	8.469273	8.469344	40	
	20	8.469416	8.469487	8.469558	8.469630	8.469701	8.469773	8.469844	8.469915	8.469987	8.470058	30	
	30	8.470129	8.470200	8.470272	8.470343	8.470414	8.470485	8.470557	8.470628	8.470699	8.470770	20	
	40	8.470841	8.470913	8.470984	8.471055	8.471126	8.471197	8.471268	8.471339	8.471410	8.471481	10	
	50	8.471553	8.471624	8.471695	8.471766	8.471837	8.471908	8.471979	8.472050	8.472121	8.472192	0	
42	0	8.472263	8.472334	8.472404	8.472475	8.472546	8.472617	8.472688	8.472759	8.472830	8.472901	50	
	10	8.472971	8.473042	8.473113	8.473184	8.473255	8.473325	8.473396	8.473467	8.473538	8.473608	40	
	20	8.473679	8.473750	8.473821	8.473891	8.473962	8.474033	8.474103	8.474174	8.474244	8.474315	30	
	30	8.474386	8.474456	8.474527	8.474597	8.474668	8.474739	8.474809	8.474880	8.474950	8.475021	20	
	40	8.475091	8.475162	8.475232	8.475302	8.475373	8.475443	8.475514	8.475584	8.475655	8.475725	10	
	50	8.475795	8.475866	8.475936	8.476006	8.476077	8.476147	8.476217	8.476288	8.476358	8.476428	0	
43	0	8.476498	8.476569	8.476639	8.476709	8.476779	8.476850	8.476920	8.476990	8.477060	8.477130	50	
	10	8.477200	8.477271	8.477341	8.477411	8.477481	8.477551	8.477621	8.477691	8.477761	8.477831	40	
	20	8.477901	8.477971	8.478041	8.478111	8.478181	8.478251	8.478321	8.478391	8.478461	8.478531	30	
	30	8.478601	8.478671	8.478741	8.478811	8.478880	8.478950	8.479020	8.479090	8.479160	8.479230	20	
	40	8.479299	8.479369	8.479439	8.479509	8.479579	8.479648	8.479718	8.479788	8.479858	8.479927	10	
	50	8.479997	8.480067	8.480136	8.480206	8.480276	8.480345	8.480415	8.480484	8.480554	8.480624	0	
44	0	8.480693	8.480763	8.480832	8.480902	8.480971	8.481041	8.481111	8.481180	8.481250	8.481319	50	
	10	8.481388	8.481458	8.481527	8.481597	8.481666	8.481736	8.481805	8.481874	8.481944	8.482015	40	
	20	8.482083	8.482152	8.482221	8.482291	8.482360	8.482429	8.482499	8.482568	8.482637	8.482706	30	
	30	8.482776	8.482845	8.482914	8.482983	8.483052	8.483122	8.483191	8.483260	8.483329	8.483398	20	
	40	8.483467	8.483537	8.483606	8.483675	8.483744	8.483813	8.483882	8.483951	8.484020	8.484089	10	
	50	8.484158	8.484227	8.484296	8.484365	8.484434	8.484503	8.484572	8.484641	8.484710	8.484779	0	
45	0	8.484848	8.484917	8.484986	8.485055	8.485124	8.485192	8.485261	8.485330	8.485399	8.485468	50	
	10	8.485537	8.485605	8.485674	8.485743	8.485812	8.485880	8.485949	8.486018	8.486087	8.486155	40	
	20	8.486224	8.486293	8.486361	8.486430	8.486499	8.486567	8.486636	8.486705	8.486773	8.486842	30	
	30	8.486910	8.486979	8.487048	8.487116	8.487185	8.487253	8.487322	8.487390	8.487459	8.487527	20	
	40	8.487596	8.487664	8.487733	8.487801	8.487870	8.487938	8.488006	8.488075	8.488143	8.488212	10	
	50	8.488280	8.488348	8.488417	8.488485	8.488553	8.488622	8.488690	8.488758	8.488827	8.488895	0	
46	0	8.488963	8.489031	8.489100	8.489168	8.489236	8.489304	8.489373	8.489441	8.489509	8.489577	50	
	10	8.489645	8.489713	8.489782	8.489850	8.489918	8.489986	8.490054	8.490122	8.490190	8.490258	40	
	20	8.490326	8.490394	8.490462	8.490530	8.490598	8.490666	8.490734	8.490802	8.490870	8.490938	30	
	30	8.491006	8.491074	8.491142	8.491210	8.491278	8.491346	8.491414	8.491482	8.491550	8.491617	20	
	40	8.491685	8.491753	8.491821	8.491889	8.491956	8.492024	8.492092	8.492160	8.492228	8.492295	10	
	50	8.492363	8.492431	8.492498	8.492566	8.492634	8.492702	8.492769	8.492837	8.492905	8.492972	0	
47	0	8.493040	8.493107	8.493175	8.493243	8.493310	8.493378	8.493445	8.493513	8.493580	8.493648	50	
	10	8.493716	8.493783	8.493851	8.493918	8.493986	8.494053	8.494120	8.494188	8.494255	8.494323	40	
	20	8.494390	8.494458	8.494525	8.494592	8.494660	8.494727	8.494795	8.494862	8.494929	8.494997	30	
	30	8.495064	8.495131	8.495198	8.495266	8.495333	8.495400	8.495468	8.495535	8.495602	8.495669	20	
	40	8.495736	8.495804	8.495871	8.495938	8.496005	8.496072	8.496139	8.496207	8.496274	8.496341	10	
	50	8.496408	8.496475	8.496542	8.496609	8.496676	8.496743	8.496810	8.496877	8.496944	8.497011	0	
48	0	8.497078	8.497145	8.497212	8.497279	8.497346	8.497413	8.497480	8.497547	8.497614	8.497681	50	
	10	8.497748	8.497815	8.497882	8.497949	8.498015	8.498082	8.498149	8.498216	8.498283	8.498350	40	
	20	8.498416	8.498483	8.498550	8.498617	8.498683	8.498750	8.498817	8.498884	8.498950	8.499017	30	
	30	8.499084	8.499150	8.499217	8.499284	8.499350	8.499417	8.499484	8.499550	8.499617	8.499683	20	
	40	8.499750	8.499817	8.499883	8.499950	8.500016	8.500083	8.500150	8.500216	8.500283	8.500349	10	
	50	8.500416	8.500482	8.500549	8.500615	8.500681	8.500748	8.500814	8.500881	8.500947	8.501014	0	
49	0	8.501080	8.501146	8.501213	8.501279	8.501345	8.501412	8.501478	8.501544	8.501611	8.501677	50	
	10	8.501743	8.501810	8.501876	8.501942	8.502008	8.502075	8.502141	8.502207	8.502273	8.502339	40	
	20	8.502406	8.502472	8.502538	8.502604	8.502670	8.502736	8.502802	8.502869	8.502935	8.503001	30	
	30	8.503067	8.503133	8.503199	8.503265	8.503331	8.503397	8.503463	8.503529	8.503595	8.503661	20	
	40	8.503727	8.503793	8.503859	8.503925	8.503991	8.504057	8.504123	8.504189	8.504255	8.504321	10	
	50	8.504386	8.504452	8.504518	8.504584	8.504650	8.504716	8.504782	8.504847	8.504913	8.504979	0	
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″		
		Co-sine of 88 degrees, or Sine of 178 degrees.											

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 1 degree, or Co-sine of 91 degrees.											
50	0	8.505045	8.505111	8.505176	8.505242	8.505308	8.505374	8.505439	8.505505	8.505571	8.505636	50	
	10	8.505702	8.505768	8.505833	8.505899	8.505965	8.506030	8.506096	8.506162	8.506227	8.506293	40	
	20	8.506358	8.506424	8.506489	8.506555	8.506621	8.506686	8.506752	8.506817	8.506883	8.506948	30	
	30	8.507014	8.507079	8.507145	8.507210	8.507276	8.507341	8.507406	8.507472	8.507537	8.507603	20	
	40	8.507668	8.507733	8.507799	8.507864	8.507929	8.507995	8.508060	8.508125	8.508191	8.508256	10	
	50	8.508321	8.508387	8.508452	8.508517	8.508582	8.508648	8.508713	8.508778	8.508843	8.508908	0	9
51	0	8.508974	8.509039	8.509104	8.509169	8.509234	8.509299	8.509365	8.509430	8.509495	8.509560	50	
	10	8.509625	8.509690	8.509755	8.509820	8.509885	8.509950	8.510015	8.510080	8.510145	8.510210	40	
	20	8.510275	8.510340	8.510405	8.510470	8.510535	8.510600	8.510665	8.510730	8.510795	8.510860	30	
	30	8.510925	8.510990	8.511055	8.511120	8.511184	8.511249	8.511314	8.511379	8.511444	8.511509	20	
	40	8.511573	8.511638	8.511703	8.511768	8.511832	8.511897	8.511962	8.512027	8.512091	8.512156	10	
	50	8.512221	8.512286	8.512350	8.512415	8.512480	8.512544	8.512609	8.512674	8.512738	8.512803	0	8
52	0	8.512867	8.512932	8.512997	8.513061	8.513126	8.513190	8.513255	8.513319	8.513384	8.513448	50	
	10	8.513513	8.513577	8.513642	8.513706	8.513771	8.513835	8.513900	8.513964	8.514029	8.514093	40	
	20	8.514158	8.514222	8.514286	8.514351	8.514415	8.514479	8.514544	8.514608	8.514673	8.514737	30	
	30	8.514801	8.514865	8.514930	8.514994	8.515058	8.515123	8.515187	8.515251	8.515315	8.515380	20	
	40	8.515444	8.515508	8.515572	8.515636	8.515701	8.515765	8.515829	8.515893	8.515957	8.516021	10	
	50	8.516086	8.516150	8.516214	8.516278	8.516342	8.516406	8.516470	8.516534	8.516598	8.516662	0	7
53	0	8.516726	8.516790	8.516854	8.516918	8.516982	8.517046	8.517110	8.517174	8.517238	8.517302	50	
	10	8.517366	8.517430	8.517494	8.517558	8.517622	8.517686	8.517750	8.517814	8.517877	8.517941	40	
	20	8.518005	8.518069	8.518133	8.518197	8.518260	8.518324	8.518388	8.518452	8.518516	8.518579	30	
	30	8.518643	8.518707	8.518771	8.518834	8.518898	8.518962	8.519025	8.519089	8.519153	8.519216	20	
	40	8.519280	8.519344	8.519407	8.519471	8.519535	8.519598	8.519662	8.519726	8.519789	8.519853	10	
	50	8.519916	8.519980	8.520043	8.520107	8.520170	8.520234	8.520297	8.520361	8.520424	8.520488	0	6
54	0	8.520551	8.520615	8.520678	8.520742	8.520805	8.520869	8.520932	8.520995	8.521059	8.521122	50	
	10	8.521186	8.521249	8.521312	8.521376	8.521439	8.521502	8.521566	8.521629	8.521692	8.521756	40	
	20	8.521819	8.521882	8.521946	8.522009	8.522072	8.522135	8.522199	8.522262	8.522325	8.522388	30	
	30	8.522451	8.522515	8.522578	8.522641	8.522704	8.522767	8.522830	8.522893	8.522957	8.523020	20	
	40	8.523083	8.523146	8.523209	8.523272	8.523335	8.523398	8.523461	8.523524	8.523587	8.523650	10	
	50	8.523713	8.523776	8.523839	8.523902	8.523965	8.524028	8.524091	8.524154	8.524217	8.524280	0	5
55	0	8.524343	8.524406	8.524469	8.524532	8.524595	8.524657	8.524720	8.524783	8.524846	8.524909	50	
	10	8.524972	8.525035	8.525097	8.525160	8.525223	8.525286	8.525349	8.525411	8.525474	8.525537	40	
	20	8.525600	8.525662	8.525725	8.525788	8.525850	8.525913	8.525976	8.526038	8.526101	8.526164	30	
	30	8.526226	8.526289	8.526352	8.526414	8.526477	8.526540	8.526602	8.526665	8.526727	8.526790	20	
	40	8.526852	8.526915	8.526978	8.527040	8.527103	8.527165	8.527228	8.527290	8.527353	8.527415	10	
	50	8.527478	8.527540	8.527602	8.527665	8.527727	8.527790	8.527852	8.527915	8.527977	8.528039	0	4
56	0	8.528102	8.528164	8.528226	8.528289	8.528351	8.528414	8.528476	8.528538	8.528600	8.528663	50	
	10	8.528725	8.528787	8.528850	8.528912	8.528974	8.529036	8.529099	8.529161	8.529223	8.529285	40	
	20	8.529347	8.529410	8.529472	8.529534	8.529596	8.529658	8.529720	8.529783	8.529845	8.529907	30	
	30	8.529969	8.530031	8.530093	8.530155	8.530217	8.530279	8.530341	8.530403	8.530466	8.530528	20	
	40	8.530590	8.530652	8.530714	8.530776	8.530838	8.530900	8.530962	8.531024	8.531085	8.531147	10	
	50	8.531209	8.531271	8.531333	8.531395	8.531457	8.531519	8.531581	8.531643	8.531704	8.531766	0	3
57	0	8.531828	8.531890	8.531952	8.532014	8.532075	8.532137	8.532199	8.532261	8.532323	8.532384	50	
	10	8.532446	8.532508	8.532570	8.532631	8.532693	8.532755	8.532817	8.532878	8.532940	8.533002	40	
	20	8.533063	8.533125	8.533187	8.533248	8.533310	8.533371	8.533433	8.533495	8.533556	8.533618	30	
	30	8.533679	8.533741	8.533803	8.533864	8.533926	8.533987	8.534049	8.534110	8.534172	8.534233	20	
	40	8.534295	8.534356	8.534418	8.534479	8.534541	8.534602	8.534664	8.534725	8.534786	8.534848	10	
	50	8.534909	8.534971	8.535032	8.535093	8.535155	8.535216	8.535278	8.535339	8.535400	8.535462	0	2
58	0	8.535523	8.535584	8.535646	8.535707	8.535768	8.535829	8.535891	8.535952	8.536013	8.536074	50	
	10	8.536136	8.536197	8.536258	8.536319	8.536380	8.536442	8.536503	8.536564	8.536625	8.536686	40	
	20	8.536747	8.536809	8.536870	8.536931	8.536992	8.537053	8.537114	8.537175	8.537236	8.537297	30	
	30	8.537359	8.537420	8.537481	8.537542	8.537603	8.537664	8.537725	8.537786	8.537847	8.537908	20	
	40	8.537969	8.538030	8.538091	8.538152	8.538212	8.538273	8.538334	8.538395	8.538456	8.538517	10	
	50	8.538578	8.538639	8.538700	8.538761	8.538821	8.538882	8.538943	8.539004	8.539065	8.539126	0	1
59	0	8.539186	8.539247	8.539308	8.539369	8.539430	8.539490	8.539551	8.539612	8.539673	8.539733	50	
	10	8.539794	8.539855	8.539915	8.539976	8.540037	8.540097	8.540158	8.540219	8.540279	8.540340	40	
	20	8.540401	8.540461	8.540522	8.540583	8.540643	8.540704	8.540764	8.540825	8.540885	8.540946	30	
	30	8.541007	8.541067	8.541128	8.541188	8.541249	8.541309	8.541370	8.541430	8.541491	8.541551	20	
	40	8.541612	8.541672	8.541733	8.541793	8.541853	8.541914	8.541974	8.542035	8.542095	8.542155	10	
	50	8.542216	8.542276	8.542337	8.542397	8.542457	8.542518	8.542578	8.542638	8.542699	8.542759	0	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-sine of 88 degrees, or Sine of 178 degrees.											

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.542819	8.543120	8.543422	45		1″=60
	15	8.543723	8.544023	8.544324	30		2. 120
	30	8.544624	8.544924	8.545224	15		3. 180
	45	8.545524	8.545823	8.546123	0	59	4. 240
1	0	8.546422	8.546721	8.547019	45		1= 60
	15	8.547318	8.547616	8.547914	30		2. 119
	30	8.548212	8.548510	8.548807	15		3. 179
	45	8.549104	8.549401	8.549698	0	58	4. 238
2	0	8.549995	8.550291	8.550587	45		1= 59
	15	8.550883	8.551179	8.551475	30		2. 118
	30	8.551770	8.552066	8.552361	15		3. 177
	45	8.552655	8.552950	8.553244	0	57	4. 236
3	0	8.553539	8.553833	8.554126	45		1= 59
	15	8.554420	8.554713	8.555007	30		2. 117
	30	8.555300	8.555593	8.555885	15		3. 176
	45	8.556177	8.556470	8.556762	0	56	4. 234
4	0	8.557054	8.557345	8.557637	45		1= 58
	15	8.557928	8.558219	8.558510	30		2. 116
	30	8.558801	8.559091	8.559381	15		3. 174
	45	8.559671	8.559961	8.560251	0	55	4. 232
5	0	8.560540	8.560830	8.561119	45		1= 58
	15	8.561408	8.561697	8.561985	30		2. 115
	30	8.562273	8.562561	8.562850	15		3. 173
	45	8.563137	8.563425	8.563712	0	54	4. 230
6	0	8.563999	8.564286	8.564573	45		1= 57
	15	8.564860	8.565146	8.565433	30		2. 114
	30	8.565719	8.566005	8.566290	15		3. 171
	45	8.566576	8.566861	8.567146	0	53	4. 229
7	0	8.567431	8.567716	8.568000	45		1= 57
	15	8.568285	8.568569	8.568853	30		2. 113
	30	8.569137	8.569420	8.569704	15		3. 170
	45	8.569987	8.570270	8.570553	0	52	4. 227
8	0	8.570836	8.571118	8.571401	45		1= 56
	15	8.571683	8.571965	8.572247	30		2. 113
	30	8.572528	8.572810	8.573091	15		3. 169
	45	8.573372	8.573653	8.573933	0	51	4. 225
9	0	8.574214	8.574494	8.574774	45		1= 56
	15	8.575054	8.575334	8.575614	30		2. 112
	30	8.575893	8.576172	8.576452	15		3. 167
	45	8.576730	8.577009	8.577288	0	50	4. 223
10	0	8.577566	8.577844	8.578122	45		1= 55
	15	8.578400	8.578678	8.578955	30		2. 111
	30	8.579232	8.579509	8.579786	15		3. 166
	45	8.580063	8.580340	8.580616	0	49	4. 222
11	0	8.580892	8.581168	8.581444	45		1= 55
	15	8.581720	8.581995	8.582271	30		2. 110
	30	8.582546	8.582821	8.583096	15		3. 165
	45	8.583370	8.583645	8.583919	0	48	4. 220
12	0	8.584193	8.584467	8.584741	45		1= 55
	15	8.585015	8.585288	8.585561	30		2. 109
	30	8.585835	8.586107	8.586380	15		3. 164
	45	8.586653	8.586925	8.587197	0	47	4. 218
13	0	8.587469	8.587741	8.588013	45		1= 54
	15	8.588285	8.588556	8.588827	30		2. 108
	30	8.589098	8.589369	8.589640	15		3. 162
	45	8.589910	8.590181	8.590451	0	46	4. 217
14	0	8.590721	8.590991	8.591261	45		1= 54
	15	8.591530	8.591799	8.592069	30		2. 108
	30	8.592338	8.592607	8.592875	15		3. 161
	45	8.593144	8.593412	8.593680	0	45	4. 215
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.593948	8.594216	8.594484	45		1″=59
	15	8.594751	8.595019	8.595286	30		2. 107
	30	8.595553	8.595820	8.596087	15		3. 161
	45	8.596353	8.596620	8.596886	0	44	4. 215
16	0	8.597152	8.597418	8.597683	45		1= 59
	15	8.597949	8.598214	8.598480	30		2. 106
	30	8.598745	8.599010	8.599274	15		3. 159
	45	8.599539	8.599803	8.600068	0	43	4. 212
17	0	8.600332	8.600596	8.600860	45		1= 59
	15	8.601123	8.601387	8.601650	30		2. 106
	30	8.601913	8.602176	8.602439	15		3. 159
	45	8.602702	8.602964	8.603226	0	42	4. 212
18	0	8.603489	8.603751	8.604013	45		1= 59
	15	8.604274	8.604536	8.604797	30		2. 106
	30	8.605058	8.605319	8.605580	15		3. 159
	45	8.605841	8.606102	8.606362	0	41	4. 209
19	0	8.606623	8.606883	8.607143	45		1= 59
	15	8.607403	8.607662	8.607922	30		2. 106
	30	8.608181	8.608440	8.608699	15		3. 159
	45	8.608958	8.609217	8.609476	0	40	4. 209
20	0	8.609734	8.609992	8.610251	45		1= 59
	15	8.610509	8.610766	8.611024	30		2. 106
	30	8.611282	8.611539	8.611796	15		3. 159
	45	8.612053	8.612310	8.612567	0	39	4. 209
21	0	8.612824	8.613080	8.613336	45		1= 59
	15	8.613592	8.613848	8.614104	30		2. 106
	30	8.614360	8.614616	8.614871	15		3. 159
	45	8.615126	8.615381	8.615636	0	38	4. 209
22	0	8.615891	8.616146	8.616400	45		1= 59
	15	8.616655	8.616909	8.617163	30		2. 106
	30	8.617417	8.617670	8.617924	15		3. 159
	45	8.618177	8.618431	8.618684	0	37	4. 209
23	0	8.618937	8.619190	8.619443	45		1= 59
	15	8.619695	8.619948	8.620200	30		2. 106
	30	8.620452	8.620704	8.620956	15		3. 159
	45	8.621207	8.621459	8.621710	0	36	4. 209
24	0	8.621962	8.622213	8.622464	45		1= 59
	15	8.622715	8.622965	8.623216	30		2. 106
	30	8.623466	8.623716	8.623966	15		3. 159
	45	8.624216	8.624466	8.624716	0	35	4. 209
25	0	8.624965	8.625215	8.625464	45		1= 59
	15	8.625713	8.625962	8.626211	30		2. 106
	30	8.626459	8.626708	8.626956	15		3. 159
	45	8.627205	8.627453	8.627701	0	34	4. 209
26	0	8.627948	8.628196	8.628444	45		1= 59
	15	8.628691	8.628938	8.629185	30		2. 106
	30	8.629432	8.629679	8.629926	15		3. 159
	45	8.630172	8.630419	8.630665	0	33	4. 209
27	0	8.630911	8.631157	8.631403	45		1= 59
	15	8.631649	8.631894	8.632140	30		2. 106
	30	8.632385	8.632630	8.632875	15		3. 159
	45	8.633120	8.633365	8.633609	0	32	4. 209
28	0	8.633854	8.634098	8.634342	45		1= 59
	15	8.634586	8.634830	8.635074	30		2. 106
	30	8.635318	8.635561	8.635804	15		3. 159
	45	8.636048	8.636291	8.636534	0	31	4. 209
29	0	8.636776	8.637019	8.637262	45		1= 59
	15	8.637504	8.637746	8.637988	30		2. 106
	30	8.638230	8.638472	8.638714	15		3. 159
	45	8.638956	8.639197	8.639438	0	30	4. 209
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.639680	8.639921	8.640162	45		1″=48
	15	8.640402	8.640643	8.640884	30		2. 96
	30	8.641124	8.641364	8.641604	15		3. 145
	45	8.641844	8.642084	8.642324	0	29	4. 193
31	0	8.642563	8.642803	8.643042	45		1= 48
	15	8.643281	8.643520	8.643759	30		2. 95
	30	8.643998	8.644237	8.644475	15		3. 143
	45	8.644714	8.644952	8.645190	0	28	4. 191
32	0	8.645428	8.645666	8.645904	45		1= 47
	15	8.646141	8.646379	8.646616	30		2. 95
	30	8.646854	8.647091	8.647328	15		3. 142
	45	8.647564	8.647801	8.648038	0	27	4. 190
33	0	8.648274	8.648511	8.648747	45		1= 47
	15	8.648983	8.649219	8.649455	30		2. 94
	30	8.649690	8.649926	8.650161	15		3. 141
	45	8.650396	8.650632	8.650867	0	26	4. 188
34	0	8.651102	8.651336	8.651571	45		1= 47
	15	8.651806	8.652040	8.652274	30		2. 94
	30	8.652508	8.652742	8.652976	15		3. 140
	45	8.653210	8.653444	8.653677	0	25	4. 187
35	0	8.653911	8.654144	8.654377	45		1= 46
	15	8.654610	8.654843	8.655076	30		2. 93
	30	8.655308	8.655541	8.655773	15		3. 139
	45	8.656006	8.656238	8.656470	0	24	4. 186
36	0	8.656702	8.656933	8.657165	45		1= 46
	15	8.657397	8.657628	8.657859	30		2. 92
	30	8.658090	8.658321	8.658552	15		3. 139
	45	8.658783	8.659014	8.659244	0	23	4. 185
37	0	8.659475	8.659705	8.659935	45		1= 46
	15	8.660165	8.660395	8.660625	30		2. 92
	30	8.660855	8.661084	8.661314	15		3. 138
	45	8.661543	8.661772	8.662001	0	22	4. 184
38	0	8.662230	8.662459	8.662688	45		1= 46
	15	8.662916	8.663145	8.663373	30		2. 91
	30	8.663602	8.663830	8.664058	15		3. 137
	45	8.664286	8.664513	8.664741	0	21	4. 182
39	0	8.664968	8.665196	8.665423	45		1= 45
	15	8.665650	8.665877	8.666104	30		2. 91
	30	8.666331	8.666558	8.666784	15		3. 136
	45	8.667011	8.667237	8.667463	0	20	4. 181
40	0	8.667689	8.667915	8.668141	45		1= 45
	15	8.668367	8.668593	8.668818	30		2. 90
	30	8.669043	8.669269	8.669494	15		3. 135
	45	8.669719	8.669944	8.670169	0	19	4. 180
41	0	8.670393	8.670618	8.670842	45		1= 45
	15	8.671067	8.671291	8.671515	30		2. 90
	30	8.671739	8.671963	8.672187	15		3. 134
	45	8.672410	8.672634	8.672857	0	18	4. 179
42	0	8.673080	8.673304	8.673527	45		1= 44
	15	8.673750	8.673972	8.674195	30		2. 89
	30	8.674418	8.674640	8.674863	15		3. 133
	45	8.675085	8.675307	8.675529	0	17	4. 178
43	0	8.675751	8.675973	8.676195	45		1= 44
	15	8.676416	8.676638	8.676859	30		2. 88
	30	8.677080	8.677301	8.677522	15		3. 133
	45	8.677743	8.677964	8.678185	0	16	4. 177
44	0	8.678405	8.678626	8.678846	45		1= 44
	15	8.679066	8.679286	8.679506	30		2. 88
	30	8.679726	8.679946	8.680166	15		3. 132
	45	8.680385	8.680605	8.680824	0	15	4. 176
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.681043	8.681262	8.681481	45		1″=44
	15	8.681700	8.681919	8.682138	30		2. 87
	30	8.682356	8.682575	8.682793	15		3. 131
	45	8.683011	8.683230	8.683448	0	14	4. 175
46	0	8.683665	8.683883	8.684101	45		1= 43
	15	8.684319	8.684536	8.684753	30		2. 87
	30	8.684971	8.685188	8.685405	15		3. 130
	45	8.685622	8.685839	8.686055	0	13	4. 174
47	0	8.686272	8.686488	8.686705	45		1= 43
	15	8.686921	8.687137	8.687353	30		2. 86
	30	8.687569	8.687785	8.688001	15		3. 129
	45	8.688216	8.688432	8.688647	0	12	4. 173
48	0	8.688863	8.689078	8.689293	45		1= 43
	15	8.689508	8.689723	8.689937	30		2. 86
	30	8.690152	8.690367	8.690581	15		3. 129
	45	8.690796	8.691010	8.691224	0	11	4. 172
49	0	8.691438	8.691652	8.691866	45		1= 43
	15	8.692079	8.692293	8.692506	30		2. 85
	30	8.692720	8.692933	8.693146	15		3. 128
	45	8.693359	8.693572	8.693785	0	10	4. 171
50	0	8.693998	8.694211	8.694423	45		1= 42
	15	8.694636	8.694848	8.695060	30		2. 85
	30	8.695272	8.695484	8.695696	15		3. 127
	45	8.695908	8.696120	8.696332	0	9	4. 170
51	0	8.696543	8.696755	8.696966	45		1= 42
	15	8.697177	8.697388	8.697599	30		2. 84
	30	8.697810	8.698021	8.698232	15		3. 126
	45	8.698442	8.698653	8.698863	0	8	4. 169
52	0	8.699073	8.699284	8.699494	45		1= 42
	15	8.699704	8.699914	8.700123	30		2. 84
	30	8.700333	8.700543	8.700752	15		3. 126
	45	8.700961	8.701171	8.701380	0	7	4. 168
53	0	8.701589	8.701798	8.702007	45		1= 42
	15	8.702216	8.702424	8.702633	30		2. 83
	30	8.702841	8.703050	8.703258	15		3. 125
	45	8.703466	8.703674	8.703882	0	6	4. 167
54	0	8.704090	8.704298	8.704505	45		1= 41
	15	8.704713	8.704920	8.705128	30		2. 83
	30	8.705335	8.705542	8.705749	15		3. 124
	45	8.705956	8.706163	8.706370	0	5	4. 166
55	0	8.706577	8.706783	8.706990	45		1= 41
	15	8.707196	8.707402	8.707609	30		2. 82
	30	8.707815	8.708021	8.708227	15		3. 124
	45	8.708432	8.708638	8.708844	0	4	4. 165
56	0	8.709049	8.709255	8.709460	45		1= 41
	15	8.709665	8.709870	8.710075	30		2. 82
	30	8.710280	8.710485	8.710690	15		3. 123
	45	8.710894	8.711099	8.711303	0	3	4. 164
57	0	8.711508	8.711712	8.711916	45		1= 41
	15	8.712120	8.712324	8.712528	30		2. 81
	30	8.712732	8.712935	8.713139	15		3. 122
	45	8.713342	8.713546	8.713749	0	2	4. 163
58	0	8.713952	8.714155	8.714358	45		1= 40
	15	8.714561	8.714764	8.714967	30		2. 81
	30	8.715169	8.715372	8.715574	15		3. 121
	45	8.715777	8.715979	8.716181	0	1	4. 162
59	0	8.716383	8.716585	8.716787	45		1= 40
	15	8.716989	8.717190	8.717392	30		2. 81
	30	8.717593	8.717795	8.717996	15		3. 121
	45	8.718197	8.718398	8.718599	0	0	4. 161
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Sine of 0 degree, or Co-sine of 90 degrees.										
40	0	8.065776	8.065957	8.066138	8.066319	8.066500	8.066680	8.066861	8.067041	8.067222	8.067402	50
	10	8.067582	8.067762	8.067942	8.068122	8.068302	8.068482	8.068662	8.068842	8.069021	8.069201	40
	20	8.069380	8.069560	8.069739	8.069918	8.070098	8.070277	8.070456	8.070635	8.070814	8.070992	30
	30	8.071171	8.071350	8.071528	8.071707	8.071885	8.072064	8.072242	8.072420	8.072599	8.072777	20
	40	8.072955	8.073133	8.073310	8.073488	8.073666	8.073844	8.074021	8.074199	8.074376	8.074553	10
	50	8.074731	8.074908	8.075085	8.075262	8.075439	8.075616	8.075793	8.075970	8.076147	8.076323	0
41	0	8.076500	8.076676	8.076853	8.077029	8.077205	8.077382	8.077558	8.077734	8.077910	8.078086	50
	10	8.078261	8.078437	8.078613	8.078789	8.078964	8.079140	8.079315	8.079490	8.079666	8.079841	40
	20	8.080016	8.080191	8.080366	8.080541	8.080716	8.080891	8.081066	8.081240	8.081415	8.081589	30
	30	8.081764	8.081938	8.082112	8.082287	8.082461	8.082635	8.082809	8.082983	8.083157	8.083331	20
	40	8.083504	8.083678	8.083852	8.084025	8.084199	8.084372	8.084545	8.084719	8.084892	8.085065	10
	50	8.085238	8.085411	8.085584	8.085757	8.085929	8.086102	8.086275	8.086447	8.086620	8.086792	0
42	0	8.086965	8.087137	8.087309	8.087481	8.087653	8.087825	8.087997	8.088169	8.088341	8.088513	50
	10	8.088685	8.088856	8.089028	8.089199	8.089371	8.089542	8.089713	8.089884	8.090056	8.090227	40
	20	8.090398	8.090569	8.090739	8.090910	8.091081	8.091252	8.091422	8.091593	8.091763	8.091934	30
	30	8.092104	8.092274	8.092445	8.092615	8.092785	8.092955	8.093125	8.093295	8.093464	8.093634	20
	40	8.093804	8.093973	8.094143	8.094312	8.094482	8.094651	8.094820	8.094990	8.095159	8.095328	10
	50	8.095497	8.095666	8.095835	8.096003	8.096172	8.096341	8.096509	8.096678	8.096847	8.097015	0
43	0	8.097183	8.097352	8.097520	8.097688	8.097856	8.098024	8.098192	8.098360	8.098528	8.098696	50
	10	8.098863	8.099031	8.099198	8.099366	8.099533	8.099701	8.099868	8.100035	8.100203	8.100370	40
	20	8.100537	8.100704	8.100871	8.101038	8.101204	8.101371	8.101538	8.101704	8.101871	8.102037	30
	30	8.102204	8.102370	8.102536	8.102703	8.102869	8.103035	8.103201	8.103367	8.103533	8.103699	20
	40	8.103865	8.104030	8.104196	8.104362	8.104527	8.104693	8.104858	8.105023	8.105189	8.105354	10
	50	8.105519	8.105684	8.105849	8.106014	8.106179	8.106344	8.106509	8.106673	8.106838	8.107002	0
44	0	8.107167	8.107331	8.107496	8.107660	8.107824	8.107989	8.108153	8.108317	8.108481	8.108645	50
	10	8.108809	8.108973	8.109136	8.109300	8.109464	8.109627	8.109791	8.109954	8.110118	8.110281	40
	20	8.110445	8.110608	8.110771	8.110934	8.111097	8.111260	8.111423	8.111586	8.111749	8.111911	30
	30	8.112074	8.112237	8.112399	8.112562	8.112724	8.112887	8.113049	8.113211	8.113373	8.113535	20
	40	8.113697	8.113860	8.114021	8.114183	8.114345	8.114507	8.114669	8.114830	8.114992	8.115153	10
	50	8.115315	8.115476	8.115638	8.115799	8.115960	8.116121	8.116282	8.116443	8.116604	8.116765	0
45	0	8.116926	8.117087	8.117248	8.117409	8.117569	8.117730	8.117890	8.118051	8.118211	8.118371	50
	10	8.118532	8.118692	8.118852	8.119012	8.119172	8.119332	8.119492	8.119652	8.119812	8.119972	40
	20	8.120131	8.120291	8.120450	8.120610	8.120769	8.120929	8.121088	8.121247	8.121407	8.121566	30
	30	8.121725	8.121884	8.122043	8.122202	8.122361	8.122520	8.122678	8.122837	8.122996	8.123154	20
	40	8.123313	8.123471	8.123630	8.123788	8.123946	8.124104	8.124263	8.124421	8.124579	8.124737	10
	50	8.124895	8.125053	8.125210	8.125368	8.125526	8.125684	8.125841	8.125999	8.126156	8.126314	0
46	0	8.126471	8.126628	8.126786	8.126943	8.127100	8.127257	8.127414	8.127571	8.127728	8.127885	50
	10	8.128042	8.128198	8.128355	8.128512	8.128668	8.128825	8.128981	8.129138	8.129294	8.129450	40
	20	8.129607	8.129763	8.129919	8.130075	8.130231	8.130387	8.130543	8.130699	8.130854	8.131010	30
	30	8.131166	8.131322	8.131477	8.131633	8.131788	8.131943	8.132099	8.132254	8.132409	8.132564	20
	40	8.132720	8.132875	8.133030	8.133185	8.133340	8.133494	8.133649	8.133804	8.133959	8.134113	10
	50	8.134268	8.134422	8.134577	8.134731	8.134886	8.135040	8.135194	8.135348	8.135502	8.135656	0
47	0	8.135810	8.135964	8.136118	8.136272	8.136426	8.136580	8.136733	8.136887	8.137041	8.137194	50
	10	8.137348	8.137501	8.137655	8.137808	8.137961	8.138114	8.138267	8.138421	8.138574	8.138727	40
	20	8.138880	8.139032	8.139185	8.139338	8.139491	8.139643	8.139796	8.139949	8.140101	8.140254	30
	30	8.140406	8.140558	8.140711	8.140863	8.141015	8.141167	8.141319	8.141471	8.141623	8.141775	20
	40	8.141927	8.142079	8.142231	8.142382	8.142534	8.142686	8.142837	8.142989	8.143140	8.143291	10
	50	8.143443	8.143594	8.143745	8.143896	8.144048	8.144199	8.144350	8.144501	8.144652	8.144802	0
48	0	8.144953	8.145104	8.145255	8.145405	8.145556	8.145707	8.145857	8.146008	8.146158	8.146308	50
	10	8.146459	8.146609	8.146759	8.146909	8.147059	8.147209	8.147359	8.147509	8.147659	8.147809	40
	20	8.147959	8.148108	8.148258	8.148408	8.148557	8.148707	8.148856	8.149006	8.149155	8.149304	30
	30	8.149453	8.149603	8.149752	8.149901	8.150050	8.150199	8.150348	8.150497	8.150646	8.150795	20
	40	8.150943	8.151092	8.151241	8.151389	8.151538	8.151686	8.151835	8.151983	8.152131	8.152280	10
	50	8.152428	8.152576	8.152724	8.152872	8.153020	8.153168	8.153316	8.153464	8.153612	8.153760	0
49	0	8.153908	8.154055	8.154203	8.154350	8.154498	8.154645	8.154793	8.154940	8.155088	8.155235	50
	10	8.155382	8.155529	8.155676	8.155824	8.155971	8.156118	8.156264	8.156411	8.156558	8.156705	40
	20	8.156852	8.156998	8.157145	8.157292	8.157438	8.157585	8.157731	8.157877	8.158024	8.158170	30
	30	8.158316	8.158463	8.158609	8.158755	8.158901	8.159047	8.159193	8.159339	8.159485	8.159630	20
	40	8.159776	8.159922	8.160067	8.160213	8.160359	8.160504	8.160650	8.160795	8.160940	8.161086	10
	50	8.161231	8.161376	8.161521	8.161666	8.161811	8.161956	8.162101	8.162246	8.162391	8.162536	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-sine of 89 degrees, or Sine of 179 degrees.										

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 0 degree, or Co-sine of 90 degrees.											
50	0	8.162681	8.162826	8.162970	8.163115	8.163259	8.163404	8.163549	8.163693	8.163837	8.163982	50	
	10	8.164126	8.164270	8.164414	8.164559	8.164703	8.164847	8.164991	8.165135	8.165279	8.165423	40	
	20	8.165566	8.165710	8.165854	8.165998	8.166141	8.166285	8.166428	8.166572	8.166715	8.166859	30	
	30	8.167002	8.167145	8.167288	8.167432	8.167575	8.167718	8.167861	8.168004	8.168147	8.168290	20	
	40	8.168433	8.168576	8.168718	8.168861	8.169004	8.169146	8.169289	8.169432	8.169574	8.169717	10	
	50	8.169859	8.170001	8.170144	8.170286	8.170428	8.170570	8.170712	8.170854	8.170996	8.171138	0	9
51	0	8.171280	8.171422	8.171564	8.171706	8.171848	8.171989	8.172131	8.172273	8.172414	8.172556	50	
	10	8.172697	8.172839	8.172980	8.173121	8.173263	8.173404	8.173545	8.173686	8.173827	8.173968	40	
	20	8.174109	8.174250	8.174391	8.174532	8.174673	8.174814	8.174955	8.175095	8.175236	8.175377	30	
	30	8.175517	8.175658	8.175798	8.175939	8.176079	8.176219	8.176360	8.176500	8.176640	8.176780	20	
	40	8.176920	8.177060	8.177200	8.177340	8.177480	8.177620	8.177760	8.177900	8.178039	8.178179	10	
	50	8.178319	8.178458	8.178598	8.178738	8.178877	8.179016	8.179156	8.179295	8.179434	8.179574	0	8
52	0	8.179713	8.179852	8.179991	8.180130	8.180269	8.180408	8.180547	8.180686	8.180825	8.180964	50	
	10	8.181103	8.181241	8.181380	8.181519	8.181657	8.181796	8.181934	8.182073	8.182211	8.182349	40	
	20	8.182488	8.182626	8.182764	8.182902	8.183041	8.183179	8.183317	8.183455	8.183593	8.183731	30	
	30	8.183869	8.184006	8.184144	8.184282	8.184420	8.184557	8.184695	8.184833	8.184970	8.185108	20	
	40	8.185245	8.185382	8.185520	8.185657	8.185794	8.185932	8.186069	8.186206	8.186343	8.186480	10	
	50	8.186617	8.186754	8.186891	8.187028	8.187165	8.187301	8.187438	8.187575	8.187712	8.187848	0	7
53	0	8.187985	8.188121	8.188258	8.188394	8.188531	8.188667	8.188803	8.188940	8.189076	8.189212	50	
	10	8.189348	8.189484	8.189620	8.189756	8.189892	8.190028	8.190164	8.190300	8.190436	8.190572	40	
	20	8.190707	8.190843	8.190979	8.191114	8.191250	8.191385	8.191521	8.191656	8.191792	8.191927	30	
	30	8.192062	8.192198	8.192333	8.192468	8.192603	8.192738	8.192873	8.193008	8.193143	8.193278	20	
	40	8.193413	8.193548	8.193683	8.193818	8.193952	8.194087	8.194222	8.194356	8.194491	8.194625	10	
	50	8.194760	8.194894	8.195028	8.195163	8.195297	8.195431	8.195566	8.195700	8.195834	8.195968	0	6
54	0	8.196102	8.196236	8.196370	8.196504	8.196638	8.196772	8.196906	8.197039	8.197173	8.197307	50	
	10	8.197440	8.197574	8.197707	8.197841	8.197974	8.198108	8.198241	8.198375	8.198508	8.198641	40	
	20	8.198774	8.198908	8.199041	8.199174	8.199307	8.199440	8.199573	8.199706	8.199839	8.199972	30	
	30	8.200104	8.200237	8.200370	8.200503	8.200635	8.200768	8.200901	8.201033	8.201166	8.201298	20	
	40	8.201430	8.201563	8.201695	8.201827	8.201960	8.202092	8.202224	8.202356	8.202488	8.202620	10	
	50	8.202752	8.202884	8.203016	8.203148	8.203280	8.203412	8.203544	8.203675	8.203807	8.203939	0	5
55	0	8.204070	8.204202	8.204333	8.204465	8.204596	8.204728	8.204859	8.204991	8.205122	8.205253	50	
	10	8.205384	8.205515	8.205647	8.205778	8.205909	8.206040	8.206171	8.206302	8.206433	8.206563	40	
	20	8.206694	8.206825	8.206956	8.207086	8.207217	8.207348	8.207478	8.207609	8.207739	8.207870	30	
	30	8.208000	8.208131	8.208261	8.208391	8.208522	8.208652	8.208782	8.208912	8.209042	8.209172	20	
	40	8.209302	8.209432	8.209562	8.209692	8.209822	8.209952	8.210082	8.210212	8.210341	8.210471	10	
	50	8.210601	8.210730	8.210860	8.210989	8.211119	8.211248	8.211378	8.211507	8.211636	8.211766	0	4
56	0	8.211895	8.212024	8.212153	8.212283	8.212412	8.212541	8.212670	8.212799	8.212928	8.213057	50	
	10	8.213185	8.213314	8.213443	8.213572	8.213701	8.213829	8.213958	8.214087	8.214215	8.214344	40	
	20	8.214472	8.214601	8.214729	8.214857	8.214986	8.215114	8.215242	8.215371	8.215499	8.215627	30	
	30	8.215755	8.215883	8.216011	8.216139	8.216267	8.216395	8.216523	8.216651	8.216779	8.216906	20	
	40	8.217034	8.217162	8.217290	8.217417	8.217545	8.217672	8.217800	8.217927	8.218055	8.218182	10	
	50	8.218310	8.218437	8.218564	8.218691	8.218819	8.218946	8.219073	8.219200	8.219327	8.219454	0	3
57	0	8.219581	8.219708	8.219835	8.219962	8.220089	8.220216	8.220342	8.220469	8.220596	8.220722	50	
	10	8.220849	8.220976	8.221102	8.221229	8.221355	8.221482	8.221608	8.221734	8.221861	8.221987	40	
	20	8.222113	8.222239	8.222366	8.222492	8.222618	8.222744	8.222870	8.222996	8.223122	8.223248	30	
	30	8.223374	8.223500	8.223625	8.223751	8.223877	8.224003	8.224128	8.224254	8.224380	8.224505	20	
	40	8.224631	8.224756	8.224882	8.225007	8.225132	8.225258	8.225383	8.225508	8.225634	8.225759	10	
	50	8.225884	8.226009	8.226134	8.226259	8.226384	8.226509	8.226634	8.226759	8.226884	8.227009	0	2
58	0	8.227134	8.227258	8.227383	8.227508	8.227632	8.227757	8.227882	8.228006	8.228131	8.228255	50	
	10	8.228380	8.228504	8.228628	8.228753	8.228877	8.229001	8.229126	8.229250	8.229374	8.229498	40	
	20	8.229622	8.229746	8.229870	8.229994	8.230118	8.230242	8.230366	8.230490	8.230614	8.230737	30	
	30	8.230861	8.230985	8.231108	8.231232	8.231356	8.231479	8.231603	8.231726	8.231850	8.231973	20	
	40	8.232097	8.232220	8.232343	8.232466	8.232590	8.232713	8.232836	8.232959	8.233082	8.233205	10	
	50	8.233328	8.233451	8.233574	8.233697	8.233820	8.233943	8.234066	8.234189	8.234311	8.234434	0	1
59	0	8.234557	8.234680	8.234802	8.234925	8.235047	8.235170	8.235292	8.235415	8.235537	8.235659	50	
	10	8.235782	8.235904	8.236026	8.236149	8.236271	8.236393	8.236515	8.236637	8.236759	8.236881	40	
	20	8.237003	8.237125	8.237247	8.237369	8.237491	8.237613	8.237735	8.237856	8.237978	8.238100	30	
	30	8.238221	8.238343	8.238465	8.238586	8.238708	8.238829	8.238951	8.239072	8.239193	8.239315	20	
	40	8.239436	8.239557	8.239679	8.239800	8.239921	8.240042	8.240163	8.240284	8.240405	8.240526	10	
	50	8.240647	8.240768	8.240889	8.241010	8.241131	8.241252	8.241373	8.241493	8.241614	8.241735	0	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-sine of 89 degrees, or Sine of 179 degrees.											

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Sine of 1 degree, or Co-sine of 91 degrees.										
0	0	8. 241855	8. 241976	8. 242097	8. 242217	8. 242338	8. 242458	8. 242579	8. 242699	8. 242819	8. 242940	50
	10	8. 243060	8. 243180	8. 243300	8. 243421	8. 243541	8. 243661	8. 243781	8. 243901	8. 244021	8. 244141	40
	20	8. 244261	8. 244381	8. 244501	8. 244621	8. 244741	8. 244861	8. 244980	8. 245100	8. 245220	8. 245339	30
	30	8. 245459	8. 245579	8. 245698	8. 245818	8. 245937	8. 246057	8. 246176	8. 246296	8. 246415	8. 246534	20
	40	8. 246654	8. 246773	8. 246892	8. 247012	8. 247131	8. 247250	8. 247369	8. 247488	8. 247607	8. 247726	10
	50	8. 247845	8. 247964	8. 248083	8. 248202	8. 248321	8. 248440	8. 248558	8. 248677	8. 248796	8. 248915	0
1	0	8. 249033	8. 249152	8. 249270	8. 249389	8. 249508	8. 249626	8. 249745	8. 249863	8. 249981	8. 250100	50
	10	8. 250218	8. 250336	8. 250455	8. 250573	8. 250691	8. 250809	8. 250927	8. 251046	8. 251164	8. 251282	40
	20	8. 251400	8. 251518	8. 251636	8. 251754	8. 251871	8. 251989	8. 252107	8. 252225	8. 252343	8. 252460	30
	30	8. 252578	8. 252696	8. 252813	8. 252931	8. 253049	8. 253166	8. 253284	8. 253401	8. 253519	8. 253636	20
	40	8. 253753	8. 253871	8. 253988	8. 254105	8. 254223	8. 254340	8. 254457	8. 254574	8. 254691	8. 254808	10
	50	8. 254925	8. 255042	8. 255159	8. 255276	8. 255393	8. 255510	8. 255627	8. 255744	8. 255861	8. 255978	0
2	0	8. 256094	8. 256211	8. 256328	8. 256444	8. 256561	8. 256678	8. 256794	8. 256911	8. 257027	8. 257144	50
	10	8. 257260	8. 257376	8. 257493	8. 257609	8. 257726	8. 257842	8. 257958	8. 258074	8. 258190	8. 258307	40
	20	8. 258423	8. 258539	8. 258655	8. 258771	8. 258887	8. 259003	8. 259119	8. 259235	8. 259351	8. 259466	30
	30	8. 259582	8. 259698	8. 259814	8. 259930	8. 260045	8. 260161	8. 260276	8. 260392	8. 260508	8. 260623	20
	40	8. 260739	8. 260854	8. 260970	8. 261085	8. 261200	8. 261316	8. 261431	8. 261546	8. 261662	8. 261777	10
	50	8. 261892	8. 262007	8. 262122	8. 262238	8. 262353	8. 262468	8. 262583	8. 262698	8. 262813	8. 262928	0
3	0	8. 263042	8. 263157	8. 263272	8. 263387	8. 263502	8. 263616	8. 263731	8. 263846	8. 263960	8. 264075	50
	10	8. 264190	8. 264304	8. 264419	8. 264533	8. 264648	8. 264762	8. 264877	8. 264991	8. 265105	8. 265220	40
	20	8. 265334	8. 265448	8. 265562	8. 265677	8. 265791	8. 265905	8. 266019	8. 266133	8. 266247	8. 266361	30
	30	8. 266475	8. 266589	8. 266703	8. 266817	8. 266931	8. 267045	8. 267159	8. 267272	8. 267386	8. 267500	20
	40	8. 267613	8. 267727	8. 267841	8. 267954	8. 268068	8. 268181	8. 268295	8. 268408	8. 268522	8. 268635	10
	50	8. 268749	8. 268862	8. 268975	8. 269089	8. 269202	8. 269315	8. 269428	8. 269542	8. 269655	8. 269768	0
4	0	8. 269881	8. 269994	8. 270107	8. 270220	8. 270333	8. 270446	8. 270559	8. 270672	8. 270785	8. 270898	50
	10	8. 271010	8. 271123	8. 271236	8. 271349	8. 271461	8. 271574	8. 271687	8. 271799	8. 271912	8. 272024	40
	20	8. 272137	8. 272249	8. 272362	8. 272474	8. 272587	8. 272699	8. 272811	8. 272924	8. 273036	8. 273148	30
	30	8. 273260	8. 273373	8. 273485	8. 273597	8. 273709	8. 273821	8. 273933	8. 274045	8. 274157	8. 274269	20
	40	8. 274381	8. 274493	8. 274605	8. 274717	8. 274828	8. 274940	8. 275052	8. 275164	8. 275275	8. 275387	10
	50	8. 275499	8. 275610	8. 275722	8. 275834	8. 275945	8. 276057	8. 276168	8. 276279	8. 276391	8. 276502	0
5	0	8. 276614	8. 276725	8. 276836	8. 276948	8. 277059	8. 277170	8. 277281	8. 277392	8. 277503	8. 277615	50
	10	8. 277726	8. 277837	8. 277948	8. 278059	8. 278170	8. 278281	8. 278392	8. 278502	8. 278613	8. 278724	40
	20	8. 278835	8. 278946	8. 279056	8. 279167	8. 279278	8. 279388	8. 279499	8. 279610	8. 279720	8. 279831	30
	30	8. 279941	8. 280052	8. 280162	8. 280273	8. 280383	8. 280493	8. 280604	8. 280714	8. 280824	8. 280935	20
	40	8. 281045	8. 281155	8. 281265	8. 281375	8. 281485	8. 281595	8. 281706	8. 281816	8. 281926	8. 282036	10
	50	8. 282145	8. 282255	8. 282365	8. 282475	8. 282585	8. 282695	8. 282805	8. 282914	8. 283024	8. 283134	0
6	0	8. 283243	8. 283353	8. 283463	8. 283572	8. 283682	8. 283791	8. 283901	8. 284010	8. 284120	8. 284229	50
	10	8. 284339	8. 284448	8. 284557	8. 284667	8. 284776	8. 284885	8. 284994	8. 285104	8. 285213	8. 285322	40
	20	8. 285431	8. 285540	8. 285649	8. 285758	8. 285867	8. 285976	8. 286085	8. 286194	8. 286303	8. 286412	30
	30	8. 286521	8. 286630	8. 286738	8. 286847	8. 286956	8. 287065	8. 287173	8. 287282	8. 287391	8. 287499	20
	40	8. 287608	8. 287716	8. 287825	8. 287933	8. 288042	8. 288150	8. 288259	8. 288367	8. 288475	8. 288584	10
	50	8. 288692	8. 288800	8. 288908	8. 289017	8. 289125	8. 289233	8. 289341	8. 289449	8. 289557	8. 289665	0
7	0	8. 289773	8. 289881	8. 289989	8. 290097	8. 290205	8. 290313	8. 290421	8. 290529	8. 290637	8. 290745	50
	10	8. 290852	8. 290960	8. 291068	8. 291175	8. 291283	8. 291391	8. 291498	8. 291606	8. 291713	8. 291821	40
	20	8. 291929	8. 292036	8. 292143	8. 292251	8. 292358	8. 292466	8. 292573	8. 292680	8. 292788	8. 292895	30
	30	8. 293002	8. 293109	8. 293216	8. 293324	8. 293431	8. 293538	8. 293645	8. 293752	8. 293859	8. 293966	20
	40	8. 294073	8. 294180	8. 294287	8. 294394	8. 294501	8. 294607	8. 294714	8. 294821	8. 294928	8. 295034	10
	50	8. 295141	8. 295248	8. 295354	8. 295461	8. 295568	8. 295674	8. 295781	8. 295887	8. 295994	8. 296100	0
8	0	8. 296207	8. 296313	8. 296420	8. 296526	8. 296632	8. 296739	8. 296845	8. 296951	8. 297057	8. 297164	50
	10	8. 297270	8. 297376	8. 297482	8. 297588	8. 297694	8. 297800	8. 297906	8. 298012	8. 298118	8. 298224	40
	20	8. 298330	8. 298436	8. 298542	8. 298648	8. 298754	8. 298859	8. 298965	8. 299071	8. 299177	8. 299281	30
	30	8. 299388	8. 299494	8. 299599	8. 299705	8. 299810	8. 299916	8. 300021	8. 300127	8. 300232	8. 300338	20
	40	8. 300443	8. 300549	8. 300654	8. 300759	8. 300865	8. 300970	8. 301075	8. 301180	8. 301286	8. 301391	10
	50	8. 301496	8. 301601	8. 301706	8. 301811	8. 301916	8. 302021	8. 302126	8. 302231	8. 302336	8. 302441	0
9	0	8. 302546	8. 302651	8. 302756	8. 302861	8. 302965	8. 303070	8. 303175	8. 303280	8. 303384	8. 303489	50
	10	8. 303594	8. 303698	8. 303803	8. 303908	8. 304012	8. 304117	8. 304221	8. 304326	8. 304430	8. 304534	40
	20	8. 304639	8. 304743	8. 304848	8. 304952	8. 305056	8. 305160	8. 305265	8. 305369	8. 305473	8. 305577	30
	30	8. 305681	8. 305786	8. 305890	8. 305994	8. 306098	8. 306202	8. 306306	8. 306410	8. 306514	8. 306618	20
	40	8. 306721	8. 306825	8. 306929	8. 307033	8. 307137	8. 307241	8. 307344	8. 307448	8. 307552	8. 307655	10
	50	8. 307759	8. 307863	8. 307966	8. 308070	8. 308173	8. 308277	8. 308380	8. 308484	8. 308587	8. 308691	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Minutes
		Co-sine of 88 degrees, or Sine of 178 degrees.										

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 1 degree, or Co-sine of 91 degrees.											
10	0	8.308794	8.308898	8.309001	8.309104	8.309208	8.309311	8.309414	8.309517	8.309621	8.309724	50	
	10	8.309827	8.309930	8.310033	8.310136	8.310239	8.310342	8.310445	8.310548	8.310651	8.310754	40	
	20	8.310857	8.310960	8.311063	8.311166	8.311268	8.311371	8.311474	8.311577	8.311679	8.311782	30	
	30	8.311885	8.311987	8.312090	8.312193	8.312295	8.312398	8.312500	8.312603	8.312705	8.312808	20	
	40	8.312910	8.313013	8.313115	8.313217	8.313320	8.313422	8.313524	8.313626	8.313729	8.313831	10	
	50	8.313933	8.314035	8.314137	8.314240	8.314342	8.314444	8.314546	8.314648	8.314750	8.314852	0	49
11	0	8.314954	8.315056	8.315157	8.315259	8.315361	8.315463	8.315565	8.315667	8.315768	8.315870	50	
	10	8.315972	8.316073	8.316175	8.316277	8.316378	8.316480	8.316582	8.316683	8.316785	8.316886	40	
	20	8.316988	8.317089	8.317190	8.317292	8.317393	8.317495	8.317596	8.317697	8.317798	8.317900	30	
	30	8.318001	8.318102	8.318203	8.318304	8.318406	8.318507	8.318608	8.318709	8.318810	8.318911	20	
	40	8.319012	8.319113	8.319214	8.319315	8.319416	8.319517	8.319617	8.319718	8.319819	8.319920	10	
	50	8.320021	8.320121	8.320222	8.320323	8.320423	8.320524	8.320625	8.320725	8.320826	8.320926	0	48
12	0	8.321027	8.321127	8.321228	8.321328	8.321429	8.321529	8.321630	8.321730	8.321830	8.321931	50	
	10	8.322031	8.322131	8.322231	8.322332	8.322432	8.322532	8.322632	8.322732	8.322832	8.322933	40	
	20	8.323033	8.323133	8.323233	8.323333	8.323433	8.323533	8.323633	8.323732	8.323832	8.323932	30	
	30	8.324032	8.324132	8.324232	8.324331	8.324431	8.324531	8.324631	8.324730	8.324830	8.324929	20	
	40	8.325029	8.325129	8.325228	8.325328	8.325427	8.325527	8.325626	8.325726	8.325825	8.325924	10	
	50	8.326024	8.326123	8.326223	8.326322	8.326421	8.326520	8.326620	8.326719	8.326818	8.326917	0	47
13	0	8.327016	8.327116	8.327215	8.327314	8.327413	8.327512	8.327611	8.327710	8.327809	8.327908	50	
	10	8.328007	8.328106	8.328204	8.328303	8.328402	8.328501	8.328600	8.328698	8.328797	8.328896	40	
	20	8.328995	8.329093	8.329192	8.329291	8.329389	8.329488	8.329586	8.329685	8.329783	8.329882	30	
	30	8.329980	8.330079	8.330177	8.330276	8.330374	8.330472	8.330571	8.330669	8.330767	8.330866	20	
	40	8.330964	8.331062	8.331160	8.331259	8.331357	8.331455	8.331553	8.331651	8.331749	8.331847	10	
	50	8.331945	8.332043	8.332141	8.332239	8.332337	8.332435	8.332533	8.332631	8.332729	8.332827	0	46
14	0	8.332924	8.333022	8.333120	8.333218	8.333315	8.333413	8.333511	8.333608	8.333706	8.333804	50	
	10	8.333901	8.333999	8.334096	8.334194	8.334291	8.334389	8.334486	8.334584	8.334681	8.334779	40	
	20	8.334876	8.334973	8.335071	8.335168	8.335265	8.335362	8.335460	8.335557	8.335654	8.335751	30	
	30	8.335848	8.335946	8.336043	8.336140	8.336237	8.336334	8.336431	8.336528	8.336625	8.336722	20	
	40	8.336819	8.336916	8.337013	8.337109	8.337206	8.337303	8.337400	8.337497	8.337593	8.337690	10	
	50	8.337787	8.337884	8.337980	8.338077	8.338174	8.338270	8.338367	8.338463	8.338560	8.338656	0	45
15	0	8.338753	8.338849	8.338946	8.339042	8.339139	8.339235	8.339332	8.339428	8.339524	8.339621	50	
	10	8.339717	8.339813	8.339909	8.340006	8.340102	8.340198	8.340294	8.340390	8.340486	8.340583	40	
	20	8.340679	8.340775	8.340871	8.340967	8.341063	8.341159	8.341255	8.341351	8.341446	8.341542	30	
	30	8.341638	8.341734	8.341830	8.341926	8.342021	8.342117	8.342213	8.342309	8.342404	8.342500	20	
	40	8.342596	8.342691	8.342787	8.342883	8.342978	8.343074	8.343169	8.343265	8.343360	8.343456	10	
	50	8.343551	8.343647	8.343742	8.343837	8.343933	8.344028	8.344123	8.344219	8.344314	8.344409	0	44
16	0	8.344504	8.344600	8.344695	8.344790	8.344885	8.344980	8.345075	8.345170	8.345266	8.345361	50	
	10	8.345456	8.345551	8.345646	8.345741	8.345835	8.345930	8.346025	8.346120	8.346215	8.346310	40	
	20	8.346405	8.346500	8.346594	8.346689	8.346784	8.346878	8.346973	8.347068	8.347163	8.347257	30	
	30	8.347352	8.347446	8.347541	8.347635	8.347730	8.347825	8.347919	8.348013	8.348108	8.348202	20	
	40	8.348297	8.348391	8.348485	8.348580	8.348674	8.348768	8.348863	8.348957	8.349051	8.349145	10	
	50	8.349240	8.349334	8.349428	8.349522	8.349616	8.349710	8.349804	8.349899	8.349993	8.350087	0	43
17	0	8.350181	8.350275	8.350369	8.350462	8.350556	8.350650	8.350744	8.350838	8.350932	8.351026	50	
	10	8.351119	8.351213	8.351307	8.351401	8.351494	8.351588	8.351682	8.351775	8.351869	8.351963	40	
	20	8.352056	8.352150	8.352243	8.352337	8.352430	8.352524	8.352617	8.352711	8.352804	8.352898	30	
	30	8.352991	8.353084	8.353178	8.353271	8.353364	8.353458	8.353551	8.353644	8.353737	8.353831	20	
	40	8.353924	8.354017	8.354110	8.354203	8.354296	8.354390	8.354483	8.354576	8.354669	8.354762	10	
	50	8.354855	8.354948	8.355041	8.355134	8.355226	8.355319	8.355412	8.355505	8.355598	8.355691	0	42
18	0	8.355784	8.355876	8.355969	8.356062	8.356154	8.356247	8.356340	8.356432	8.356525	8.356618	50	
	10	8.356710	8.356803	8.356895	8.356988	8.357081	8.357173	8.357265	8.357358	8.357450	8.357543	40	
	20	8.357635	8.357728	8.357820	8.357912	8.358005	8.358097	8.358189	8.358281	8.358374	8.358466	30	
	30	8.358558	8.358650	8.358742	8.358835	8.358927	8.359019	8.359111	8.359203	8.359295	8.359387	20	
	40	8.359479	8.359571	8.359663	8.359755	8.359847	8.359939	8.360031	8.360123	8.360214	8.360306	10	
	50	8.360398	8.360490	8.360582	8.360673	8.360765	8.360857	8.360948	8.361040	8.361132	8.361223	0	41
19	0	8.361315	8.361407	8.361498	8.361590	8.361681	8.361773	8.361864	8.361956	8.362047	8.362139	50	
	10	8.362230	8.362322	8.362413	8.362504	8.362596	8.362687	8.362778	8.362870	8.362961	8.363052	40	
	20	8.363143	8.363235	8.363326	8.363417	8.363508	8.363599	8.363690	8.363781	8.363872	8.363964	30	
	30	8.364055	8.364146	8.364237	8.364328	8.364419	8.364510	8.364600	8.364691	8.364782	8.364873	20	
	40	8.364964	8.365055	8.365146	8.365236	8.365327	8.365418	8.365509	8.365599	8.365690	8.365781	10	
	50	8.365871	8.365962	8.366053	8.366143	8.366234	8.366324	8.366415	8.366505	8.366596	8.366686	0	40
		10″	9″	8	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-sine of 88 degrees, or Sine of 178 degrees.											

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LOGARITHMIC SINES.

Sine of 1 *degree, or Co-sine of* 91 *degrees.*

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
20	0	8.366777	8.366867	8.366958	8.367048	8.367139	8.367229	8.367319	8.367410	8.367500	8.367590	50
	10	8.367681	8.367771	8.367861	8.367951	8.368042	8.368132	8.368222	8.368312	8.368402	8.368492	40
	20	8.368582	8.368673	8.368763	8.368853	8.368943	8.369033	8.369123	8.369213	8.369303	8.369392	30
	30	8.369482	8.369572	8.369662	8.369752	8.369842	8.369932	8.370021	8.370111	8.370201	8.370291	20
	40	8.370380	8.370470	8.370560	8.370649	8.370739	8.370829	8.370918	8.371008	8.371098	8.371187	10
	50	8.371277	8.371366	8.371456	8.371545	8.371635	8.371724	8.371813	8.371903	8.371992	8.372082	0
21	0	8.372171	8.372260	8.372350	8.372439	8.372528	8.372617	8.372707	8.372796	8.372885	8.372974	50
	10	8.373064	8.373153	8.373242	8.373331	8.373420	8.373509	8.373598	8.373687	8.373776	8.373865	40
	20	8.373954	8.374043	8.374132	8.374221	8.374310	8.374399	8.374488	8.374577	8.374665	8.374754	30
	30	8.374843	8.374932	8.375021	8.375109	8.375198	8.375287	8.375376	8.375464	8.375553	8.375642	20
	40	8.375730	8.375819	8.375907	8.375996	8.376084	8.376173	8.376262	8.376350	8.376438	8.376527	10
	50	8.376615	8.376704	8.376792	8.376881	8.376969	8.377057	8.377146	8.377234	8.377322	8.377411	0
22	0	8.377499	8.377587	8.377675	8.377764	8.377852	8.377940	8.378028	8.378116	8.378204	8.378292	50
	10	8.378380	8.378469	8.378557	8.378645	8.378733	8.378821	8.378909	8.378997	8.379085	8.379172	40
	20	8.379260	8.379348	8.379436	8.379524	8.379612	8.379700	8.379787	8.379875	8.379963	8.380051	30
	30	8.380138	8.380226	8.380314	8.380402	8.380489	8.380577	8.380664	8.380752	8.380840	8.380927	20
	40	8.381015	8.381102	8.381190	8.381277	8.381365	8.381452	8.381540	8.381627	8.381715	8.381802	10
	50	8.381889	8.381977	8.382064	8.382151	8.382239	8.382326	8.382413	8.382500	8.382588	8.382675	0
23	0	8.382762	8.382849	8.382936	8.383024	8.383111	8.383198	8.383285	8.383372	8.383459	8.383546	50
	10	8.383633	8.383720	8.383807	8.383894	8.383981	8.384068	8.384155	8.384242	8.384329	8.384416	40
	20	8.384502	8.384589	8.384676	8.384763	8.384850	8.384936	8.385023	8.385110	8.385197	8.385283	30
	30	8.385370	8.385457	8.385543	8.385630	8.385716	8.385803	8.385890	8.385976	8.386063	8.386149	20
	40	8.386236	8.386322	8.386409	8.386495	8.386582	8.386668	8.386754	8.386841	8.386927	8.387014	10
	50	8.387100	8.387186	8.387272	8.387359	8.387445	8.387531	8.387617	8.387704	8.387790	8.387876	0
24	0	8.387962	8.388048	8.388135	8.388221	8.388307	8.388393	8.388479	8.388565	8.388651	8.388737	50
	10	8.388823	8.388909	8.388995	8.389081	8.389167	8.389253	8.389338	8.389424	8.389510	8.389596	40
	20	8.389682	8.389768	8.389853	8.389939	8.390025	8.390111	8.390196	8.390282	8.390368	8.390453	30
	30	8.390539	8.390625	8.390710	8.390796	8.390882	8.390967	8.391053	8.391138	8.391224	8.391309	20
	40	8.391395	8.391480	8.391566	8.391651	8.391736	8.391822	8.391907	8.391993	8.392078	8.392163	10
	50	8.392249	8.392334	8.392419	8.392504	8.392590	8.392675	8.392760	8.392845	8.392931	8.393016	0
25	0	8.393101	8.393186	8.393271	8.393356	8.393441	8.393526	8.393611	8.393696	8.393781	8.393866	50
	10	8.393951	8.394036	8.394121	8.394206	8.394291	8.394376	8.394461	8.394546	8.394631	8.394715	40
	20	8.394800	8.394885	8.394970	8.395055	8.395139	8.395224	8.395309	8.395394	8.395478	8.395563	30
	30	8.395648	8.395732	8.395817	8.395901	8.395986	8.396071	8.396155	8.396240	8.396324	8.396409	20
	40	8.396493	8.396578	8.396662	8.396746	8.396831	8.396915	8.397000	8.397084	8.397168	8.397253	10
	50	8.397337	8.397421	8.397506	8.397590	8.397674	8.397758	8.397843	8.397927	8.398011	8.398095	0
26	0	8.398179	8.398263	8.398348	8.398432	8.398516	8.398600	8.398684	8.398768	8.398852	8.398936	50
	10	8.399020	8.399104	8.399188	8.399272	8.399356	8.399440	8.399524	8.399607	8.399691	8.399775	40
	20	8.399859	8.399943	8.400027	8.400110	8.400194	8.400278	8.400362	8.400445	8.400529	8.400613	30
	30	8.400696	8.400780	8.400864	8.400947	8.401031	8.401115	8.401198	8.401282	8.401365	8.401449	20
	40	8.401532	8.401616	8.401699	8.401783	8.401866	8.401950	8.402033	8.402116	8.402200	8.402283	10
	50	8.402366	8.402450	8.402533	8.402616	8.402700	8.402783	8.402866	8.402949	8.403033	8.403116	0
27	0	8.403199	8.403282	8.403365	8.403449	8.403532	8.403615	8.403698	8.403781	8.403864	8.403947	50
	10	8.404030	8.404113	8.404196	8.404279	8.404362	8.404445	8.404528	8.404611	8.404694	8.404777	40
	20	8.404859	8.404942	8.405025	8.405108	8.405191	8.405274	8.405356	8.405439	8.405522	8.405605	30
	30	8.405687	8.405770	8.405853	8.405935	8.406018	8.406101	8.406183	8.406266	8.406348	8.406431	20
	40	8.406514	8.406596	8.406679	8.406761	8.406844	8.406926	8.407009	8.407091	8.407173	8.407256	10
	50	8.407338	8.407421	8.407503	8.407585	8.407668	8.407750	8.407832	8.407915	8.407997	8.408079	0
28	0	8.408161	8.408244	8.408326	8.408408	8.408490	8.408572	8.408655	8.408737	8.408819	8.408901	50
	10	8.408983	8.409065	8.409147	8.409229	8.409311	8.409393	8.409475	8.409557	8.409639	8.409721	40
	20	8.409803	8.409885	8.409967	8.410049	8.410131	8.410212	8.410294	8.410376	8.410458	8.410540	30
	30	8.410621	8.410703	8.410785	8.410867	8.410948	8.411030	8.411112	8.411193	8.411275	8.411357	20
	40	8.411438	8.411520	8.411602	8.411683	8.411765	8.411846	8.411928	8.412009	8.412091	8.412172	10
	50	8.412254	8.412335	8.412417	8.412498	8.412580	8.412661	8.412742	8.412824	8.412905	8.412986	0
29	0	8.413068	8.413149	8.413230	8.413312	8.413393	8.413474	8.413555	8.413636	8.413718	8.413799	50
	10	8.413880	8.413961	8.414042	8.414123	8.414205	8.414286	8.414367	8.414448	8.414529	8.414610	40
	20	8.414691	8.414772	8.414853	8.414934	8.415015	8.415096	8.415177	8.415258	8.415338	8.415419	30
	30	8.415500	8.415581	8.415662	8.415743	8.415823	8.415904	8.415985	8.416066	8.416147	8.416227	20
	40	8.416308	8.416389	8.416469	8.416550	8.416631	8.416711	8.416792	8.416873	8.416953	8.417034	10
	50	8.417114	8.417195	8.417275	8.417356	8.417436	8.417517	8.417597	8.417678	8.417758	8.417839	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds

Co-sine of 88 *degrees, or Sine of* 178 *degrees.*

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LOGARITHMIC SINES.

Sine of 1 degree, or Co-sine of 91 degrees.

Minutes / Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
0 0	8.417919	8.417999	8.418080	8.418160	8.418241	8.418321	8.418401	8.418482	8.418562	8.418642	50	
10	8.418722	8.418803	8.418883	8.418963	8.419043	8.419123	8.419204	8.419284	8.419364	8.419444	40	
20	8.419524	8.419604	8.419684	8.419764	8.419845	8.419925	8.420005	8.420085	8.420165	8.420245	30	
30	8.420325	8.420405	8.420484	8.420564	8.420644	8.420724	8.420804	8.420884	8.420964	8.421044	20	
40	8.421123	8.421203	8.421283	8.421363	8.421443	8.421522	8.421602	8.421682	8.421762	8.421841	10	
50	8.421921	8.422001	8.422080	8.422160	8.422239	8.422319	8.422399	8.422478	8.422558	8.422637	0	29
1 0	8.422717	8.422796	8.422876	8.422955	8.423035	8.423114	8.423194	8.423273	8.423353	8.423432	50	
10	8.423511	8.423591	8.423670	8.423749	8.423829	8.423908	8.423987	8.424067	8.424146	8.424225	40	
20	8.424304	8.424384	8.424463	8.424542	8.424621	8.424700	8.424780	8.424859	8.424938	8.425017	30	
30	8.425096	8.425175	8.425254	8.425333	8.425412	8.425491	8.425570	8.425649	8.425728	8.425807	20	
40	8.425886	8.425965	8.426044	8.426123	8.426202	8.426281	8.426360	8.426438	8.426517	8.426596	10	
50	8.426675	8.426754	8.426832	8.426911	8.426990	8.427069	8.427147	8.427226	8.427305	8.427383	0	28
2 0	8.427462	8.427541	8.427619	8.427698	8.427777	8.427855	8.427934	8.428012	8.428091	8.428169	50	
10	8.428248	8.428327	8.428405	8.428484	8.428562	8.428640	8.428719	8.428797	8.428876	8.428954	40	
20	8.429032	8.429111	8.429189	8.429268	8.429346	8.429424	8.429502	8.429581	8.429659	8.429737	30	
30	8.429815	8.429894	8.429972	8.430050	8.430128	8.430206	8.430285	8.430363	8.430441	8.430519	20	
40	8.430597	8.430675	8.430753	8.430831	8.430909	8.430987	8.431065	8.431143	8.431221	8.431299	10	
50	8.431377	8.431455	8.431533	8.431611	8.431689	8.431767	8.431845	8.431923	8.432000	8.432078	0	27
3 0	8.432156	8.432234	8.432312	8.432390	8.432467	8.432545	8.432623	8.432700	8.432778	8.432856	50	
10	8.432934	8.433011	8.433089	8.433167	8.433244	8.433322	8.433399	8.433477	8.433554	8.433632	40	
20	8.433710	8.433787	8.433865	8.433942	8.434020	8.434097	8.434175	8.434252	8.434329	8.434407	30	
30	8.434484	8.434562	8.434639	8.434716	8.434794	8.434871	8.434948	8.435026	8.435103	8.435180	20	
40	8.435257	8.435335	8.435412	8.435489	8.435566	8.435644	8.435721	8.435798	8.435875	8.435952	10	
50	8.436029	8.436106	8.436184	8.436261	8.436338	8.436415	8.436492	8.436569	8.436646	8.436723	0	26
4 0	8.436800	8.436877	8.436954	8.437031	8.437108	8.437185	8.437262	8.437338	8.437415	8.437492	50	
10	8.437569	8.437646	8.437723	8.437800	8.437876	8.437953	8.438030	8.438107	8.438183	8.438260	40	
20	8.438337	8.438414	8.438490	8.438567	8.438644	8.438720	8.438797	8.438873	8.438950	8.439027	30	
30	8.439103	8.439180	8.439256	8.439333	8.439409	8.439486	8.439562	8.439639	8.439715	8.439792	20	
40	8.439868	8.439945	8.440021	8.440098	8.440174	8.440250	8.440327	8.440403	8.440479	8.440556	10	
50	8.440632	8.440708	8.440785	8.440861	8.440937	8.441013	8.441090	8.441166	8.441242	8.441318	0	25
5 0	8.441394	8.441471	8.441547	8.441623	8.441699	8.441775	8.441851	8.441927	8.442003	8.442080	50	
10	8.442156	8.442232	8.442308	8.442384	8.442460	8.442536	8.442612	8.442688	8.442763	8.442839	40	
20	8.442915	8.442991	8.443067	8.443143	8.443219	8.443295	8.443370	8.443446	8.443522	8.443598	30	
30	8.443674	8.443749	8.443825	8.443901	8.443977	8.444052	8.444128	8.444204	8.444279	8.444355	20	
40	8.444431	8.444506	8.444582	8.444658	8.444733	8.444809	8.444884	8.444960	8.445035	8.445111	10	
50	8.445187	8.445262	8.445338	8.445413	8.445488	8.445564	8.445639	8.445715	8.445790	8.445866	0	24
6 0	8.445941	8.446016	8.446092	8.446167	8.446242	8.446318	8.446393	8.446468	8.446544	8.446619	50	
10	8.446694	8.446769	8.446845	8.446920	8.446995	8.447070	8.447145	8.447221	8.447296	8.447371	40	
20	8.447446	8.447521	8.447596	8.447671	8.447746	8.447821	8.447896	8.447971	8.448046	8.448121	30	
30	8.448196	8.448271	8.448346	8.448421	8.448496	8.448571	8.448646	8.448721	8.448796	8.448871	20	
40	8.448946	8.449021	8.449095	8.449170	8.449245	8.449320	8.449395	8.449469	8.449544	8.449619	10	
50	8.449694	8.449768	8.449843	8.449918	8.449992	8.450067	8.450142	8.450216	8.450291	8.450366	0	23
7 0	8.450440	8.450515	8.450589	8.450664	8.450739	8.450813	8.450888	8.450962	8.451037	8.451111	50	
10	8.451186	8.451260	8.451335	8.451409	8.451483	8.451558	8.451632	8.451707	8.451781	8.451855	40	
20	8.451930	8.452004	8.452078	8.452153	8.452227	8.452301	8.452376	8.452450	8.452524	8.452598	30	
30	8.452673	8.452747	8.452821	8.452895	8.452969	8.453043	8.453118	8.453192	8.453266	8.453340	20	
40	8.453414	8.453488	8.453562	8.453636	8.453710	8.453784	8.453858	8.453932	8.454006	8.454080	10	
50	8.454154	8.454228	8.454302	8.454376	8.454450	8.454524	8.454598	8.454672	8.454746	8.454820	0	22
8 0	8.454893	8.454967	8.455041	8.455115	8.455189	8.455262	8.455336	8.455410	8.455484	8.455557	50	
10	8.455631	8.455705	8.455779	8.455852	8.455926	8.456000	8.456073	8.456147	8.456221	8.456294	40	
20	8.456368	8.456441	8.456515	8.456588	8.456662	8.456735	8.456809	8.456883	8.456956	8.457030	30	
30	8.457103	8.457176	8.457250	8.457323	8.457397	8.457470	8.457544	8.457617	8.457690	8.457764	20	
40	8.457837	8.457910	8.457984	8.458057	8.458130	8.458204	8.458277	8.458350	8.458423	8.458497	10	
50	8.458570	8.458643	8.458716	8.458789	8.458863	8.458936	8.459009	8.459082	8.459155	8.459228	0	21
9 0	8.459301	8.459374	8.459447	8.459521	8.459594	8.459667	8.459740	8.459813	8.459886	8.459959	50	
10	8.460032	8.460105	8.460178	8.460251	8.460323	8.460396	8.460469	8.460542	8.460615	8.460688	40	
20	8.460761	8.460834	8.460906	8.460979	8.461052	8.461125	8.461198	8.461270	8.461343	8.461416	30	
30	8.461489	8.461561	8.461634	8.461707	8.461779	8.461852	8.461925	8.461997	8.462070	8.462143	20	
40	8.462215	8.462288	8.462360	8.462433	8.462506	8.462578	8.462651	8.462723	8.462796	8.462868	10	
50	8.462941	8.463013	8.463086	8.463158	8.463231	8.463303	8.463375	8.463448	8.463520	8.463593	0	20
Seconds / Minutes	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes

Co-sine of 88 degrees, or Sine of 178 degrees.

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9	Seconds
		Sine of 1 degree, or Co-sine of 91 degrees.										
40	0	8.463665	8.463737	8.463810	8.463882	8.463954	8.464027	8.464099	8.464171	8.464243	8.464316	50
	10	8.464388	8.464460	8.464532	8.464605	8.464677	8.464749	8.464821	8.464893	8.464965	8.465038	40
	20	8.465110	8.465182	8.465254	8.465326	8.465398	8.465470	8.465542	8.465614	8.465686	8.465758	30
	30	8.465830	8.465902	8.465974	8.466046	8.466118	8.466190	8.466262	8.466334	8.466406	8.466478	20
	40	8.466550	8.466622	8.466694	8.466765	8.466837	8.466909	8.466981	8.467053	8.467124	8.467196	10
	50	8.467268	8.467340	8.467412	8.467483	8.467555	8.467627	8.467698	8.467770	8.467842	8.467913	0
41	0	8.467985	8.468057	8.468128	8.468200	8.468272	8.468343	8.468415	8.468486	8.468558	8.468629	50
	10	8.468701	8.468772	8.468844	8.468915	8.468987	8.469058	8.469130	8.469201	8.469273	8.469344	40
	20	8.469416	8.469487	8.469558	8.469630	8.469701	8.469773	8.469844	8.469915	8.469987	8.470058	30
	30	8.470129	8.470200	8.470272	8.470343	8.470414	8.470485	8.470557	8.470628	8.470699	8.470770	20
	40	8.470841	8.470913	8.470984	8.471055	8.471126	8.471197	8.471268	8.471339	8.471410	8.471481	10
	50	8.471553	8.471624	8.471695	8.471766	8.471837	8.471908	8.471979	8.472050	8.472121	8.472192	0
42	0	8.472263	8.472334	8.472404	8.472475	8.472546	8.472617	8.472688	8.472759	8.472830	8.472901	50
	10	8.472971	8.473042	8.473113	8.473184	8.473255	8.473325	8.473396	8.473467	8.473538	8.473608	40
	20	8.473679	8.473750	8.473821	8.473891	8.473962	8.474033	8.474103	8.474174	8.474244	8.474315	30
	30	8.474386	8.474456	8.474527	8.474597	8.474668	8.474739	8.474809	8.474880	8.474950	8.475021	20
	40	8.475091	8.475162	8.475232	8.475302	8.475373	8.475443	8.475514	8.475584	8.475655	8.475725	10
	50	8.475795	8.475866	8.475936	8.476006	8.476077	8.476147	8.476217	8.476288	8.476358	8.476428	0
43	0	8.476498	8.476569	8.476639	8.476709	8.476779	8.476850	8.476920	8.476990	8.477060	8.477130	50
	10	8.477200	8.477271	8.477341	8.477411	8.477481	8.477551	8.477621	8.477691	8.477761	8.477831	40
	20	8.477901	8.477971	8.478041	8.478111	8.478181	8.478251	8.478321	8.478391	8.478461	8.478531	30
	30	8.478601	8.478671	8.478741	8.478811	8.478880	8.478950	8.479020	8.479090	8.479160	8.479230	20
	40	8.479299	8.479369	8.479439	8.479509	8.479579	8.479648	8.479718	8.479788	8.479858	8.479927	10
	50	8.479997	8.480067	8.480136	8.480206	8.480276	8.480345	8.480415	8.480484	8.480554	8.480624	0
44	0	8.480693	8.480763	8.480832	8.480902	8.480971	8.481041	8.481111	8.481180	8.481250	8.481319	50
	10	8.481388	8.481458	8.481527	8.481597	8.481666	8.481736	8.481805	8.481874	8.481944	8.482013	40
	20	8.482083	8.482152	8.482221	8.482291	8.482360	8.482429	8.482499	8.482568	8.482637	8.482706	30
	30	8.482776	8.482845	8.482914	8.482983	8.483052	8.483122	8.483191	8.483260	8.483329	8.483398	20
	40	8.483467	8.483537	8.483606	8.483675	8.483744	8.483813	8.483882	8.483951	8.484020	8.484089	10
	50	8.484158	8.484227	8.484296	8.484365	8.484434	8.484503	8.484572	8.484641	8.484710	8.484779	0
45	0	8.484848	8.484917	8.484986	8.485055	8.485124	8.485192	8.485261	8.485330	8.485399	8.485468	50
	10	8.485537	8.485605	8.485674	8.485743	8.485812	8.485880	8.485949	8.486018	8.486087	8.486155	40
	20	8.486224	8.486293	8.486361	8.486430	8.486499	8.486567	8.486636	8.486705	8.486773	8.486842	30
	30	8.486910	8.486979	8.487048	8.487116	8.487185	8.487253	8.487322	8.487390	8.487459	8.487527	20
	40	8.487596	8.487664	8.487733	8.487801	8.487870	8.487938	8.488006	8.488075	8.488143	8.488212	10
	50	8.488280	8.488348	8.488417	8.488485	8.488553	8.488622	8.488690	8.488758	8.488827	8.488895	0
46	0	8.488963	8.489031	8.489100	8.489168	8.489236	8.489304	8.489373	8.489441	8.489509	8.489577	50
	10	8.489645	8.489713	8.489782	8.489850	8.489918	8.489986	8.490054	8.490122	8.490190	8.490258	40
	20	8.490326	8.490394	8.490462	8.490530	8.490598	8.490666	8.490734	8.490802	8.490870	8.490938	30
	30	8.491006	8.491074	8.491142	8.491210	8.491278	8.491346	8.491414	8.491482	8.491550	8.491617	20
	40	8.491685	8.491753	8.491821	8.491889	8.491956	8.492024	8.492092	8.492160	8.492228	8.492295	10
	50	8.492363	8.492431	8.492498	8.492566	8.492634	8.492702	8.492769	8.492837	8.492905	8.492972	0
47	0	8.493040	8.493107	8.493175	8.493243	8.493310	8.493378	8.493445	8.493513	8.493580	8.493648	50
	10	8.493716	8.493783	8.493851	8.493918	8.493986	8.494053	8.494120	8.494188	8.494255	8.494323	40
	20	8.494390	8.494458	8.494525	8.494592	8.494660	8.494727	8.494795	8.494862	8.494929	8.494997	30
	30	8.495064	8.495131	8.495198	8.495266	8.495333	8.495400	8.495468	8.495535	8.495602	8.495669	20
	40	8.495736	8.495804	8.495871	8.495938	8.496005	8.496072	8.496139	8.496207	8.496274	8.496341	10
	50	8.496408	8.496475	8.496542	8.496609	8.496676	8.496743	8.496810	8.496877	8.496944	8.497011	0
48	0	8.497078	8.497145	8.497212	8.497279	8.497346	8.497413	8.497480	8.497547	8.497614	8.497681	50
	10	8.497748	8.497815	8.497882	8.497949	8.498015	8.498082	8.498149	8.498216	8.498283	8.498350	40
	20	8.498416	8.498483	8.498550	8.498617	8.498683	8.498750	8.498817	8.498884	8.498950	8.499017	30
	30	8.499084	8.499150	8.499217	8.499284	8.499350	8.499417	8.499484	8.499550	8.499617	8.499684	20
	40	8.499750	8.499817	8.499883	8.499950	8.500016	8.500083	8.500150	8.500216	8.500283	8.500349	10
	50	8.500416	8.500482	8.500549	8.500615	8.500681	8.500748	8.500814	8.500881	8.500947	8.501014	0
49	0	8.501080	8.501146	8.501213	8.501279	8.501345	8.501412	8.501478	8.501544	8.501611	8.501677	50
	10	8.501743	8.501810	8.501876	8.501942	8.502008	8.502075	8.502141	8.502207	8.502273	8.502339	40
	20	8.502406	8.502472	8.502538	8.502604	8.502670	8.502736	8.502802	8.502869	8.502935	8.503001	30
	30	8.503067	8.503133	8.503199	8.503265	8.503331	8.503397	8.503463	8.503529	8.503595	8.503661	20
	40	8.503727	8.503793	8.503859	8.503925	8.503991	8.504057	8.504123	8.504189	8.504255	8.504321	10
	50	8.504386	8.504452	8.504518	8.504584	8.504650	8.504716	8.504782	8.504847	8.504913	8.504979	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-sine of 88 degrees, or Sine of 178 degrees.										

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LOGARITHMIC SINES.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Sine of 1 degree, or Co-sine of 91 degrees.											
50	0	8.505045	8.505111	8.505176	8.505242	8.505308	8.505374	8.505439	8.505505	8.505571	8.505636	50	
	10	8.505702	8.505768	8.505833	8.505899	8.505965	8.506030	8.506096	8.506162	8.506227	8.506293	40	
	20	8.506358	8.506424	8.506489	8.506555	8.506621	8.506686	8.506752	8.506817	8.506883	8.506948	30	
	30	8.507014	8.507079	8.507145	8.507210	8.507276	8.507341	8.507406	8.507472	8.507537	8.507603	20	
	40	8.507668	8.507733	8.507799	8.507864	8.507929	8.507995	8.508060	8.508125	8.508191	8.508256	10	
	50	8.508321	8.508387	8.508452	8.508517	8.508582	8.508648	8.508713	8.508778	8.508843	8.508908	0	9
51	0	8.508974	8.509039	8.509104	8.509169	8.509234	8.509299	8.509365	8.509430	8.509495	8.509560	50	
	10	8.509625	8.509690	8.509755	8.509820	8.509885	8.509950	8.510015	8.510080	8.510145	8.510210	40	
	20	8.510275	8.510340	8.510405	8.510470	8.510535	8.510600	8.510665	8.510730	8.510795	8.510860	30	
	30	8.510925	8.510990	8.511055	8.511120	8.511184	8.511249	8.511314	8.511379	8.511444	8.511509	20	
	40	8.511573	8.511638	8.511703	8.511768	8.511832	8.511897	8.511962	8.512027	8.512091	8.512156	10	
	50	8.512221	8.512286	8.512350	8.512415	8.512480	8.512544	8.512609	8.512674	8.512738	8.512803	0	8
52	0	8.512867	8.512932	8.512997	8.513061	8.513126	8.513190	8.513255	8.513319	8.513384	8.513448	50	
	10	8.513513	8.513577	8.513642	8.513706	8.513771	8.513835	8.513900	8.513964	8.514029	8.514093	40	
	20	8.514158	8.514222	8.514286	8.514351	8.514415	8.514479	8.514544	8.514608	8.514673	8.514737	30	
	30	8.514801	8.514865	8.514930	8.514994	8.515058	8.515123	8.515187	8.515251	8.515315	8.515380	20	
	40	8.515444	8.515508	8.515572	8.515636	8.515701	8.515765	8.515829	8.515893	8.515957	8.516021	10	
	50	8.516086	8.516150	8.516214	8.516278	8.516342	8.516406	8.516470	8.516534	8.516598	8.516662	0	7
53	0	8.516726	8.516790	8.516854	8.516918	8.516982	8.517046	8.517110	8.517174	8.517238	8.517302	50	
	10	8.517366	8.517430	8.517494	8.517558	8.517622	8.517686	8.517750	8.517814	8.517877	8.517941	40	
	20	8.518005	8.518069	8.518133	8.518197	8.518260	8.518324	8.518388	8.518452	8.518516	8.518579	30	
	30	8.518643	8.518707	8.518771	8.518834	8.518898	8.518962	8.519025	8.519089	8.519153	8.519216	20	
	40	8.519280	8.519344	8.519407	8.519471	8.519535	8.519598	8.519662	8.519726	8.519789	8.519853	10	
	50	8.519916	8.519980	8.520043	8.520107	8.520170	8.520234	8.520297	8.520361	8.520424	8.520488	0	6
54	0	8.520551	8.520615	8.520678	8.520742	8.520805	8.520869	8.520932	8.520995	8.521059	8.521122	50	
	10	8.521186	8.521249	8.521312	8.521376	8.521439	8.521502	8.521566	8.521629	8.521692	8.521756	40	
	20	8.521819	8.521882	8.521946	8.522009	8.522072	8.522135	8.522199	8.522262	8.522325	8.522388	30	
	30	8.522451	8.522515	8.522578	8.522641	8.522704	8.522767	8.522830	8.522893	8.522957	8.523020	20	
	40	8.523083	8.523146	8.523209	8.523272	8.523335	8.523398	8.523461	8.523524	8.523587	8.523650	10	
	50	8.523713	8.523776	8.523839	8.523902	8.523965	8.524028	8.524091	8.524154	8.524217	8.524280	0	5
55	0	8.524343	8.524406	8.524469	8.524532	8.524595	8.524657	8.524720	8.524783	8.524846	8.524909	50	
	10	8.524972	8.525035	8.525097	8.525160	8.525223	8.525286	8.525349	8.525411	8.525474	8.525537	40	
	20	8.525600	8.525662	8.525725	8.525788	8.525850	8.525913	8.525976	8.526038	8.526101	8.526164	30	
	30	8.526226	8.526289	8.526352	8.526414	8.526477	8.526540	8.526602	8.526665	8.526727	8.526790	20	
	40	8.526852	8.526915	8.526978	8.527040	8.527103	8.527165	8.527228	8.527290	8.527353	8.527415	10	
	50	8.527478	8.527540	8.527602	8.527665	8.527727	8.527790	8.527852	8.527915	8.527977	8.528039	0	4
56	0	8.528102	8.528164	8.528226	8.528289	8.528351	8.528414	8.528476	8.528538	8.528600	8.528663	50	
	10	8.528725	8.528787	8.528850	8.528912	8.528974	8.529036	8.529099	8.529161	8.529223	8.529285	40	
	20	8.529347	8.529410	8.529472	8.529534	8.529596	8.529658	8.529720	8.529783	8.529845	8.529907	30	
	30	8.529969	8.530031	8.530093	8.530155	8.530217	8.530279	8.530341	8.530403	8.530466	8.530528	20	
	40	8.530590	8.530652	8.530714	8.530776	8.530838	8.530900	8.530962	8.531024	8.531085	8.531147	10	
	50	8.531209	8.531271	8.531333	8.531395	8.531457	8.531519	8.531581	8.531643	8.531704	8.531766	0	3
57	0	8.531828	8.531890	8.531952	8.532014	8.532075	8.532137	8.532199	8.532261	8.532323	8.532384	50	
	10	8.532446	8.532508	8.532570	8.532631	8.532693	8.532755	8.532817	8.532878	8.532940	8.533002	40	
	20	8.533063	8.533125	8.533187	8.533248	8.533310	8.533371	8.533433	8.533495	8.533556	8.533618	30	
	30	8.533679	8.533741	8.533803	8.533864	8.533926	8.533987	8.534049	8.534110	8.534172	8.534233	20	
	40	8.534295	8.534356	8.534418	8.534479	8.534541	8.534602	8.534664	8.534725	8.534786	8.534848	10	
	50	8.534909	8.534971	8.535032	8.535093	8.535155	8.535216	8.535278	8.535339	8.535400	8.535462	0	2
58	0	8.535523	8.535584	8.535646	8.535707	8.535768	8.535829	8.535891	8.535952	8.536013	8.536074	50	
	10	8.536136	8.536197	8.536258	8.536319	8.536380	8.536442	8.536503	8.536564	8.536625	8.536686	40	
	20	8.536747	8.536809	8.536870	8.536931	8.536992	8.537053	8.537114	8.537175	8.537236	8.537297	30	
	30	8.537359	8.537420	8.537481	8.537542	8.537603	8.537664	8.537725	8.537786	8.537847	8.537908	20	
	40	8.537969	8.538030	8.538091	8.538152	8.538212	8.538273	8.538334	8.538395	8.538456	8.538517	10	
	50	8.538578	8.538639	8.538700	8.538761	8.538821	8.538882	8.538943	8.539004	8.539065	8.539126	0	1
59	0	8.539186	8.539247	8.539308	8.539369	8.539430	8.539490	8.539551	8.539612	8.539673	8.539733	50	
	10	8.539794	8.539855	8.539915	8.539976	8.540037	8.540097	8.540158	8.540219	8.540279	8.540340	40	
	20	8.540401	8.540461	8.540522	8.540583	8.540643	8.540704	8.540764	8.540825	8.540885	8.540946	30	
	30	8.541007	8.541067	8.541128	8.541188	8.541249	8.541309	8.541370	8.541430	8.541491	8.541551	20	
	40	8.541612	8.541672	8.541733	8.541793	8.541853	8.541914	8.541974	8.542035	8.542095	8.542155	10	
	60	8.542216	8.542276	8.542337	8.542397	8.542457	8.542518	8.542578	8.542638	8.542699	8.542759	0	0
Seconds		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-sine of 88 degrees, or Sine of 178 degrees.											

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.542819	8.543120	8.543422	45		1″=60
	15	8.543723	8.544023	8.544324	30		2. 120
	30	8.544624	8.544924	8.545224	15		3. 180
	45	8.545524	8.545823	8.546123	0	59	4. 240
1	0	8.546422	8.546721	8.547019	45		1= 60
	15	8.547318	8.547616	8.547914	30		2. 119
	30	8.548212	8.548510	8.548807	15		3. 179
	45	8.549104	8.549401	8.549698	0	58	4. 238
2	0	8.549995	8.550291	8.550587	45		1= 59
	15	8.550883	8.551179	8.551475	30		2. 118
	30	8.551770	8.552066	8.552361	15		3. 177
	45	8.552655	8.552950	8.553244	0	57	4. 236
3	0	8.553539	8.553833	8.554126	45		1= 59
	15	8.554420	8.554713	8.555007	30		2. 117
	30	8.555300	8.555593	8.555885	15		3. 176
	45	8.556177	8.556470	8.556762	0	56	4. 234
4	0	8.557054	8.557345	8.557637	45		1= 58
	15	8.557928	8.558219	8.558510	30		2. 116
	30	8.558801	8.559091	8.559381	15		3. 174
	45	8.559671	8.559961	8.560251	0	55	4. 232
5	0	8.560540	8.560830	8.561119	45		1= 58
	15	8.561408	8.561697	8.561985	30		2. 115
	30	8.562273	8.562561	8.562850	15		3. 173
	45	8.563137	8.563425	8.563712	0	54	4. 230
6	0	8.563999	8.564286	8.564573	45		1= 57
	15	8.564860	8.565146	8.565433	30		2. 114
	30	8.565719	8.566005	8.566290	15		3. 171
	45	8.566576	8.566861	8.567146	0	53	4. 229
7	0	8.567431	8.567716	8.568000	45		1= 57
	15	8.568285	8.568569	8.568853	30		2. 113
	30	8.569137	8.569420	8.569704	15		3. 170
	45	8.569987	8.570270	8.570553	0	52	4. 227
8	0	8.570836	8.571118	8.571401	45		1= 56
	15	8.571683	8.571965	8.572247	30		2. 113
	30	8.572528	8.572810	8.573091	15		3. 169
	45	8.573372	8.573653	8.573933	0	51	4. 225
9	0	8.574214	8.574494	8.574774	45		1= 56
	15	8.575054	8.575334	8.575614	30		2. 112
	30	8.575893	8.576172	8.576452	15		3. 167
	45	8.576730	8.577009	8.577288	0	50	4. 223
10	0	8.577566	8.577844	8.578122	45		1= 55
	15	8.578400	8.578678	8.578955	30		2. 111
	30	8.579232	8.579509	8.579786	15		3. 166
	45	8.580063	8.580340	8.580616	0	49	4. 222
11	0	8.580892	8.581168	8.581444	45		1= 55
	15	8.581720	8.581995	8.582271	30		2. 110
	30	8.582546	8.582821	8.583096	15		3. 165
	45	8.583370	8.583645	8.583919	0	48	4. 220
12	0	8.584193	8.584467	8.584741	45		1= 55
	15	8.585015	8.585288	8.585561	30		2. 109
	30	8.585835	8.586107	8.586380	15		3. 164
	45	8.586653	8.586925	8.587197	0	47	4. 218
13	0	8.587469	8.587741	8.588013	45		1= 54
	15	8.588285	8.588556	8.588827	30		2. 108
	30	8.589098	8.589369	8.589640	15		3. 162
	45	8.589910	8.590181	8.590451	0	46	4. 217
14	0	8.590721	8.590991	8.591261	45		1= 54
	15	8.591530	8.591799	8.592069	30		2. 108
	30	8.592338	8.592607	8.592875	15		3. 161
	45	8.593144	8.593412	8.593680	0	45	4. 215
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.593948	8.594216	8.594484	45		1″=5
	15	8.594751	8.595019	8.595286	30		2. 10
	30	8.595553	8.595820	8.596087	15		3. 16
	45	8.596353	8.596620	8.596886	0	44	4. 21
16	0	8.597152	8.597418	8.597683	45		1= 5
	15	8.597949	8.598214	8.598480	30		2. 10
	30	8.598745	8.599010	8.599274	15		3. 15
	45	8.599539	8.599803	8.600068	0	43	4. 21
17	0	8.600332	8.600596	8.600860	45		1= 5
	15	8.601123	8.601387	8.601650	30		2. 10
	30	8.601913	8.602176	8.602439	15		3. 15
	45	8.602702	8.602964	8.603226	0	42	4. 21
18	0	8.603489	8.603751	8.604013	45		1= 5
	15	8.604274	8.604536	8.604797	30		2. 10
	30	8.605058	8.605319	8.605580	15		3. 15
	45	8.605841	8.606102	8.606362	0	41	4. 20
19	0	8.606623	8.606883	8.607143	45		1= 5
	15	8.607403	8.607662	8.607922	30		2. 10
	30	8.608181	8.608440	8.608699	15		3. 15
	45	8.608958	8.609217	8.609476	0	40	4. 20
20	0	8.609734	8.609992	8.610251	45		1= 5
	15	8.610509	8.610766	8.611024	30		2. 10
	30	8.611282	8.611539	8.611796	15		3. 15
	45	8.612053	8.612310	8.612567	0	39	4. 20
21	0	8.612824	8.613080	8.613336	45		1= 5
	15	8.613592	8.613848	8.614104	30		2. 10
	30	8.614360	8.614616	8.614871	15		3. 15
	45	8.615126	8.615381	8.615636	0	38	4. 20
22	0	8.615891	8.616146	8.616400	45		1= 5
	15	8.616655	8.616909	8.617163	30		2. 10
	30	8.617417	8.617670	8.617924	15		3. 15
	45	8.618177	8.618431	8.618684	0	37	4. 20
23	0	8.618937	8.619190	8.619443	45		1= 5
	15	8.619695	8.619948	8.620200	30		2. 10
	30	8.620452	8.620704	8.620956	15		3. 15
	45	8.621207	8.621459	8.621710	0	36	4. 20
24	0	8.621962	8.622213	8.622464	45		1= 5
	15	8.622715	8.622965	8.623216	30		2. 10
	30	8.623466	8.623716	8.623966	15		3. 15
	45	8.624216	8.624466	8.624716	0	35	4. 20
25	0	8.624965	8.625215	8.625464	45		1= 5
	15	8.625713	8.625962	8.626211	30		2. 9
	30	8.626459	8.626708	8.626956	15		3. 14
	45	8.627205	8.627453	8.627701	0	34	4. 19
26	0	8.627948	8.628196	8.628444	45		1= 4
	15	8.628691	8.628938	8.629185	30		2. 9
	30	8.629432	8.629679	8.629926	15		3. 14
	45	8.630172	8.630419	8.630665	0	33	4. 19
27	0	8.630911	8.631157	8.631403	45		1= 4
	15	8.631649	8.631894	8.632140	30		2. 9
	30	8.632385	8.632630	8.632875	15		3. 14
	45	8.633120	8.633365	8.633609	0	32	4. 19
28	0	8.633854	8.634098	8.634342	45		1= 4
	15	8.634586	8.634830	8.635074	30		2. 9
	30	8.635318	8.635561	8.635804	15		3. 14
	45	8.636048	8.636291	8.636534	0	31	4. 19
29	0	8.636776	8.637019	8.637262	45		1= 4
	15	8.637504	8.637746	8.637988	30		2. 9
	30	8.638230	8.638472	8.638714	15		3. 14
	45	8.638956	8.639197	8.639438	0	30	4. 19
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.639680	8.639921	8.640162	45		1″=48
	15	8.640402	8.640643	8.640884	30		2. 96
	30	8.641124	8.641364	8.641604	15		3. 145
	45	8.641844	8.642084	8.642324	0	29	4. 193
31	0	8.642563	8.642803	8.643042	45		1= 48
	15	8.643281	8.643520	8.643759	30		2. 95
	30	8.643998	8.644237	8.644475	15		3. 143
	45	8.644714	8.644952	8.645190	0	28	4. 191
32	0	8.645428	8.645666	8.645904	45		1= 47
	15	8.646141	8.646379	8.646616	30		2. 95
	30	8.646854	8.647091	8.647328	15		3. 142
	45	8.647564	8.647801	8.648038	0	27	4. 190
33	0	8.648274	8.648511	8.648747	45		1= 47
	15	8.648983	8.649219	8.649455	30		2. 94
	30	8.649690	8.649926	8.650161	15		3. 141
	45	8.650396	8.650632	8.650867	0	26	4. 188
34	0	8.651102	8.651336	8.651571	45		1= 47
	15	8.651806	8.652040	8.652274	30		2. 94
	30	8.652508	8.652742	8.652976	15		3. 140
	45	8.653210	8.653444	8.653677	0	25	4. 187
35	0	8.653911	8.654144	8.654377	45		1= 46
	15	8.654610	8.654843	8.655076	30		2. 93
	30	8.655308	8.655541	8.655773	15		3. 139
	45	8.656006	8.656238	8.656470	0	24	4. 186
36	0	8.656702	8.656933	8.657165	45		1= 46
	15	8.657397	8.657628	8.657859	30		2. 92
	30	8.658090	8.658321	8.658552	15		3. 139
	45	8.658783	8.659014	8.659244	0	23	4. 185
37	0	8.659475	8.659705	8.659935	45		1= 46
	15	8.660165	8.660395	8.660625	30		2. 92
	30	8.660855	8.661084	8.661314	15		3. 138
	45	8.661543	8.661772	8.662001	0	22	4. 184
38	0	8.662230	8.662459	8.662688	45		1= 46
	15	8.662916	8.663145	8.663373	30		2. 91
	30	8.663602	8.663830	8.664058	15		3. 137
	45	8.664286	8.664513	8.664741	0	21	4. 182
39	0	8.664968	8.665196	8.665423	45		1= 45
	15	8.665650	8.665877	8.666104	30		2. 91
	30	8.666331	8.666558	8.666784	15		3. 136
	45	8.667011	8.667237	8.667463	0	20	4. 181
40	0	8.667689	8.667915	8.668141	45		1= 45
	15	8.668367	8.668593	8.668818	30		2. 90
	30	8.669043	8.669269	8.669494	15		3. 135
	45	8.669719	8.669944	8.670169	0	19	4. 180
41	0	8.670393	8.670618	8.670842	45		1= 45
	15	8.671067	8.671291	8.671515	30		2. 90
	30	8.671739	8.671963	8.672187	15		3. 134
	45	8.672410	8.672634	8.672857	0	18	4. 179
42	0	8.673080	8.673304	8.673527	45		1= 44
	15	8.673750	8.673972	8.674195	30		2. 89
	30	8.674418	8.674640	8.674863	15		3. 133
	45	8.675085	8.675307	8.675529	0	17	4. 178
43	0	8.675751	8.675973	8.676195	45		1= 44
	15	8.676416	8.676638	8.676859	30		2. 88
	30	8.677080	8.677301	8.677522	15		3. 133
	45	8.677743	8.677964	8.678185	0	16	4. 177
44	0	8.678405	8.678626	8.678846	45		1= 44
	15	8.679066	8.679286	8.679506	30		2. 88
	30	8.679726	8.679946	8.680166	15		3. 132
	45	8.680385	8.680605	8.680824	0	15	4. 176
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.681043	8.681262	8.681481	45		1″=44
	15	8.681700	8.681919	8.682138	30		2. 87
	30	8.682356	8.682575	8.682793	15		3. 131
	45	8.683011	8.683230	8.683448	0	14	4. 175
46	0	8.683665	8.683883	8.684101	45		1= 43
	15	8.684319	8.684536	8.684753	30		2. 87
	30	8.684971	8.685188	8.685405	15		3. 130
	45	8.685622	8.685839	8.686055	0	13	4. 174
47	0	8.686272	8.686488	8.686705	45		1= 43
	15	8.686921	8.687137	8.687353	30		2. 86
	30	8.687569	8.687785	8.688001	15		3. 129
	45	8.688216	8.688432	8.688647	0	12	4. 173
48	0	8.688863	8.689078	8.689293	45		1= 43
	15	8.689508	8.689723	8.689937	30		2. 86
	30	8.690152	8.690367	8.690581	15		3. 129
	45	8.690796	8.691010	8.691224	0	11	4. 172
49	0	8.691438	8.691652	8.691866	45		1= 43
	15	8.692079	8.692293	8.692506	30		2. 85
	30	8.692720	8.692933	8.693146	15		3. 128
	45	8.693359	8.693572	8.693785	0	10	4. 171
50	0	8.693998	8.694211	8.694423	45		1= 42
	15	8.694636	8.694848	8.695060	30		2. 85
	30	8.695272	8.695484	8.695696	15		3. 127
	45	8.695908	8.696120	8.696332	0	9	4. 170
51	0	8.696543	8.696755	8.696966	45		1= 42
	15	8.697177	8.697388	8.697599	30		2. 84
	30	8.697810	8.698021	8.698232	15		3. 126
	45	8.698442	8.698653	8.698863	0	8	4. 169
52	0	8.699073	8.699284	8.699494	45		1= 42
	15	8.699704	8.699914	8.700123	30		2. 84
	30	8.700333	8.700543	8.700752	15		3. 126
	45	8.700961	8.701171	8.701380	0	7	4. 168
53	0	8.701589	8.701798	8.702007	45		1= 42
	15	8.702216	8.702424	8.702633	30		2. 83
	30	8.702841	8.703050	8.703258	15		3. 125
	45	8.703466	8.703674	8.703882	0	6	4. 167
54	0	8.704090	8.704298	8.704505	45		1= 41
	15	8.704713	8.704920	8.705128	30		2. 83
	30	8.705335	8.705542	8.705749	15		3. 124
	45	8.705956	8.706163	8.706370	0	5	4. 166
55	0	8.706577	8.706783	8.706990	45		1= 41
	15	8.707196	8.707402	8.707609	30		2. 82
	30	8.707815	8.708021	8.708227	15		3. 124
	45	8.708432	8.708638	8.708844	0	4	4. 165
56	0	8.709049	8.709255	8.709460	45		1= 41
	15	8.709665	8.709870	8.710075	30		2. 82
	30	8.710280	8.710485	8.710690	15		3. 123
	45	8.710894	8.711099	8.711303	0	3	4. 164
57	0	8.711508	8.711712	8.711916	45		1= 41
	15	8.712120	8.712324	8.712528	30		2. 81
	30	8.712732	8.712935	8.713139	15		3. 122
	45	8.713342	8.713546	8.713749	0	2	4. 163
58	0	8.713952	8.714155	8.714358	45		1= 40
	15	8.714561	8.714764	8.714967	30		2. 81
	30	8.715169	8.715372	8.715574	15		3. 121
	45	8.715777	8.715979	8.716181	0	1	4. 162
59	0	8.716383	8.716585	8.716787	45		1= 40
	15	8.716989	8.717190	8.717392	30		2. 81
	30	8.717593	8.717795	8.717996	15		3. 121
	45	8.718197	8.718398	8.718599	0	0	4. 161
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 87 degrees, or Sine of 177 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 3 degrees, or Co-sine of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.718800	8.719001	8.719202	45		1″ = 40
	15	8.719402	8.719603	8.719803	30		2. 80
	30	8.720004	8.720204	8.720404	15		3. 120
	45	8.720604	8.720804	8.721004	0	59	4. 160
1	0	8.721204	8.721404	8.721603	45		1 = 40
	15	8.721803	8.722002	8.722202	30		2. 80
	30	8.722401	8.722600	8.722799	15		3. 119
	45	8.722998	8.723197	8.723396	0	58	4. 159
2	0	8.723595	8.723793	8.723992	45		1 = 40
	15	8.724190	8.724389	8.724587	30		2. 79
	30	8.724785	8.724983	8.725181	15		3. 119
	45	8.725379	8.725577	8.725775	0	57	4. 158
3	0	8.725972	8.726170	8.726367	45		1 = 39
	15	8.726564	8.726762	8.726959	30		2. 79
	30	8.727156	8.727353	8.727550	15		3. 118
	45	8.727747	8.727943	8.728140	0	56	4. 158
4	0	8.728337	8.728533	8.728729	45		1 = 39
	15	8.728926	8.729122	8.729318	30		2. 78
	30	8.729514	8.729710	8.729906	15		3. 118
	45	8.730102	8.730297	8.730493	0	55	4. 157
5	0	8.730688	8.730884	8.731079	45		1 = 39
	15	8.731274	8.731469	8.731664	30		2. 78
	30	8.731859	8.732054	8.732249	15		3. 117
	45	8.732444	8.732638	8.732833	0	54	4. 156
6	0	8.733027	8.733222	8.733416	45		1 = 39
	15	8.733610	8.733804	8.733998	30		2. 78
	30	8.734192	8.734386	8.734580	15		3. 116
	45	8.734773	8.734967	8.735160	0	53	4. 155
7	0	8.735354	8.735547	8.735740	45		1 = 39
	15	8.735933	8.736126	8.736319	30		2. 77
	30	8.736512	8.736705	8.736898	15		3. 116
	45	8.737090	8.737283	8.737475	0	52	4. 154
8	0	8.737668	8.737860	8.738052	45		1 = 38
	15	8.738244	8.738436	8.738628	30		2. 77
	30	8.738820	8.739012	8.739203	15		3. 115
	45	8.739395	8.739586	8.739778	0	51	4. 153
9	0	8.739969	8.740160	8.740352	45		1 = 38
	15	8.740543	8.740734	8.740925	30		2. 76
	30	8.741115	8.741306	8.741497	15		3. 114
	45	8.741687	8.741878	8.742068	0	50	4. 153
10	0	8.742259	8.742449	8.742639	45		1 = 38
	15	8.742829	8.743019	8.743209	30		2. 76
	30	8.743399	8.743589	8.743778	15		3. 114
	45	8.743968	8.744157	8.744347	0	49	4. 152
11	0	8.744536	8.744725	8.744914	45		1 = 38
	15	8.745104	8.745293	8.745481	30		2. 75
	30	8.745670	8.745859	8.746048	15		3. 113
	45	8.746236	8.746425	8.746613	0	48	4. 151
12	0	8.746802	8.746990	8.747178	45		1 = 38
	15	8.747366	8.747554	8.747742	30		2. 75
	30	8.747930	8.748118	8.748305	15		3. 113
	45	8.748493	8.748681	8.748868	0	47	4. 150
13	0	8.749055	8.749243	8.749430	45		1 = 37
	15	8.749617	8.749804	8.749991	30		2. 75
	30	8.750178	8.750365	8.750551	15		3. 112
	45	8.750738	8.750924	8.751111	0	46	4. 149
14	0	8.751297	8.751484	8.751670	45		1 = 37
	15	8.751856	8.752042	8.752228	30		2. 74
	30	8.752414	8.752600	8.752786	15		3. 111
	45	8.752971	8.753157	8.753342	0	45	4. 149
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 86 degrees, or Sine of 176 degrees.					

Minutes	Seconds	Sine of 3 degrees, or Co-sine of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.753528	8.753713	8.753898	45		1″ = 3
	15	8.754084	8.754269	8.754454	30		2. 7
	30	8.754639	8.754824	8.755009	15		3. 11
	45	8.755193	8.755378	8.755562	0	44	4. 14
16	0	8.755747	8.755931	8.756116	45		1 = 3
	15	8.756300	8.756484	8.756668	30		2. 7
	30	8.756852	8.757036	8.757220	15		3. 11
	45	8.757404	8.757587	8.757771	0	43	4. 14
17	0	8.757955	8.758138	8.758322	45		1 = 3
	15	8.758505	8.758688	8.758871	30		2. 7
	30	8.759054	8.759237	8.759420	15		3. 11
	45	8.759603	8.759786	8.759969	0	42	4. 14
18	0	8.760151	8.760334	8.760516	45		1 = 3
	15	8.760699	8.760881	8.761063	30		2. 7
	30	8.761245	8.761427	8.761609	15		3. 10
	45	8.761791	8.761973	8.762155	0	41	4. 14
19	0	8.762337	8.762518	8.762700	45		1 = 3
	15	8.762883	8.763063	8.763244	30		2. 7
	30	8.763425	8.763606	8.763788	15		3. 10
	45	8.763969	8.764149	8.764330	0	40	4. 14
20	0	8.764511	8.764692	8.764872	45		1 = 3
	15	8.765053	8.765234	8.765414	30		2. 7
	30	8.765594	8.765775	8.765955	15		3. 10
	45	8.766135	8.766315	8.766495	0	39	4. 14
21	0	8.766675	8.766855	8.767034	45		1 = 3
	15	8.767214	8.767394	8.767573	30		2. 7
	30	8.767753	8.767932	8.768111	15		3. 10
	45	8.768290	8.768470	8.768649	0	38	4. 14
22	0	8.768828	8.769007	8.769185	45		1 = 3
	15	8.769364	8.769543	8.769721	30		2. 7
	30	8.769900	8.770078	8.770257	15		3. 10
	45	8.770435	8.770613	8.770792	0	37	4. 14
23	0	8.770970	8.771148	8.771326	45		1 = 3
	15	8.771504	8.771681	8.771859	30		2. 7
	30	8.772037	8.772215	8.772392	15		3. 10
	45	8.772569	8.772747	8.772924	0	36	4. 14
24	0	8.773101	8.773279	8.773456	45		1 = 3
	15	8.773633	8.773810	8.773987	30		2. 7
	30	8.774163	8.774340	8.774517	15		3. 10
	45	8.774693	8.774870	8.775046	0	35	4. 14
25	0	8.775223	8.775399	8.775575	45		1 = 3
	15	8.775751	8.775927	8.776103	30		2. 7
	30	8.776279	8.776455	8.776631	15		3. 10
	45	8.776807	8.776982	8.777158	0	34	4. 14
26	0	8.777333	8.777509	8.777684	45		1 = 3
	15	8.777860	8.778035	8.778210	30		2. 7
	30	8.778385	8.778560	8.778735	15		3. 10
	45	8.778910	8.779085	8.779259	0	33	4. 14
27	0	8.779434	8.779609	8.779783	45		1 = 3
	15	8.779958	8.780132	8.780306	30		2. 7
	30	8.780481	8.780655	8.780829	15		3. 10
	45	8.781003	8.781177	8.781351	0	32	4. 13
28	0	8.781524	8.781698	8.781872	45		1 = 3
	15	8.782046	8.782219	8.782393	30		2. 6
	30	8.782566	8.782739	8.782913	15		3. 10
	45	8.783086	8.783259	8.783432	0	31	4. 13
29	0	8.783605	8.783778	8.783951	45		1 = 3
	15	8.784123	8.784296	8.784469	30		2. 6
	30	8.784641	8.784814	8.784986	15		3. 10
	45	8.785159	8.785331	8.785503	0	30	4. 13
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 86 degrees, or Sine of 176 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 3 degrees, or Co-sine of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.785675	8.785847	8.786019	45		1″=34
	15	8.786191	8.786363	8.786535	30		2. 69
	30	8.786707	8.786879	8.787050	15		3. 103
	45	8.787222	8.787393	8.787565	0	29	4. 137
31	0	8.787736	8.787907	8.788078	45		1= 34
	15	8.788250	8.788421	8.788592	30		2. 68
	30	8.788763	8.788933	8.789104	15		3. 102
	45	8.789275	8.789446	8.789616	0	28	4. 137
32	0	8.789787	8.789957	8.790128	45		1= 34
	15	8.790298	8.790468	8.790638	30		2. 68
	30	8.790808	8.790979	8.791149	15		3. 102
	45	8.791318	8.791488	8.791658	0	27	4. 136
33	0	8.791828	8.791998	8.792167	45		1= 34
	15	8.792337	8.792506	8.792676	30		2. 68
	30	8.792845	8.793014	8.793183	15		3. 102
	45	8.793352	8.793521	8.793690	0	26	4. 135
34	0	8.793859	8.794028	8.794197	45		1= 34
	15	8.794366	8.794534	8.794703	30		2. 67
	30	8.794872	8.795040	8.795209	15		3. 101
	45	8.795377	8.795545	8.795713	0	25	4. 135
35	0	8.795881	8.796050	8.796218	45		1= 34
	15	8.796386	8.796553	8.796721	30		2. 67
	30	8.796889	8.797057	8.797224	15		3. 101
	45	8.797392	8.797559	8.797727	0	24	4. 134
36	0	8.797894	8.798061	8.798229	45		1= 33
	15	8.798396	8.798563	8.798730	30		2. 67
	30	8.798897	8.799064	8.799231	15		3. 100
	45	8.799397	8.799564	8.799731	0	23	4. 134
37	0	8.799897	8.800064	8.800230	45		1= 33
	15	8.800397	8.800563	8.800729	30		2. 66
	30	8.800896	8.801062	8.801228	15		3. 100
	45	8.801394	8.801560	8.801726	0	22	4. 133
38	0	8.801892	8.802057	8.802223	45		1= 33
	15	8.802389	8.802554	8.802720	30		2. 66
	30	8.802885	8.803051	8.803216	15		3. 99
	45	8.803381	8.803546	8.803711	0	21	4. 132
39	0	8.803876	8.804041	8.804206	45		1= 33
	15	8.804371	8.804536	8.804701	30		2. 66
	30	8.804866	8.805030	8.805195	15		3. 99
	45	8.805359	8.805524	8.805688	0	20	4. 132
40	0	8.805852	8.806017	8.806181	45		1= 33
	15	8.806345	8.806509	8.806673	30		2. 66
	30	8.806837	8.807001	8.807165	15		3. 98
	45	8.807328	8.807492	8.807656	0	19	4. 131
41	0	8.807819	8.807983	8.808146	45		1= 33
	15	8.808310	8.808473	8.808636	30		2. 65
	30	8.808799	8.808962	8.809126	15		3. 98
	45	8.809289	8.809452	8.809614	0	18	4. 130
42	0	8.809777	8.809940	8.810103	45		1= 32
	15	8.810265	8.810428	8.810590	30		2. 65
	30	8.810753	8.810915	8.811078	15		3. 97
	45	8.811240	8.811402	8.811564	0	17	4. 130
43	0	8.811726	8.811888	8.812050	45		1= 32
	15	8.812212	8.812374	8.812536	30		2. 65
	30	8.812698	8.812859	8.813021	15		3. 97
	45	8.813183	8.813344	8.813505	0	16	4. 129
44	0	8.813667	8.813828	8.813989	45		1= 32
	15	8.814151	8.814312	8.814473	30		2. 64
	30	8.814634	8.814795	8.814956	15		3. 97
	45	8.815116	8.815277	8.815438	0	15	4. 129
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 86 degrees, or Sine of 176 degrees.					

Minutes	Seconds	Sine of 3 degrees, or Co-sine of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.815599	8.815759	8.815920	45		1″=32
	15	8.816080	8.816241	8.816401	30		2. 64
	30	8.816561	8.816721	8.816882	15		3. 96
	45	8.817042	8.817202	8.817362	0	14	4. 128
46	0	8.817522	8.817682	8.817841	45		1= 32
	15	8.818001	8.818161	8.818321	30		2. 64
	30	8.818480	8.818640	8.818799	15		3. 96
	45	8.818959	8.819118	8.819277	0	13	4. 128
47	0	8.819436	8.819596	8.819755	45		1= 32
	15	8.819914	8.820073	8.820232	30		2. 64
	30	8.820391	8.820549	8.820708	15		3. 95
	45	8.820867	8.821025	8.821184	0	12	4. 127
48	0	8.821343	8.821501	8.821659	45		1= 32
	15	8.821818	8.821976	8.822134	30		2. 63
	30	8.822293	8.822451	8.822609	15		3. 95
	45	8.822767	8.822925	8.823083	0	11	4. 126
49	0	8.823240	8.823398	8.823556	45		1= 31
	15	8.823714	8.823871	8.824029	30		2. 63
	30	8.824186	8.824344	8.824501	15		3. 94
	45	8.824658	8.824816	8.824973	0	10	4. 126
50	0	8.825130	8.825287	8.825444	45		1= 31
	15	8.825601	8.825758	8.825915	30		2. 63
	30	8.826072	8.826228	8.826385	15		3. 94
	45	8.826542	8.826698	8.826855	0	9	4. 125
51	0	8.827011	8.827168	8.827324	45		1= 31
	15	8.827480	8.827637	8.827793	30		2. 62
	30	8.827949	8.828105	8.828261	15		3. 94
	45	8.828417	8.828573	8.828729	0	8	4. 125
52	0	8.828884	8.829040	8.829196	45		1= 31
	15	8.829351	8.829507	8.829663	30		2. 62
	30	8.829818	8.829973	8.830129	15		3. 93
	45	8.830284	8.830439	8.830594	0	7	4. 124
53	0	8.830750	8.830905	8.831060	45		1= 31
	15	8.831215	8.831369	8.831524	30		2. 62
	30	8.831679	8.831834	8.831988	15		3. 93
	45	8.832143	8.832298	8.832452	0	6	4. 124
54	0	8.832607	8.832761	8.832915	45		1= 31
	15	8.833070	8.833224	8.833378	30		2. 62
	30	8.833532	8.833686	8.833840	15		3. 92
	45	8.833994	8.834148	8.834302	0	5	4. 123
55	0	8.834456	8.834609	8.834763	45		1= 31
	15	8.834917	8.835070	8.835224	30		2. 61
	30	8.835377	8.835531	8.835684	15		3. 92
	45	8.835837	8.835991	8.836144	0	4	4. 123
56	0	8.836297	8.836450	8.836603	45		1= 31
	15	8.836756	8.836909	8.837062	30		2. 61
	30	8.837215	8.837367	8.837520	15		3. 92
	45	8.837673	8.837825	8.837978	0	3	4. 122
57	0	8.838130	8.838283	8.838435	45		1= 30
	15	8.838588	8.838740	8.838892	30		2. 61
	30	8.839044	8.839196	8.839348	15		3. 91
	45	8.839500	8.839652	8.839804	0	2	4. 122
58	0	8.839956	8.840108	8.840260	45		1= 30
	15	8.840411	8.840563	8.840715	30		2. 61
	30	8.840866	8.841018	8.841169	15		3. 91
	45	8.841320	8.841472	8.841623	0	1	4. 121
59	0	8.841774	8.841925	8.842076	45		1= 30
	15	8.842227	8.842378	8.842529	30		2. 60
	30	8.842680	8.842831	8.842982	15		3. 90
	45	8.843133	8.843283	8.843434	0	0	4. 121
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 86 degrees, or Sine of 176 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.843585	8.843735	8.843886	45		1″=30
	15	8.844036	8.844186	8.844337	30		2. 60
	30	8.844487	8.844637	8.844787	15		3. 90
	45	8.844937	8.845087	8.845237	0	59	4. 120
1	0	8.845387	8.845537	8.845687	45		1= 30
	15	8.845837	8.845987	8.846136	30		2. 60
	30	8.846286	8.846436	8.846585	15		3. 90
	45	8.846735	8.846884	8.847033	0	58	4. 120
2	0	8.847183	8.847332	8.847481	45		1= 30
	15	8.847630	8.847780	8.847929	30		2. 60
	30	8.848078	8.848227	8.848376	15		3. 89
	45	8.848524	8.848673	8.848822	0	57	4. 119
3	0	8.848971	8.849119	8.849268	45		1= 30
	15	8.849417	8.849565	8.849714	30		2. 59
	30	8.849862	8.850010	8.850159	15		3. 89
	45	8.850307	8.850455	8.850603	0	56	4. 119
4	0	8.850751	8.850899	8.851047	45		1= 30
	15	8.851195	8.851343	8.851491	30		2. 59
	30	8.851639	8.851787	8.851934	15		3. 89
	45	8.852082	8.852230	8.852377	0	55	4. 118
5	0	8.852525	8.852672	8.852819	45		1= 29
	15	8.852967	8.853114	8.853261	30		2. 59
	30	8.853408	8.853556	8.853703	15		3. 88
	45	8.853850	8.853997	8.854144	0	54	4. 118
6	0	8.854291	8.854437	8.854584	45		1= 29
	15	8.854731	8.854878	8.855024	30		2. 59
	30	8.855171	8.855317	8.855464	15		3. 88
	45	8.855610	8.855757	8.855903	0	53	4. 117
7	0	8.856049	8.856196	8.856342	45		1= 29
	15	8.856488	8.856634	8.856780	30		2. 59
	30	8.856926	8.857072	8.857218	15		3. 88
	45	8.857364	8.857510	8.857655	0	52	4. 116
8	0	8.857801	8.857947	8.858092	45		1= 29
	15	8.858238	8.858383	8.858529	30		2. 58
	30	8.858674	8.858820	8.858965	15		3. 87
	45	8.859110	8.859255	8.859401	0	51	4. 116
9	0	8.859546	8.859691	8.859836	45		1= 29
	15	8.859981	8.860126	8.860271	30		2. 58
	30	8.860415	8.860560	8.860705	15		3. 87
	45	8.860850	8.860994	8.861139	0	50	4. 116
10	0	8.861283	8.861428	8.861572	45		1= 29
	15	8.861717	8.861861	8.862005	30		2. 58
	30	8.862150	8.862294	8.862438	15		3. 86
	45	8.862582	8.862726	8.862870	0	49	4. 115
11	0	8.863014	8.863158	8.863302	45		1= 29
	15	8.863446	8.863589	8.863733	30		2. 57
	30	8.863877	8.864020	8.864164	15		3. 86
	45	8.864307	8.864451	8.864594	0	48	4. 115
12	0	8.864738	8.864881	8.865024	45		1= 29
	15	8.865168	8.865311	8.865454	30		2. 57
	30	8.865597	8.865740	8.865883	15		3. 86
	45	8.866026	8.866169	8.866312	0	47	4. 114
13	0	8.866455	8.866597	8.866740	45		1= 28
	15	8.866883	8.867025	8.867168	30		2. 57
	30	8.867310	8.867453	8.867595	15		3. 85
	45	8.867738	8.867880	8.868022	0	46	4. 114
14	0	8.868165	8.868307	8.868449	45		1= 28
	15	8.868591	8.868733	8.868875	30		2. 57
	30	8.869017	8.869159	8.869301	15		3. 85
	45	8.869443	8.869585	8.869726	0	45	4. 114
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.869868	8.870010	8.870151	45		1″=28
	15	8.870293	8.870434	8.870576	30		2. 57
	30	8.870717	8.870859	8.871000	15		3. 85
	45	8.871141	8.871282	8.871424	0	44	4. 113
16	0	8.871565	8.871706	8.871847	45		1= 28
	15	8.871988	8.872129	8.872270	30		2. 56
	30	8.872411	8.872551	8.872692	15		3. 84
	45	8.872833	8.872973	8.873114	0	43	4. 113
17	0	8.873255	8.873395	8.873536	45		1= 28
	15	8.873676	8.873817	8.873957	30		2. 56
	30	8.874097	8.874237	8.874378	15		3. 84
	45	8.874518	8.874658	8.874798	0	42	4. 112
18	0	8.874938	8.875078	8.875218	45		1= 28
	15	8.875358	8.875498	8.875638	30		2. 56
	30	8.875777	8.875917	8.876057	15		3. 84
	45	8.876196	8.876336	8.876476	0	41	4. 112
19	0	8.876615	8.876754	8.876894	45		1= 28
	15	8.877033	8.877173	8.877312	30		2. 56
	30	8.877451	8.877590	8.877729	15		3. 83
	45	8.877868	8.878007	8.878146	0	40	4. 111
20	0	8.878285	8.878424	8.878563	45		1= 28
	15	8.878702	8.878841	8.878980	30		2. 55
	30	8.879118	8.879257	8.879395	15		3. 83
	45	8.879534	8.879672	8.879811	0	39	4. 111
21	0	8.879949	8.880088	8.880226	45		1= 28
	15	8.880364	8.880503	8.880641	30		2. 55
	30	8.880779	8.880917	8.881055	15		3. 83
	45	8.881193	8.881331	8.881469	0	38	4. 110
22	0	8.881607	8.881745	8.881883	45		1= 28
	15	8.882020	8.882158	8.882296	30		2. 55
	30	8.882433	8.882571	8.882708	15		3. 83
	45	8.882846	8.882983	8.883121	0	37	4. 110
23	0	8.883258	8.883396	8.883533	45		1= 27
	15	8.883670	8.883807	8.883944	30		2. 55
	30	8.884081	8.884219	8.884356	15		3. 82
	45	8.884492	8.884629	8.884766	0	36	4. 110
24	0	8.884903	8.885040	8.885177	45		1= 27
	15	8.885313	8.885450	8.885587	30		2. 55
	30	8.885723	8.885860	8.885996	15		3. 82
	45	8.886133	8.886269	8.886406	0	35	4. 109
25	0	8.886542	8.886678	8.886814	45		1= 27
	15	8.886951	8.887087	8.887223	30		2. 54
	30	8.887359	8.887495	8.887631	15		3. 82
	45	8.887767	8.887903	8.888039	0	34	4. 109
26	0	8.888174	8.888310	8.888446	45		1= 27
	15	8.888582	8.888717	8.888853	30		2. 54
	30	8.888988	8.889124	8.889259	15		3. 81
	45	8.889395	8.889530	8.889665	0	33	4. 108
27	0	8.889801	8.889936	8.890071	45		1= 27
	15	8.890206	8.890341	8.890477	30		2. 54
	30	8.890612	8.890747	8.890882	15		3. 81
	45	8.891016	8.891151	8.891286	0	32	4. 108
28	0	8.891421	8.891556	8.891690	45		1= 27
	15	8.891825	8.891960	8.892094	30		2. 54
	30	8.892229	8.892363	8.892498	15		3. 81
	45	8.892632	8.892767	8.892901	0	31	4. 108
29	0	8.893035	8.893169	8.893304	45		1= 27
	15	8.893438	8.893572	8.893706	30		2. 54
	30	8.893840	8.893974	8.894108	15		3. 80
	45	8.894242	8.894376	8.894510	0	30	4. 107
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.894643	8.894777	8.894911	45		1″ = 27
	15	8.895044	8.895178	8.895312	30		2. 53
	30	8.895445	8.895579	8.895712	15		3. 80
	45	8.895846	8.895979	8.896112	0	29	4. 107
31	0	8.896246	8.896379	8.896512	45		1 = 27
	15	8.896645	8.896778	8.896911	30		2. 53
	30	8.897044	8.897177	8.897310	15		3. 80
	45	8.897443	8.897576	8.897709	0	28	4. 106
32	0	8.897842	8.897975	8.898107	45		1 = 27
	15	8.898240	8.898373	8.898505	30		2. 53
	30	8.898638	8.898770	8.898903	15		3. 80
	45	8.899035	8.899168	8.899300	0	27	4. 106
33	0	8.899432	8.899565	8.899697	45		1 = 26
	15	8.899829	8.899961	8.900093	30		2. 53
	30	8.900225	8.900357	8.900489	15		3. 79
	45	8.900621	8.900753	8.900885	0	26	4. 106
34	0	8.901017	8.901149	8.901280	45		1 = 26
	15	8.901412	8.901544	8.901675	30		2. 53
	30	8.901807	8.901938	8.902070	15		3. 79
	45	8.902201	8.902333	8.902464	0	25	4. 105
35	0	8.902596	8.902727	8.902858	45		1 = 26
	15	8.902989	8.903121	8.903252	30		2. 52
	30	8.903383	8.903514	8.903645	15		3. 79
	45	8.903776	8.903907	8.904038	0	24	4. 105
36	0	8.904169	8.904299	8.904430	45		1 = 26
	15	8.904561	8.904692	8.904822	30		2. 52
	30	8.904953	8.905084	8.905214	15		3. 78
	45	8.905345	8.905475	8.905606	0	23	4. 104
37	0	8.905736	8.905866	8.905997	45		1 = 26
	15	8.906127	8.906257	8.906387	30		2. 52
	30	8.906517	8.906648	8.906778	15		3. 78
	45	8.906908	8.907038	8.907168	0	22	4. 104
38	0	8.907298	8.907427	8.907557	45		1 = 26
	15	8.907687	8.907817	8.907947	30		2. 52
	30	8.908076	8.908206	8.908335	15		3. 78
	45	8.908465	8.908595	8.908724	0	21	4. 104
39	0	8.908854	8.908983	8.909112	45		1 = 26
	15	8.909242	8.909371	8.909500	30		2. 52
	30	8.909629	8.909759	8.909888	15		3. 77
	45	8.910017	8.910146	8.910275	0	20	4. 103
40	0	8.910404	8.910533	8.910662	45		1 = 26
	15	8.910791	8.910919	8.911048	30		2. 51
	30	8.911177	8.911306	8.911434	15		3. 77
	45	8.911563	8.911692	8.911820	0	19	4. 103
41	0	8.911949	8.912077	8.912206	45		1 = 26
	15	8.912334	8.912462	8.912591	30		2. 51
	30	8.912719	8.912847	8.912976	15		3. 77
	45	8.913104	8.913232	8.913360	0	18	4. 103
42	0	8.913488	8.913616	8.913744	45		1 = 26
	15	8.913872	8.914000	8.914128	30		2. 51
	30	8.914256	8.914384	8.914511	15		3. 77
	45	8.914639	8.914767	8.914894	0	17	4. 102
43	0	8.915022	8.915150	8.915277	45		1 = 25
	15	8.915405	8.915532	8.915659	30		2. 51
	30	8.915787	8.915914	8.916042	15		3. 76
	45	8.916169	8.916296	8.916423	0	16	4. 102
44	0	8.916550	8.916678	8.916805	45		1 = 25
	15	8.916932	8.917059	8.917186	30		2. 51
	30	8.917313	8.917439	8.917566	15		3. 76
	45	8.917693	8.917820	8.917947	0	15	4. 102
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.918073	8.918200	8.918327	45		1″ = 25
	15	8.918453	8.918580	8.918706	30		2. 51
	30	8.918833	8.918959	8.919086	15		3. 76
	45	8.919212	8.919339	8.919465	0	14	4. 101
46	0	8.919591	8.919717	8.919844	45		1 = 25
	15	8.919970	8.920096	8.920222	30		2. 50
	30	8.920348	8.920474	8.920600	15		3. 76
	45	8.920726	8.920852	8.920978	0	13	4. 101
47	0	8.921103	8.921229	8.921355	45		1 = 25
	15	8.921481	8.921606	8.921732	30		2. 50
	30	8.921858	8.921983	8.922109	15		3. 75
	45	8.922234	8.922360	8.922485	0	12	4. 100
48	0	8.922611	8.922736	8.922861	45		1 = 25
	15	8.922986	8.923112	8.923237	30		2. 50
	30	8.923362	8.923487	8.923612	15		3. 75
	45	8.923737	8.923862	8.923987	0	11	4. 100
49	0	8.924112	8.924237	8.924362	45		1 = 25
	15	8.924487	8.924612	8.924737	30		2. 50
	30	8.924861	8.924986	8.925111	15		3. 75
	45	8.925235	8.925360	8.925484	0	10	4. 100
50	0	8.925609	8.925733	8.925858	45		1 = 25
	15	8.925982	8.926107	8.926231	30		2. 50
	30	8.926355	8.926480	8.926604	15		3. 75
	45	8.926728	8.926852	8.926976	0	9	4. 99
51	0	8.927100	8.927224	8.927348	45		1 = 25
	15	8.927472	8.927596	8.927720	30		2. 50
	30	8.927844	8.927968	8.928092	15		3. 74
	45	8.928216	8.928339	8.928463	0	8	4. 99
52	0	8.928587	8.928710	8.928834	45		1 = 25
	15	8.928957	8.929081	8.929204	30		2. 49
	30	8.929328	8.929451	8.929575	15		3. 74
	45	8.929698	8.929821	8.929945	0	7	4. 99
53	0	8.930068	8.930191	8.930314	45		1 = 25
	15	8.930437	8.930560	8.930684	30		2. 49
	30	8.930807	8.930930	8.931052	15		3. 74
	45	8.931175	8.931298	8.931421	0	6	4. 98
54	0	8.931544	8.931667	8.931790	45		1 = 25
	15	8.931912	8.932035	8.932158	30		2. 49
	30	8.932280	8.932403	8.932525	15		3. 74
	45	8.932648	8.932770	8.932893	0	5	4. 98
55	0	8.933015	8.933137	8.933260	45		1 = 24
	15	8.933382	8.933504	8.933627	30		2. 49
	30	8.933749	8.933871	8.933993	15		3. 73
	45	8.934115	8.934237	8.934359	0	4	4. 98
56	0	8.934481	8.934603	8.934725	45		1 = 24
	15	8.934847	8.934969	8.935091	30		2. 49
	30	8.935212	8.935334	8.935456	15		3. 73
	45	8.935577	8.935699	8.935821	0	3	4. 97
57	0	8.935942	8.936064	8.936185	45		1 = 24
	15	8.936307	8.936428	8.936550	30		2. 49
	30	8.936671	8.936792	8.936914	15		3. 73
	45	8.937035	8.937156	8.937277	0	2	4. 97
58	0	8.937398	8.937520	8.937641	45		1 = 24
	15	8.937762	8.937883	8.938004	30		2. 48
	30	8.938125	8.938246	8.938366	15		3. 73
	45	8.938487	8.938608	8.938729	0	1	4. 97
59	0	8.938850	8.938970	8.939091	45		1 = 24
	15	8.939212	8.939332	8.939453	30		2. 48
	30	8.939573	8.939694	8.939814	15		3. 72
	45	8.939935	8.940055	8.940176	0	0	4. 96
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.843585	8.843735	8.843886	45		1″=30
	15	8.844036	8.844186	8.844337	30		2. 60
	30	8.844487	8.844637	8.844787	15		3. 90
	45	8.844937	8.845087	8.845237	0	59	4. 120
1	0	8.845387	8.845537	8.845687	45		1= 30
	15	8.845837	8.845987	8.846136	30		2. 60
	30	8.846286	8.846436	8.846585	15		3. 90
	45	8.846735	8.846884	8.847033	0	58	4. 120
2	0	8.847183	8.847332	8.847481	45		1= 30
	15	8.847630	8.847780	8.847929	30		2. 60
	30	8.848078	8.848227	8.848376	15		3. 89
	45	8.848524	8.848673	8.848822	0	57	4. 119
3	0	8.848971	8.849119	8.849268	45		1= 30
	15	8.849417	8.849565	8.849714	30		2. 59
	30	8.849862	8.850010	8.850159	15		3. 89
	45	8.850307	8.850455	8.850603	0	56	4. 119
4	0	8.850751	8.850899	8.851047	45		1= 30
	15	8.851195	8.851343	8.851491	30		2. 59
	30	8.851639	8.851787	8.851934	15		3. 89
	45	8.852082	8.852230	8.852377	0	55	4. 118
5	0	8.852525	8.852672	8.852819	45		1= 29
	15	8.852967	8.853114	8.853261	30		2. 59
	30	8.853408	8.853556	8.853703	15		3. 88
	45	8.853850	8.853997	8.854144	0	54	4. 118
6	0	8.854291	8.854437	8.854584	45		1= 29
	15	8.854731	8.854878	8.855024	30		2. 59
	30	8.855171	8.855317	8.855464	15		3. 88
	45	8.855610	8.855757	8.855903	0	53	4. 117
7	0	8.856049	8.856196	8.856342	45		1= 29
	15	8.856488	8.856634	8.856780	30		2. 59
	30	8.856926	8.857072	8.857218	15		3. 88
	45	8.857364	8.857510	8.857655	0	52	4. 116
8	0	8.857801	8.857947	8.858092	45		1= 29
	15	8.858238	8.858383	8.858529	30		2. 58
	30	8.858674	8.858820	8.858965	15		3. 87
	45	8.859110	8.859255	8.859401	0	51	4. 116
9	0	8.859546	8.859691	8.859836	45		1= 29
	15	8.859981	8.860126	8.860271	30		2 58
	30	8.860415	8.860560	8.860705	15		3. 87
	45	8.860850	8.860994	8.861139	0	50	4. 116
10	0	8.861283	8.861428	8.861572	45		1= 29
	15	8.861717	8.861861	8.862005	30		2. 58
	30	8.862150	8.862294	8.862438	15		3. 86
	45	8.862582	8.862726	8.862870	0	49	4. 115
11	0	8.863014	8.863158	8.863302	45		1= 29
	15	8.863446	8.863589	8.863733	30		2. 57
	30	8.863877	8.864020	8.864164	15		3. 86
	45	8.864307	8.864451	8.864594	0	48	4. 115
12	0	8.864738	8.864881	8.865024	45		1= 29
	15	8.865168	8.865311	8.865454	30		2. 57
	30	8.865597	8.865740	8.865883	15		3. 86
	45	8.866026	8.866169	8.866312	0	47	4. 114
13	0	8.866455	8.866597	8.866740	45		1= 28
	15	8.866883	8.867025	8.867168	30		2. 57
	30	8.867310	8.867453	8.867595	15		3. 85
	45	8.867738	8.867880	8.868022	0	46	4. 114
14	0	8.868165	8.868307	8.868449	45		1= 28
	15	8.868591	8.868733	8.868875	30		2. 57
	30	8.869017	8.869159	8.869301	15		3. 85
	45	8.869443	8.869585	8.869726	0	45	4. 114
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.869868	8.870010	8.870151	45		1″=28
	15	8.870293	8.870434	8.870576	30		2. 57
	30	8.870717	8.870859	8.871000	15		3. 85
	45	8.871141	8.871282	8.871424	0	44	4. 113
16	0	8.871565	8.871706	8.871847	45		1= 28
	15	8.871988	8.872129	8.872270	30		2. 56
	30	8.872411	8.872551	8.872692	15		3. 84
	45	8.872833	8.872973	8.873114	0	43	4. 113
17	0	8.873255	8.873395	8.873536	45		1= 28
	15	8.873676	8.873817	8.873957	30		2. 56
	30	8.874097	8.874237	8.874378	15		3. 84
	45	8.874518	8.874658	8.874798	0	42	4. 112
18	0	8.874938	8.875078	8.875218	45		1= 28
	15	8.875358	8.875498	8.875638	30		2. 56
	30	8.875777	8.875917	8.876057	15		3. 84
	45	8.876196	8.876336	8.876476	0	41	4. 112
19	0	8.876615	8.876754	8.876894	45		1= 28
	15	8.877033	8.877173	8.877312	30		2. 56
	30	8.877451	8.877590	8.877729	15		3. 83
	45	8.877868	8.878007	8.878146	0	40	4. 111
20	0	8.878285	8.878424	8.878563	45		1= 28
	15	8.878702	8.878841	8.878980	30		2. 55
	30	8.879118	8.879257	8.879395	15		3. 83
	45	8.879534	8.879672	8.879811	0	39	4. 111
21	0	8.879949	8.880088	8.880226	45		1= 28
	15	8.880364	8.880503	8.880641	30		2. 55
	30	8.880779	8.880917	8.881055	15		3. 83
	45	8.881193	8.881331	8.881469	0	38	4. 110
22	0	8.881607	8.881745	8.881883	45		1= 28
	15	8.882020	8.882158	8.882296	30		2. 55
	30	8.882433	8.882571	8.882708	15		3. 83
	45	8.882846	8.882983	8.883121	0	37	4. 110
23	0	8.883258	8.883396	8.883533	45		1= 27
	15	8.883670	8.883807	8.883944	30		2. 55
	30	8.884081	8.884219	8.884356	15		3. 82
	45	8.884492	8.884629	8.884766	0	36	4. 110
24	0	8.884903	8.885040	8.885177	45		1= 27
	15	8.885313	8.885450	8.885587	30		2. 55
	30	8.885723	8.885860	8.885996	15		3. 82
	45	8.886133	8.886269	8.886406	0	35	4. 109
25	0	8.886542	8.886678	8.886814	45		1= 27
	15	8.886951	8.887087	8.887223	30		2. 54
	30	8.887359	8.887495	8.887631	15		3. 82
	45	8.887767	8.887903	8.888039	0	34	4. 109
26	0	8.888174	8.888310	8.888446	45		1= 27
	15	8.888582	8.888717	8.888853	30		2. 54
	30	8.888988	8.889124	8.889259	15		3. 81
	45	8.889395	8.889530	8.889665	0	33	4. 108
27	0	8.889801	8.889936	8.890071	45		1= 27
	15	8.890206	8.890341	8.890477	30		2. 54
	30	8.890612	8.890747	8.890882	15		3. 81
	45	8.891016	8.891151	8.891286	0	32	4. 108
28	0	8.891421	8.891556	8.891690	45		1= 27
	15	8.891825	8.891960	8.892094	30		2. 54
	30	8.892229	8.892363	8.892498	15		3. 81
	45	8.892632	8.892767	8.892901	0	31	4. 108
29	0	8.893035	8.893169	8.893304	45		1= 27
	15	8.893438	8.893572	8.893706	30		2. 54
	30	8.893840	8.893974	8.894108	15		3. 80
	45	8.894242	8.894376	8.894510	0	30	4. 107
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.894643	8.894777	8.894911	45		1″ = 27
	15	8.895044	8.895178	8.895312	30		2. 53
	30	8.895445	8.895579	8.895712	15		3. 80
	45	8.895846	8.895979	8.896112	0	29	4. 107
31	0	8.896246	8.896379	8.896512	45		1 = 27
	15	8.896645	8.896778	8.896911	30		2. 53
	30	8.897044	8.897177	8.897310	15		3. 80
	45	8.897443	8.897576	8.897709	0	28	4. 106
32	0	8.897842	8.897975	8.898107	45		1 = 27
	15	8.898240	8.898373	8.898505	30		2. 53
	30	8.898638	8.898770	8.898903	15		3. 80
	45	8.899035	8.899168	8.899300	0	27	4. 106
33	0	8.899432	8.899565	8.899697	45		1 = 26
	15	8.899829	8.899961	8.900093	30		2. 53
	30	8.900225	8.900357	8.900489	15		3. 79
	45	8.900621	8.900753	8.900885	0	26	4. 106
34	0	8.901017	8.901149	8.901280	45		1 = 26
	15	8.901412	8.901544	8.901675	30		2. 53
	30	8.901807	8.901938	8.902070	15		3. 79
	45	8.902201	8.902333	8.902464	0	25	4. 105
35	0	8.902596	8.902727	8.902858	45		1 = 26
	15	8.902989	8.903121	8.903252	30		2. 52
	30	8.903383	8.903514	8.903645	15		3. 79
	45	8.903776	8.903907	8.904038	0	24	4. 105
36	0	8.904169	8.904299	8.904430	45		1 = 26
	15	8.904561	8.904692	8.904822	30		2. 52
	30	8.904953	8.905084	8.905214	15		3. 78
	45	8.905345	8.905475	8.905606	0	23	4. 104
37	0	8.905736	8.905866	8.905997	45		1 = 26
	15	8.906127	8.906257	8.906387	30		2. 52
	30	8.906517	8.906648	8.906778	15		3. 78
	45	8.906908	8.907038	8.907168	0	22	4. 104
38	0	8.907298	8.907427	8.907557	45		1 = 26
	15	8.907687	8.907817	8.907947	30		2. 52
	30	8.908076	8.908206	8.908335	15		3. 78
	45	8.908465	8.908595	8.908724	0	21	4. 104
39	0	8.908854	8.908983	8.909112	45		1 = 26
	15	8.909242	8.909371	8.909500	30		2. 52
	30	8.909629	8.909759	8.909888	15		3. 77
	45	8.910017	8.910146	8.910275	0	20	4. 103
40	0	8.910404	8.910533	8.910662	45		1 = 26
	15	8.910791	8.910919	8.911048	30		2. 51
	30	8.911177	8.911306	8.911434	15		3. 77
	45	8.911563	8.911692	8.911820	0	19	4. 103
41	0	8.911949	8.912077	8.912206	45		1 = 26
	15	8.912334	8.912462	8.912591	30		2. 51
	30	8.912719	8.912847	8.912976	15		3. 77
	45	8.913104	8.913232	8.913360	0	18	4. 103
42	0	8.913488	8.913616	8.913744	45		1 = 26
	15	8.913872	8.914000	8.914128	30		2. 51
	30	8.914256	8.914384	8.914511	15		3. 77
	45	8.914639	8.914767	8.914894	0	17	4. 102
43	0	8.915022	8.915150	8.915277	45		1 = 25
	15	8.915405	8.915532	8.915659	30		2. 51
	30	8.915787	8.915914	8.916042	15		3. 76
	45	8.916169	8.916296	8.916423	0	16	4. 102
44	0	8.916550	8.916678	8.916805	45		1 = 25
	15	8.916932	8.917059	8.917186	30		2. 51
	30	8.917313	8.917439	8.917566	15		3. 76
	45	8.917693	8.917820	8.917947	0	15	4. 102
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.918073	8.918200	8.918327	45		1″ = 25
	15	8.918453	8.918580	8.918706	30		2. 51
	30	8.918833	8.918959	8.919086	15		3. 76
	45	8.919212	8.919339	8.919465	0	14	4. 101
46	0	8.919591	8.919717	8.919844	45		1 = 25
	15	8.919970	8.920096	8.920222	30		2. 50
	30	8.920348	8.920474	8.920600	15		3. 76
	45	8.920726	8.920852	8.920978	0	13	4. 101
47	0	8.921103	8.921229	8.921355	45		1 = 25
	15	8.921481	8.921606	8.921732	30		2. 50
	30	8.921858	8.921983	8.922109	15		3. 75
	45	8.922234	8.922360	8.922485	0	12	4. 100
48	0	8.922611	8.922736	8.922861	45		1 = 25
	15	8.922986	8.923112	8.923237	30		2. 50
	30	8.923362	8.923487	8.923612	15		3. 75
	45	8.923737	8.923862	8.923987	0	11	4. 100
49	0	8.924112	8.924237	8.924362	45		1 = 25
	15	8.924487	8.924612	8.924737	30		2. 50
	30	8.924861	8.924986	8.925111	15		3. 75
	45	8.925235	8.925360	8.925484	0	10	4. 100
50	0	8.925609	8.925733	8.925858	45		1 = 25
	15	8.925982	8.926107	8.926231	30		2. 50
	30	8.926355	8.926480	8.926604	15		3. 75
	45	8.926728	8.926852	8.926976	0	9	4. 99
51	0	8.927100	8.927224	8.927348	45		1 = 25
	15	8.927472	8.927596	8.927720	30		2. 50
	30	8.927844	8.927968	8.928092	15		3. 74
	45	8.928216	8.928339	8.928463	0	8	4. 99
52	0	8.928587	8.928710	8.928834	45		1 = 25
	15	8.928957	8.929081	8.929204	30		2. 49
	30	8.929328	8.929451	8.929575	15		3. 74
	45	8.929698	8.929821	8.929945	0	7	4. 99
53	0	8.930068	8.930191	8.930314	45		1 = 25
	15	8.930437	8.930560	8.930684	30		2. 49
	30	8.930807	8.930930	8.931052	15		3. 74
	45	8.931175	8.931298	8.931421	0	6	4. 98
54	0	8.931544	8.931667	8.931790	45		1 = 25
	15	8.931912	8.932035	8.932158	30		2. 49
	30	8.932280	8.932403	8.932525	15		3. 74
	45	8.932648	8.932770	8.932893	0	5	4. 98
55	0	8.933015	8.933137	8.933260	45		1 = 24
	15	8.933382	8.933504	8.933627	30		2. 49
	30	8.933749	8.933871	8.933993	15		3. 73
	45	8.934115	8.934237	8.934359	0	4	4. 98
56	0	8.934481	8.934603	8.934725	45		1 = 24
	15	8.934847	8.934969	8.935091	30		2. 49
	30	8.935212	8.935334	8.935456	15		3. 73
	45	8.935577	8.935699	8.935821	0	3	4. 97
57	0	8.935942	8.936064	8.936185	45		1 = 24
	15	8.936307	8.936428	8.936550	30		2. 49
	30	8.936671	8.936792	8.936914	15		3. 73
	45	8.937035	8.937156	8.937277	0	2	4. 97
58	0	8.937398	8.937520	8.937641	45		1 = 24
	15	8.937762	8.937883	8.938004	30		2. 48
	30	8.938125	8.938246	8.938366	15		3. 73
	45	8.938487	8.938608	8.938729	0	1	4. 97
59	0	8.938850	8.938970	8.939091	45		1 = 24
	15	8.939212	8.939332	8.939453	30		2. 48
	30	8.939573	8.939694	8.939814	15		3. 72
	45	8.939935	8.940055	8.940176	0	0	4. 96
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 85 degrees, or Sine of 175 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.940296	8.940416	8.940537	45		1″ = 24
	15	8.940657	8.940777	8.940897	30		2. 48
	30	8.941017	8.941138	8.941258	15		3. 72
	45	8.941378	8.941498	8.941618	0	59	4 96
1	0	8.941738	8.941858	8.941977	45		1 = 24
	15	8.942097	8.942217	8.942337	30		2. 48
	30	8.942457	8.942576	8.942696	15		3. 72
	45	8.942816	8.942935	8.943055	0	58	4. 96
2	0	8.943174	8.943294	8.943413	45		1 = 24
	15	8.943533	8.943652	8.943772	30		2. 48
	30	8.943891	8.944010	8.944130	15		3. 72
	45	8.944249	8.944368	8.944487	0	57	4. 95
3	0	8.944606	8.944725	8.944845	45		1 = 24
	15	8.944964	8.945083	8.945202	30		2. 48
	30	8.945321	8.945439	8.945558	15		3. 71
	45	8.945677	8.945796	8.945915	0	56	4. 95
4	0	8.946034	8.946152	8.946271	45		1 = 24
	15	8.946390	8.946508	8.946627	30		2. 47
	30	8.946745	8.946864	8.946982	15		3. 71
	45	8.947101	8.947219	8.947338	0	55	4. 95
5	0	8.947456	8.947574	8.947693	45		1 = 24
	15	8.947811	8.947929	8.948047	30		2. 47
	30	8.948166	8.948284	8.948402	15		3. 71
	45	8.948520	8.948638	8.948756	0	54	4. 94
6	0	8.948874	8.948992	8.949110	45		1 = 24
	15	8.949228	8.949346	8.949463	30		2. 47
	30	8.949581	8.949699	8.949817	15		3. 71
	45	8.949934	8.950052	8.950170	0	53	4. 94
7	0	8.950287	8.950405	8.950522	45		1 = 23
	15	8.950640	8.950757	8.950875	30		2. 47
	30	8.950992	8.951109	8.951227	15		3. 70
	45	8.951344	8.951461	8.951579	0	52	4. 94
8	0	8.951696	8.951813	8.951930	45		1 = 23
	15	8.952047	8.952164	8.952281	30		2. 47
	30	8.952398	8.952515	8.952632	15		3. 70
	45	8.952749	8.952866	8.952983	0	51	4. 94
9	0	8.953100	8.953216	8.953333	45		1 = 23
	15	8.953450	8.953567	8.953683	30		2. 47
	30	8.953800	8.953917	8.954033	15		3. 70
	45	8.954150	8.954266	8.954383	0	50	4. 93
10	0	8.954499	8.954616	8.954732	45		1 = 23
	15	8.954848	8.954965	8.955081	30		2. 46
	30	8.955197	8.955313	8.955430	15		3. 70
	45	8.955546	8.955662	8.955778	0	49	4. 93
11	0	8.955894	8.956010	8.956126	45		1 = 23
	15	8.956242	8.956358	8.956474	30		2. 46
	30	8.956590	8.956706	8.956821	15		3. 70
	45	8.956937	8.957053	8.957169	0	48	4. 93
12	0	8.957284	8.957400	8.957516	45		1 = 23
	15	8.957631	8.957747	8.957862	30		2. 46
	30	8.957978	8.958093	8.958209	15		3. 69
	45	8.958324	8.958440	8.958555	0	47	4. 92
13	0	8.958670	8.958786	8.958901	45		1 = 23
	15	8.959016	8.959131	8.959246	30		2. 46
	30	8.959362	8.959477	8.959592	15		3. 69
	45	8.959707	8.959822	8.959937	0	46	4. 92
14	0	8.960052	8.960167	8.960282	45		1 = 23
	15	8.960396	8.960511	8.960626	30		2. 46
	30	8.960741	8.960856	8.960970	15		3. 69
	45	8.961085	8.961200	8.961314	0	45	4. 92
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0′	5″	10′	Seconds	Minutes	Propor. parts.
15	0	8.961429	8.961543	8.961658	45		1″ = 23
	15	8.961772	8.961887	8.962001	30		2. 46
	30	8.962116	8.962230	8.962344	15		3. 69
	45	8.962459	8.962573	8.962687	0	44	4. 91
16	0	8.962801	8.962916	8.963030	45		1 = 23
	15	8.963144	8.963258	8.963372	30		2. 46
	30	8.963486	8.963600	8.963714	15		3. 68
	45	8.963828	8.963942	8.964056	0	43	4. 91
17	0	8.964170	8.964284	8.964397	45		1 = 23
	15	8.964511	8.964625	8.964739	30		2. 45
	30	8.964852	8.964966	8.965080	15		3. 68
	45	8.965193	8.965307	8.965420	0	42	4. 91
18	0	8.965534	8.965647	8.965761	45		1 = 23
	15	8.965874	8.965987	8.966101	30		2. 45
	30	8.966214	8.966327	8.966441	15		3. 68
	45	8.966554	8.966667	8.966780	0	41	4. 91
19	0	8.966893	8.967007	8.967120	45		1 = 23
	15	8.967233	8.967346	8.967459	30		2. 45
	30	8.967572	8.967685	8.967797	15		3. 68
	45	8.967910	8.968023	8.968136	0	40	4. 90
20	0	8.968249	8.968362	8.968474	45		1 = 23
	15	8.968587	8.968700	8.968812	30		2. 45
	30	8.968925	8.969037	8.969150	15		3. 68
	45	8.969263	8.969375	8.969487	0	39	4. 90
21	0	8.969600	8.969712	8.969825	45		1 = 22
	15	8.969937	8.970049	8.970162	30		2. 45
	30	8.970274	8.970386	8.970498	15		3. 67
	45	8.970610	8.970723	8.970835	0	38	4. 90
22	0	8.970947	8.971059	8.971171	45		1 = 22
	15	8.971283	8.971395	8.971507	30		2. 45
	30	8.971619	8.971731	8.971842	15		3. 67
	45	8.971954	8.972066	8.972178	0	37	4. 90
23	0	8.972290	8.972401	8.972513	45		1 = 22
	15	8.972625	8.972736	8.972848	30		2. 45
	30	8.972959	8.973071	8.973182	15		3. 67
	45	8.973294	8.973405	8.973517	0	36	4. 89
24	0	8.973628	8.973739	8.973851	45		1 = 22
	15	8.973962	8.974073	8.974185	30		2. 44
	30	8.974296	8.974407	8.974518	15		3. 67
	45	8.974629	8.974740	8.974851	0	35	4. 89
25	0	8.974962	8.975073	8.975184	45		1 = 22
	15	8.975295	8.975406	8.975517	30		2. 44
	30	8.975628	8.975739	8.975850	15		3. 67
	45	8.975960	8.976071	8.976182	0	34	4. 89
26	0	8.976293	8.976403	8.976514	45		1 = 22
	15	8.976625	8.976735	8.976846	30		2. 44
	30	8.976956	8.977067	8.977177	15		3. 66
	45	8.977288	8.977398	8.977508	0	33	4. 88
27	0	8.977619	8.977729	8.977839	45		1 = 22
	15	8.977950	8.978060	8.978170	30		2. 44
	30	8.978280	8.978391	8.978501	15		3. 66
	45	8.978611	8.978721	8.978831	0	32	4. 88
28	0	8.978941	8.979051	8.979161	45		1 = 22
	15	8.979271	8.979381	8.979491	30		2. 44
	30	8.979600	8.979710	8.979820	15		3. 66
	45	8.979930	8.980040	8.980149	0	31	4. 88
29	0	8.980259	8.980369	8.980478	45		1 = 22
	15	8.980588	8.980697	8.980807	30		2. 44
	30	8.980916	8.981026	8.981135	15		3. 66
	45	8.981245	8.981354	8.981464	0	30	4. 88
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.981573	8.981682	8.981792	45		1″=22
	15	8.981901	8.982010	8.982119	30		2. 44
	30	8.982228	8.982338	8.982447	15		3. 65
	45	8.982556	8.982665	8.982774	0	29	4. 87
31	0	8.982883	8.982992	8.983101	45		1= 22
	15	8.983210	8.983319	8.983428	30		2. 44
	30	8.983536	8.983645	8.983754	15		3. 65
	45	8.983863	8.983972	8.984080	0	28	4. 87
32	0	8.984189	8.984298	8.984406	45		1= 22
	15	8.984515	8.984623	8.984732	30		2. 43
	30	8.984840	8.984949	8.985057	15		3. 65
	45	8.985166	8.985274	8.985383	0	27	4. 87
33	0	8.985491	8.985599	8.985708	45		1= 22
	15	8.985816	8.985924	8.986032	30		2. 43
	30	8.986141	8.986249	8.986357	15		3. 65
	45	8.986465	8.986573	8.986681	0	26	4. 87
34	0	8.986789	8.986897	8.987005	45		1= 22
	15	8.987113	8.987221	8.987329	30		2. 43
	30	8.987437	8.987545	8.987652	15		3. 65
	45	8.987760	8.987868	8.987976	0	25	4. 86
35	0	8.988083	8.988191	8.988299	45		1= 22
	15	8.988406	8.988514	8.988622	30		2. 43
	30	8.988729	8.988836	8.988944	15		3. 65
	45	8.989052	8.989159	8.989266	0	24	4. 86
36	0	8.989374	8.989481	8.989588	45		1= 21
	15	8.989696	8.989803	8.989910	30		2. 43
	30	8.990017	8.990125	8.990232	15		3. 64
	45	8.990339	8.990446	8.990553	0	23	4. 86
37	0	8.990660	8.990767	8.990874	45		1= 21
	15	8.990981	8.991088	8.991195	30		2. 43
	30	8.991302	8.991409	8.991516	15		3. 64
	45	8.991623	8.991729	8.991836	0	22	4. 86
38	0	8.991943	8.992050	8.992156	45		1= 21
	15	8.992263	8.992370	8.992476	30		2. 43
	30	8.992583	8.992689	8.992796	15		3. 64
	45	8.992902	8.993009	8.993115	0	21	4. 85
39	0	8.993222	8.993328	8.993435	45		1= 21
	15	8.993541	8.993647	8.993754	30		2. 43
	30	8.993860	8.993966	8.994072	15		3. 64
	45	8.994178	8.994285	8.994391	0	20	4. 85
40	0	8.994497	8.994603	8.994709	45		1= 21
	15	8.994815	8.994921	8.995027	30		2. 42
	30	8.995133	8.995239	8.995345	15		3. 64
	45	8.995451	8.995557	8.995662	0	19	4. 85
41	0	8.995768	8.995874	8.995980	45		1= 21
	15	8.996085	8.996191	8.996297	30		2. 42
	30	8.996402	8.996508	8.996614	15		3. 63
	45	8.996719	8.996825	8.996930	0	18	4. 84
42	0	8.997036	8.997141	8.997247	45		1= 21
	15	8.997352	8.997457	8.997563	30		2. 42
	30	8.997668	8.997773	8.997879	15		3. 63
	45	8.997984	8.998089	8.998194	0	17	4. 84
43	0	8.998299	8.998405	8.998510	45		1= 21
	15	8.998615	8.998720	8.998825	30		2. 42
	30	8.998930	8.999035	8.999140	15		3. 63
	45	8.999245	8.999350	8.999455	0	16	4. 84
44	0	8.999560	8.999664	8.999769	45		1= 21
	15	8.999874	9.999979	9.000084	30		2. 42
	30	9.000188	9.000293	9.000398	15		3. 63
	45	9.000502	9.000607	9.000711	0	15	4. 84
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.000816	9.000921	9.001025	45		1″=21
	15	9.001130	9.001234	9.001338	30		2. 42
	30	9.001443	9.001547	9.001652	15		3. 63
	45	9.001756	9.001860	9.001965	0	14	4. 84
46	0	9.002069	9.002173	9.002277	45		1= 21
	15	9.002381	9.002486	9.002590	30		2. 42
	30	9.002694	9.002798	9.002902	15		3. 62
	45	9.003006	9.003110	9.003214	0	13	4. 83
47	0	9.003318	9.003422	9.003526	45		1= 21
	15	9.003630	9.003733	9.003837	30		2. 42
	30	9.003941	9.004045	9.004149	15		3. 62
	45	9.004252	9.004356	9.004460	0	12	4. 83
48	0	9.004563	9.004667	9.004771	45		1= 21
	15	9.004874	9.004978	9.005081	30		2. 41
	30	9.005185	9.005288	9.005392	15		3. 62
	45	9.005495	9.005599	9.005702	0	11	4. 83
49	0	9.005805	9.005909	9.006012	45		1= 21
	15	9.006115	9.006219	9.006322	30		2. 41
	30	9.006425	9.006528	9.006631	15		3. 62
	45	9.006734	9.006838	9.006941	0	10	4. 83
50	0	9.007044	9.007147	9.007250	45		1= 21
	15	9.007353	9.007456	9.007559	30		2. 41
	30	9.007662	9.007764	9.007867	15		3. 62
	45	9.007970	9.008073	9.008176	0	9	4. 82
51	0	9.008278	9.008381	9.008484	45		1= 21
	15	9.008587	9.008689	9.008792	30		2. 41
	30	9.008895	9.008997	9.009100	15		3. 62
	45	9.009202	9.009305	9.009407	0	8	4. 82
52	0	9.009510	9.009612	9.009715	45		1= 20
	15	9.009817	9.009919	9.010022	30		2. 41
	30	9.010124	9.010226	9.010329	15		3. 61
	45	9.010431	9.010533	9.010635	0	7	4. 82
53	0	9.010737	9.010840	9.010942	45		1= 20
	15	9.011044	9.011146	9.011248	30		2. 41
	30	9.011350	9.011452	9.011554	15		3. 61
	45	9.011656	9.011758	9.011860	0	6	4. 82
54	0	9.011962	9.012063	9.012165	45		1= 20
	15	9.012267	9.012369	9.012471	30		2. 41
	30	9.012572	9.012674	9.012776	15		3. 61
	45	9.012878	9.012979	9.013081	0	5	4. 81
55	0	9.013182	9.013284	9.013386	45		1= 20
	15	9.013487	9.013589	9.013690	30		2. 41
	30	9.013791	9.013893	9.013994	15		3. 61
	45	9.014096	9.014197	9.014298	0	4	4. 81
56	0	9.014400	9.014501	9.014602	45		1= 20
	15	9.014703	9.014805	9.014906	30		2. 40
	30	9.015007	9.015108	9.015209	15		3. 61
	45	9.015310	9.015411	9.015512	0	3	4. 81
57	0	9.015614	9.015715	9.015815	45		1= 20
	15	9.015916	9.016017	9.016118	30		2. 40
	30	9.016219	9.016320	9.016421	15		3. 61
	45	9.016522	9.016622	9.016723	0	2	4. 81
58	0	9.016824	9.016925	9.017025	45		1= 20
	15	9.017126	9.017227	9.017327	30		2. 40
	30	9.017428	9.017528	9.017629	15		3. 60
	45	9.017730	9.017830	9.017931	0	1	4. 80
59	0	9.018031	9.018131	9.018232	45		1= 20
	15	9.018332	9.018433	9.018533	30		2. 40
	30	9.018633	9.018733	9.018834	15		3. 60
	45	9.018934	9.019034	9.019134	0	0	4. 80
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.940296	8.940416	8.940537	45		1″ = 24
	15	8.940657	8.940777	8.940897	30		2. 48
	30	8.941017	8.941138	8.941258	15		3. 72
	45	8.941378	8.941498	8.941618	0	59	4 96
1	0	8.941738	8.941858	8.941977	45		1 = 24
	15	8.942097	8.942217	8.942337	30		2. 48
	30	8.942457	8.942576	8.942696	15		3. 72
	45	8.942816	8.942935	8.943055	0	58	4. 96
2	0	8.943174	8.943294	8.943413	45		1 = 24
	15	8.943533	8.943652	8.943772	30		2. 48
	30	8.943891	8.944010	8.944130	15		3. 72
	45	8.944249	8.944368	8.944487	0	57	4. 95
3	0	8.944606	8.944725	8.944845	45		1 = 24
	15	8.944964	8.945083	8.945202	30		2. 48
	30	8.945321	8.945439	8.945558	15		3. 71
	45	8.945677	8.945796	8.945915	0	56	4. 95
4	0	8.946034	8.946152	8.946271	45		1 = 24
	15	8.946390	8.946508	8.946627	30		2. 47
	30	8.946745	8.946864	8.946982	15		3. 71
	45	8.947101	8.947219	8.947338	0	55	4. 95
5	0	8.947456	8.947574	8.947693	45		1 = 24
	15	8.947811	8.947929	8.948047	30		2. 47
	30	8.948166	8.948284	8.948402	15		3. 71
	45	8.948520	8.948638	8.948756	0	54	4. 94
6	0	8.948874	8.948992	8.949110	45		1 = 24
	15	8.949228	8.949346	8.949463	30		2. 47
	30	8.949581	8.949699	8.949817	15		3. 71
	45	8.949934	8.950052	8.950170	0	53	4. 94
7	0	8.950287	8.950405	8.950522	45		1 = 23
	15	8.950640	8.950757	8.950875	30		2. 47
	30	8.950992	8.951109	8.951227	15		3. 70
	45	8.951344	8.951461	8.951579	0	52	4. 94
8	0	8.951696	8.951813	8.951930	45		1 = 23
	15	8.952047	8.952164	8.952281	30		2. 47
	30	8.952398	8.952515	8.952632	15		3. 70
	45	8.952749	8.952866	8.952983	0	51	4. 94
9	0	8.953100	8.953216	8.953333	45		1 = 23
	15	8.953450	8.953567	8.953683	30		2. 47
	30	8.953800	8.953917	8.954033	15		3. 70
	45	8.954150	8.954266	8.954383	0	50	4. 93
10	0	8.954499	8.954616	8.954732	45		1 = 23
	15	8.954848	8.954965	8.955081	30		2. 46
	30	8.955197	8.955313	8.955430	15		3. 70
	45	8.955546	8.955662	8.955778	0	49	4. 93
11	0	8.955894	8.956010	8.956126	45		1 = 23
	15	8.956242	8.956358	8.956474	30		2. 46
	30	8.956590	8.956706	8.956821	15		3. 70
	45	8.956937	8.957053	8.957169	0	48	4. 93
12	0	8.957284	8.957400	8.957516	45		1 = 23
	15	8.957631	8.957747	8.957862	30		2. 46
	30	8.957978	8.958093	8.958209	15		3. 69
	45	8.958324	8.958440	8.958555	0	47	4. 92
13	0	8.958670	8.958786	8.958901	45		1 = 23
	15	8.959016	8.959131	8.959246	30		2. 46
	30	8.959362	8.959477	8.959592	15		3. 69
	45	8.959707	8.959822	8.959937	0	46	4. 92
14	0	8.960052	8.960167	8.960282	45		1 = 23
	15	8.960396	8.960511	8.960626	30		2. 46
	30	8.960741	8.960856	8.960970	15		3. 69
	45	8.961085	8.961200	8.961314	0	45	4. 92
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.961429	8.961543	8.961658	45		1″ = 23
	15	8.961772	8.961887	8.962001	30		2. 46
	30	8.962116	8.962230	8.962344	15		3. 69
	45	8.962459	8.962573	8.962687	0	44	4. 91
16	0	8.962801	8.962916	8.963030	45		1 = 23
	15	8.963144	8.963258	8.963372	30		2. 46
	30	8.963486	8.963600	8.963714	15		3. 68
	45	8.963828	8.963942	8.964056	0	43	4. 91
17	0	8.964170	8.964284	8.964397	45		1 = 23
	15	8.964511	8.964625	8.964739	30		2. 45
	30	8.964852	8.964966	8.965080	15		3. 68
	45	8.965193	8.965307	8.965420	0	42	4. 91
18	0	8.965534	8.965647	8.965761	45		1 = 23
	15	8.965874	8.965987	8.966101	30		2. 45
	30	8.966214	8.966327	8.966441	15		3. 68
	45	8.966554	8.966667	8.966780	0	41	4. 91
19	0	8.966893	8.967007	8.967120	45		1 = 23
	15	8.967233	8.967346	8.967459	30		2. 45
	30	8.967572	8.967685	8.967797	15		3. 68
	45	8.967910	8.968023	8.968136	0	40	4. 90
20	0	8.968249	8.968362	8.968474	45		1 = 23
	15	8.968587	8.968700	8.968812	30		2. 45
	30	8.968925	8.969037	8.969150	15		3. 68
	45	8.969263	8.969375	8.969487	0	39	4. 90
21	0	8.969600	8.969712	8.969825	45		1 = 22
	15	8.969937	8.970049	8.970162	30		2. 45
	30	8.970274	8.970386	8.970498	15		3. 67
	45	8.970610	8.970723	8.970835	0	38	4. 90
22	0	8.970947	8.971059	8.971171	45		1 = 22
	15	8.971283	8.971395	8.971507	30		2. 45
	30	8.971619	8.971731	8.971842	15		3. 67
	45	8.971954	8.972066	8.972178	0	37	4. 90
23	0	8.972290	8.972401	8.972513	45		1 = 22
	15	8.972625	8.972736	8.972848	30		2. 45
	30	8.972959	8.973071	8.973182	15		3. 67
	45	8.973294	8.973405	8.973517	0	36	4. 89
24	0	8.973628	8.973739	8.973851	45		1 = 22
	15	8.973962	8.974073	8.974185	30		2. 44
	30	8.974296	8.974407	8.974518	15		3. 67
	45	8.974629	8.974740	8.974851	0	35	4. 89
25	0	8.974962	8.975073	8.975184	45		1 = 22
	15	8.975295	8.975406	8.975517	30		2. 44
	30	8.975628	8.975739	8.975850	15		3. 67
	45	8.975960	8.976071	8.976182	0	34	4. 89
26	0	8.976293	8.976403	8.976514	45		1 = 22
	15	8.976625	8.976735	8.976846	30		2. 44
	30	8.976956	8.977067	8.977177	15		3. 66
	45	8.977288	8.977398	8.977508	0	33	4. 88
27	0	8.977619	8.977729	8.977839	45		1 = 22
	15	8.977950	8.978060	8.978170	30		2. 44
	30	8.978280	8.978391	8.978501	15		3. 66
	45	8.978611	8.978721	8.978831	0	32	4. 88
28	0	8.978941	8.979051	8.979161	45		1 = 22
	15	8.979271	8.979381	8.979491	30		2. 44
	30	8.979600	8.979710	8.979820	15		3. 66
	45	8.979930	8.980040	8.980149	0	31	4. 88
29	0	8.980259	8.980369	8.980478	45		1 = 22
	15	8.980588	8.980697	8.980807	30		2. 44
	30	8.980916	8.981026	8.981135	15		3. 66
	45	8.981245	8.981354	8.981464	0	30	4. 88
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.981573	8.981682	8.981792	45		1″=22
	15	8.981901	8.982010	8.982119	30		2. 44
	30	8.982228	8.982338	8.982447	15		3. 65
	45	8.982556	8.982665	8.982774	0	29	4. 87
31	0	8.982883	8.982992	8.983101	45		1= 22
	15	8.983210	8.983319	8.983428	30		2. 44
	30	8.983536	8.983645	8.983754	15		3. 65
	45	8.983863	8.983972	8.984080	0	28	4. 87
32	0	8.984189	8.984298	8.984406	45		1= 22
	15	8.984515	8.984623	8.984732	30		2. 43
	30	8.984840	8.984949	8.985057	15		3. 65
	45	8.985166	8.985274	8.985383	0	27	4. 87
33	0	8.985491	8.985599	8.985708	45		1= 22
	15	8.985816	8.985924	8.986032	30		2. 43
	30	8.986141	8.986249	8.986357	15		3. 65
	45	8.986465	8.986573	8.986681	0	26	4. 87
34	0	8.986789	8.986897	8.987005	45		1= 22
	15	8.987113	8.987221	8.987329	30		2. 43
	30	8.987437	8.987545	8.987652	15		3. 65
	45	8.987760	8.987868	8.987976	0	25	4. 86
35	0	8.988083	8.988191	8.988299	45		1= 22
	15	8.988406	8.988514	8.988622	30		2. 43
	30	8.988729	8.988836	8.988944	15		3. 65
	45	8.989052	8.989159	8.989266	0	24	4. 86
36	0	8.989374	8.989481	8.989588	45		1= 21
	15	8.989696	8.989803	8.989910	30		2. 43
	30	8.990017	8.990125	8.990232	15		3. 64
	45	8.990339	8.990446	8.990553	0	23	4. 86
37	0	8.990660	8.990767	8.990874	45		1= 21
	15	8.990981	8.991088	8.991195	30		2. 43
	30	8.991302	8.991409	8.991516	15		3. 64
	45	8.991623	8.991729	8.991836	0	22	4. 86
38	0	8.991943	8.992050	8.992156	45		1= 21
	15	8.992263	8.992370	8.992476	30		2. 43
	30	8.992583	8.992689	8.992796	15		3. 64
	45	8.992902	8.993009	8.993115	0	21	4. 85
39	0	8.993222	8.993328	8.993435	45		1= 21
	15	8.993541	8.993647	8.993754	30		2. 43
	30	8.993860	8.993966	8.994072	15		3. 64
	45	8.994178	8.994285	8.994391	0	20	4. 85
40	0	8.994497	8.994603	8.994709	45		1= 21
	15	8.994815	8.994921	8.995027	30		2. 42
	30	8.995133	8.995239	8.995345	15		3. 64
	45	8.995451	8.995557	8.995662	0	19	4. 85
41	0	8.995768	8.995874	8.995980	45		1= 21
	15	8.996085	8.996191	8.996297	30		2. 42
	30	8.996402	8.996508	8.996614	15		3. 63
	45	8.996719	8.996825	8.996930	0	18	4. 84
42	0	8.997036	8.997141	8.997247	45		1= 21
	15	8.997352	8.997457	8.997563	30		2. 42
	30	8.997668	8.997773	8.997879	15		3. 63
	45	8.997984	8.998089	8.998194	0	17	4. 84
43	0	8.998299	8.998405	8.998510	45		1= 21
	15	8.998615	8.998720	8.998825	30		2. 42
	30	8.998930	8.999035	8.999140	15		3. 63
	45	8.999245	8.999350	8.999455	0	16	4. 84
44	0	8.999560	8.999664	8.999769	45		1= 21
	15	8.999874	8.999979	9.000084	30		2. 42
	30	9.000188	9.000293	9.000398	15		3. 63
	45	9.000502	9.000607	9.000711	0	15	4. 84
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.000816	9.000921	9.001025	45		1″=21
	15	9.001130	9.001234	9.001338	30		2. 42
	30	9.001443	9.001547	9.001652	15		3. 63
	45	9.001756	9.001860	9.001965	0	14	4. 84
46	0	9.002069	9.002173	9.002277	45		1= 21
	15	9.002381	9.002486	9.002590	30		2. 42
	30	9.002694	9.002798	9.002902	15		3. 62
	45	9.003006	9.003110	9.003214	0	13	4. 83
47	0	9.003318	9.003422	9.003526	45		1= 21
	15	9.003630	9.003733	9.003837	30		2. 42
	30	9.003941	9.004045	9.004149	15		3. 62
	45	9.004252	9.004356	9.004460	0	12	4. 83
48	0	9.004563	9.004667	9.004771	45		1= 21
	15	9.004874	9.004978	9.005081	30		2. 41
	30	9.005185	9.005288	9.005392	15		3. 62
	45	9.005495	9.005599	9.005702	0	11	4. 83
49	0	9.005805	9.005909	9.006012	45		1= 21
	15	9.006115	9.006219	9.006322	30		2. 41
	30	9.006425	9.006528	9.006631	15		3. 62
	45	9.006734	9.006838	9.006941	0	10	4. 83
50	0	9.007044	9.007147	9.007250	45		1= 21
	15	9.007353	9.007456	9.007559	30		2. 41
	30	9.007662	9.007764	9.007867	15		3. 62
	45	9.007970	9.008073	9.008176	0	9	4. 82
51	0	9.008278	9.008381	9.008484	45		1= 21
	15	9.008587	9.008689	9.008792	30		2. 41
	30	9.008895	9.008997	9.009100	15		3. 62
	45	9.009202	9.009305	9.009407	0	8	4. 82
52	0	9.009510	9.009612	9.009715	45		1= 20
	15	9.009817	9.009919	9.010022	30		2. 41
	30	9.010124	9.010226	9.010329	15		3. 61
	45	9.010431	9.010533	9.010635	0	7	4. 82
53	0	9.010737	9.010840	9.010942	45		1= 20
	15	9.011044	9.011146	9.011248	30		2. 41
	30	9.011350	9.011452	9.011554	15		3. 61
	45	9.011656	9.011758	9.011860	0	6	4. 82
54	0	9.011962	9.012063	9.012165	45		1= 20
	15	9.012267	9.012369	9.012471	30		2. 41
	30	9.012572	9.012674	9.012776	15		3. 61
	45	9.012878	9.012979	9.013081	0	5	4. 81
55	0	9.013182	9.013284	9.013386	45		1= 20
	15	9.013487	9.013589	9.013690	30		2. 41
	30	9.013791	9.013893	9.013994	15		3. 61
	45	9.014096	9.014197	9.014298	0	4	4. 81
56	0	9.014400	9.014501	9.014602	45		1= 20
	15	9.014703	9.014805	9.014906	30		2. 40
	30	9.015007	9.015108	9.015209	15		3. 61
	45	9.015310	9.015411	9.015512	0	3	4. 81
57	0	9.015614	9.015715	9.015815	45		1= 20
	15	9.015916	9.016017	9.016118	30		2. 40
	30	9.016219	9.016320	9.016421	15		3. 61
	45	9.016522	9.016622	9.016723	0	2	4. 81
58	0	9.016824	9.016925	9.017025	45		1= 20
	15	9.017126	9.017227	9.017327	30		2. 40
	30	9.017428	9.017528	9.017629	15		3. 60
	45	9.017730	9.017830	9.017931	0	1	4. 80
59	0	9.018031	9.018131	9.018232	45		1= 20
	15	9.018332	9.018433	9.018533	30		2. 40
	30	9.018633	9.018733	9.018834	15		3. 60
	45	9.018934	9.019034	9.019134	0	0	4. 80
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 84 degrees, or Sine of 174 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 6 degrees, or Co-sine of 96 degrees. 0″	5″	10	Seconds	Minutes	Propor. parts.
0	0	9.019235	9.019335	9.019435	45		1″=20
	15	9.019535	9.019635	9.019735	30		2. 40
	30	9.019835	9.019935	9.020035	15		3. 60
	45	9.020135	9.020235	9.020335	0	59	4. 80
1	0	9.020435	9.020535	9.020635	45		1= 20
	15	9.020734	9.020834	9.020934	30		2. 40
	30	9.021034	9.021134	9.021233	15		3. 60
	45	9.021333	9.021433	9.021532	0	58	4. 80
2	0	9.021632	9.021731	9.021831	45		1= 20
	15	9.021931	9.022030	9.022130	30		2. 40
	30	9.022229	9.022329	9.022428	15		3. 60
	45	9.022527	9.022627	9.022726	0	57	4. 80
3	0	9.022825	9.022925	9.023024	45		1= 20
	15	9.023123	9.023223	9.023322	30		2. 40
	30	9.023421	9.023520	9.023619	15		3. 59
	45	9.023718	9.023818	9.023917	0	56	4. 79
4	0	9.024016	9.024115	9.024214	45		1= 20
	15	9.024313	9.024412	9.024511	30		2. 40
	30	9.024610	9.024709	9.024807	15		3. 59
	45	9.024906	9.025005	9.025104	0	55	4. 79
5	0	9.025203	9.025302	9.025400	45		1= 20
	15	9.025499	9.025598	9.025696	30		2. 39
	30	9.025795	9.025894	9.025992	15		3. 59
	45	9.026091	9.026189	9.026288	0	54	4. 79
6	0	9.026387	9.026485	9.026583	45		1= 20
	15	9.026682	9.026780	9.026879	30		2. 39
	30	9.026977	9.027076	9.027174	15		3. 59
	45	9.027272	9.027370	9.027469	0	53	4. 79
7	0	9.027567	9.027665	9.027763	45		1= 20
	15	9.027862	9.027960	9.028058	30		2. 39
	30	9.028156	9.028254	9.028352	15		3. 59
	45	9.028450	9.028548	9.028646	0	52	4. 78
8	0	9.028744	9.028842	9.028940	45		1= 20
	15	9.029038	9.029136	9.029234	30		2. 39
	30	9.029332	9.029429	9.029527	15		3. 59
	45	9.029625	9.029723	9.029821	0	51	4. 78
9	0	9.029918	9.030016	9.030114	45		1= 20
	15	9.030211	9.030309	9.030406	30		2. 39
	30	9.030504	9.030602	9.030699	15		3. 59
	45	9.030797	9.030894	9.030992	0	50	4. 78
10	0	9.031089	9.031187	9.031284	45		1= 19
	15	9.031381	9.031479	9.031576	30		2. 39
	30	9.031673	9.031771	9.031868	15		3. 58
	45	9.031965	9.032062	9.032160	0	49	4. 78
11	0	9.032257	9.032354	9.032451	45		1= 19
	15	9.032548	9.032645	9.032742	30		2. 39
	30	9.032839	9.032936	9.033033	15		3. 58
	45	9.033130	9.033227	9.033324	0	48	4. 78
12	0	9.033421	9.033518	9.033615	45		1= 19
	15	9.033712	9.033809	9.033905	30		2. 39
	30	9.034002	9.034099	9.034196	15		3. 58
	45	9.034293	9.034389	9.034486	0	47	4. 77
13	0	9.034583	9.034679	9.034776	45		1= 19
	15	9.034872	9.034969	9.035065	30		2. 39
	30	9.035162	9.035259	9.035355	15		3. 58
	45	9.035451	9.035548	9.035644	0	46	4. 77
14	0	9.035741	9.035837	9.035933	45		1= 19
	15	9.036030	9.036126	9.036222	30		2. 39
	30	9.036319	9.036415	9.036511	15		3. 58
	45	9.036607	9.036704	9.036800	0	45	4. 77
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 83 degrees, or Sine of 173 degrees.					

Minutes	Seconds	Sines of 6 degrees, or Co-sine of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9.036896	9.036992	9.037088	45		1″=19
	15	9.037184	9.037280	9.037376	30		2. 38
	30	9.037472	9.037568	9.037664	15		3. 58
	45	9.037760	9.037856	9.037952	0	44	4. 77
16	0	9.038048	9.038144	9.038239	45		1= 19
	15	9.038335	9.038431	9.038527	30		2. 38
	30	9.038623	9.038718	9.038814	15		3. 57
	45	9.038910	9.039005	9.039101	0	43	4. 77
17	0	9.039197	9.039292	9.039388	45		1= 19
	15	9.039483	9.039579	9.039674	30		2. 38
	30	9.039770	9.039865	9.039961	15		3. 57
	45	9.040056	9.040152	9.040247	0	42	4. 76
18	0	9.040342	9.040438	9.040533	45		1= 19
	15	9.040628	9.040724	9.040819	30		2. 38
	30	9.040914	9.041009	9.041105	15		3. 57
	45	9.041200	9.041295	9.041390	0	41	4. 76
19	0	9.041485	9.041580	9.041675	45		1= 19
	15	9.041770	9.041866	9.041961	30		2. 38
	30	9.042056	9.042150	9.042245	15		3. 57
	45	9.042340	9.042435	9.042530	0	40	4. 76
20	0	9.042625	9.042720	9.042815	45		1= 19
	15	9.042909	9.043004	9.043099	30		2. 38
	30	9.043194	9.043288	9.043383	15		3. 57
	45	9.043478	9.043572	9.043667	0	39	4. 76
21	0	9.043762	9.043856	9.043951	45		1= 19
	15	9.044045	9.044140	9.044234	30		2. 38
	30	9.044329	9.044423	9.044518	15		3. 57
	45	9.044612	9.044707	9.044801	0	38	4. 76
22	0	9.044895	9.044990	9.045084	45		1= 19
	15	9.045178	9.045273	9.045367	30		2. 38
	30	9.045461	9.045555	9.045650	15		3. 57
	45	9.045744	9.045838	9.045932	0	37	4. 75
23	0	9.046026	9.046120	9.046214	45		1= 19
	15	9.046308	9.046402	9.046496	30		2. 38
	30	9.046590	9.046684	9.046778	15		3. 56
	45	9.046872	9.046966	9.047060	0	36	4. 75
24	0	9.047154	9.047248	9.047342	45		1= 19
	15	9.047435	9.047529	9.047623	30		2. 37
	30	9.047717	9.047810	9.047904	15		3. 56
	45	9.047998	9.048091	9.048185	0	35	4. 75
25	0	9.048279	9.048372	9.048466	45		1= 19
	15	9.048559	9.048653	9.048746	30		2. 37
	30	9.048840	9.048933	9.049027	15		3. 56
	45	9.049120	9.049214	9.049307	0	34	4. 75
26	0	9.049401	9.049494	9.049587	45		1= 19
	15	9.049681	9.049774	9.049867	30		2. 37
	30	9.049960	9.050054	9.050147	15		3. 56
	45	9.050240	9.050333	9.050426	0	33	4. 75
27	0	9.050519	9.050613	9.050706	45		1= 19
	15	9.050799	9.050892	9.050985	30		2. 37
	30	9.051078	9.051171	9.051264	15		3. 56
	45	9.051357	9.051450	9.051543	0	32	4. 74
28	0	9.051635	9.051728	9.051821	45		1= 19
	15	9.051914	9.052007	9.052100	30		2. 37
	30	9.052192	9.052285	9.052378	15		3. 56
	45	9.052471	9.052563	9.052656	0	31	4. 74
29	0	9.052749	9.052841	9.052934	45		1= 19
	15	9.053026	9.053119	9.053212	30		2. 37
	30	9.053304	9.053397	9.053489	15		3. 56
	45	9.053582	9.053674	9.053766	0	30	4. 74
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 83 degrees, or Sine of 173 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 6 degrees, or Co-sine of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9.053859	9.053951	9.054044	45		1″ = 18
	15	9.054136	9.054228	9.054321	30		2. 37
	30	9.054413	9.054505	9.054597	15		3. 55
	45	9.054690	9.054782	9.054874	0	29	4. 74
31	0	9.054966	9.055058	9.055150	45		1 = 18
	15	9.055243	9.055335	9.055427	30		2. 37
	30	9.055519	9.055611	9.055703	15		3. 55
	45	9.055795	9.055887	9.055979	0	28	4. 74
32	0	9.056071	9.056163	9.056254	45		1 = 18
	15	9.056346	9.056438	9.056530	30		2. 37
	30	9.056622	9.056714	9.056805	15		3. 55
	45	9.056897	9.056989	9.057081	0	27	4. 73
33	0	9.057172	9.057264	9.057356	45		1 = 18
	15	9.057447	9.057539	9.057631	30		2. 37
	30	9.057722	9.057814	9.057905	15		3. 55
	45	9.057997	9.058088	9.058180	0	26	4. 73
34	0	9.058271	9.058363	9.058454	45		1 = 18
	15	9.058545	9.058637	9.058728	30		2. 37
	30	9.058820	9.058911	9.059002	15		3. 55
	45	9.059093	9.059185	9.059276	0	25	4. 73
35	0	9.059367	9.059458	9.059550	45		1 = 18
	15	9.059641	9.059732	9.059823	30		2. 36
	30	9.059914	9.060005	9.060096	15		3. 55
	45	9.060187	9.060278	9.060369	0	24	4. 73
36	0	9.060460	9.060551	9.060642	45		1 = 18
	15	9.060733	9.060824	9.060915	30		2. 36
	30	9.061006	9.061097	9.061188	15		3. 55
	45	9.061279	9.061369	9.061460	0	23	4. 73
37	0	9.061551	9.061642	9.961732	45		1 = 18
	15	9.061823	9.061914	9.062004	30		2. 36
	30	9.062095	9.062186	9.062276	15		3. 54
	45	9.062367	9.062458	9.062548	0	22	4. 72
38	0	9.062639	9.062729	9.062820	45		1 = 18
	15	9.062910	9.063001	9.063091	30		2. 36
	30	9.063181	9.063272	9.063362	15		3. 54
	45	9.063453	9.063543	9.063633	0	21	4. 72
39	0	9.063724	9.063814	9.063904	45		1 = 18
	15	9.063994	9.064085	9.064175	30		2. 36
	30	9.064265	9.064355	9.064445	15		3. 54
	45	9.064535	9.064626	9.064716	0	20	4. 72
40	0	9.064806	9.064896	9.064986	45		1 = 18
	15	9.065076	9.065166	9.065256	30		2. 36
	30	9.065346	9.065436	9.065526	15		3. 54
	45	9.065616	9.065706	9.065795	0	19	4. 72
41	0	9.065885	9.065975	9.066065	45		1 = 18
	15	9.066155	9.066244	9.066334	30		2. 36
	30	9.066424	9.066514	9.066603	15		3. 54
	45	9.066693	9.066783	9.066872	0	18	4. 72
42	0	9.066962	9.067052	9.067141	45		1 = 18
	15	9.067231	9.067320	9.067410	30		2. 36
	30	9.067499	9.067589	9.067678	15		3. 54
	45	9.067768	9.067857	9.067947	0	17	4. 72
43	0	9.068036	9.068125	9.068215	45		1 = 18
	15	9.068304	9.068393	9.068483	30		2. 36
	30	9.068572	9.068661	9.068751	15		3. 54
	45	9.068840	9.068929	9.069018	0	16	4. 71
44	0	9.069107	9.069197	9.069286	45		1 = 18
	15	9.069375	9.069464	9.069553	30		2. 36
	30	9.069642	9.069731	9.069820	15		3. 53
	45	9.069909	9.069998	9.070087	0	15	4. 71
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 83 degrees, or Sine of 173 degrees.					

Minutes	Seconds	Sine of 6 degrees, or Co-sine of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.070176	9.070265	9.070354	45		1″ = 18
	15	9.070443	9.070532	9.070621	30		2. 36
	30	9.070709	9.070798	9.070887	15		3. 53
	45	9.070976	9.071065	9.071153	0	14	4. 71
46	0	9.071242	9.071331	9.071420	45		1 = 18
	15	9.071508	9.071597	9.071686	30		2. 35
	30	9.071774	9.071863	9.071951	15		3. 53
	45	9.072040	9.072129	9.072217	0	13	4. 71
47	0	9.072306	9.072394	9.072483	45		1 = 18
	15	9.072571	9.072659	9.072748	30		2. 35
	30	9.072836	9.072925	9.073013	15		3. 53
	45	9.073101	9.073190	9.073278	0	12	4. 71
48	0	9.073366	9.073455	9.073543	45		1 = 18
	15	9.073631	9.073719	9.073808	30		2. 35
	30	9.073896	9.073984	9.074072	15		3. 53
	45	9.074160	9.074248	9.074336	0	11	4. 71
49	0	9.074424	9.074513	9.074601	45		1 = 18
	15	9.074689	9.074777	9.074865	30		2. 35
	30	9.074953	9.075040	9.075128	15		3. 53
	45	9.075216	9.075304	9.075392	0	10	4. 70
50	0	9.075480	9.075568	9.075656	45		1 = 18
	15	9.075743	9.075831	9.075919	30		2. 35
	30	9.076007	9.076094	9.076182	15		3. 53
	45	9.076270	9.076358	9.076445	0	9	4. 70
51	0	9.076533	9.076621	9.076708	45		1 = 18
	15	9.076796	9.076883	9.076971	30		2. 35
	30	9.077058	9.077146	9.077233	15		3. 53
	45	9.077321	9.077408	9.077496	0	8	4. 70
52	0	9.077583	9.077671	9.077758	45		1 = 17
	15	9.077845	9.077933	9.078020	30		2. 35
	30	9.078107	9.078195	9.078282	15		3. 52
	45	9.078369	9.078457	9.078544	0	7	4. 70
53	0	9.078631	9.078718	9.078805	45		1 = 17
	15	9.078893	9.078980	9.079067	30		2. 35
	30	9.079154	9.079241	9.079328	15		3. 52
	45	9.079415	9.079502	9.079589	0	6	4. 70
54	0	9.079676	9.079763	9.079850	45		1 = 17
	15	9.079937	9.080024	9.080111	30		2. 35
	30	9.080198	9.080285	9.080372	15		3. 52
	45	9.080458	9.080545	9.080632	0	5	4. 69
55	0	9.080719	9.080806	9.080892	45		1 = 17
	15	9.080979	9.081066	9.081153	30		2. 35
	30	9.081239	9.081326	9.081413	15		3. 52
	45	9.081499	9.081586	9.081672	0	4	4. 69
56	0	9.081759	9.081846	9.081932	45		1 = 17
	15	9.082019	9.082105	9.082192	30		2. 35
	30	9.082278	9.082365	9.082451	15		3. 52
	45	9.082538	9.082624	9.082710	0	3	4. 69
57	0	9.082797	9.082883	9.082969	45		1 = 17
	15	9.083056	9.083142	9.083228	30		2. 35
	30	9.083315	9.083401	9.083487	15		3. 52
	45	9.083573	9.083659	9.083746	0	2	4. 69
58	0	9.083832	9.083918	9.084004	45		1 = 17
	15	9.084090	9.084176	9.084262	30		2. 34
	30	9.084348	9.084434	9.084520	15		3. 52
	45	9.084606	9.084692	9.084778	0	1	4. 69
59	0	9.084864	9.084950	9.085036	45		1 = 17
	15	9.085122	9.085208	9.085294	30		2. 34
	30	9.085380	9.085466	9.085551	15		3. 52
	45	9.085637	9.085723	9.085809	0	0	4. 69
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sin of 83 degrees, or Sine of 173 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 7 degrees, or Co-sine of 97 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
0	0	9. 085895	9. 085980	9. 086066	45		1″ = 17
	15	9. 086152	9. 086237	9. 086323	30		2. 34
	30	9. 086409	9. 086494	9. 086580	15		3. 51
	45	9. 086665	9. 086751	9. 086837	0	59	4. 68
1	0	9. 086922	9. 087008	9. 087093	45		1 = 17
	15	9. 087179	9. 087264	9. 087350	30		2. 34
	30	9. 087435	9. 087520	9. 087606	15		3. 51
	45	9. 087691	9. 087777	9. 087862	0	58	4. 68
2	0	9. 087947	9. 088033	9. 088118	45		1 = 17
	15	9. 088203	9. 088289	9. 088374	30		2. 34
	30	9. 088459	9. 088544	9. 088629	15		3. 51
	45	9. 088715	9. 088800	9. 088885	0	57	4. 68
3	0	9. 088970	9. 089055	9. 089140	45		1 = 17
	15	9. 089225	9. 089310	9. 089396	30		2. 34
	30	9. 089481	9. 089566	9. 089651	15		3. 51
	45	9. 089736	9. 089821	9. 089905	0	56	4. 68
4	0	9. 089990	9. 090075	9. 090160	45		1 = 17
	15	9. 090245	9. 090330	9. 090415	30		2. 34
	30	9. 090500	9. 090584	9. 090669	15		3. 51
	45	9. 090754	9. 090839	9. 090924	0	55	4. 68
5	0	9. 091008	9. 091093	9. 091178	45		1 = 17
	15	9. 091262	9. 091347	9. 091432	30		2. 34
	30	9. 091516	9. 091601	9. 091685	15		3. 51
	45	9. 091770	9. 091855	9. 091939	0	54	4. 68
6	0	9. 092024	9. 092108	9. 092193	45		1 = 17
	15	9. 092277	9. 092362	9. 092446	30		2. 34
	30	9. 092531	9. 092615	9. 092699	15		3. 51
	45	9. 092784	9. 092868	9. 092952	0	53	4. 68
7	0	9. 093037	9. 093121	9. 093205	45		1 = 17
	15	9. 093290	9. 093374	9. 093458	30		2. 34
	30	9. 093542	9. 093627	9. 093711	15		3. 51
	45	9. 093795	9. 093879	9. 093963	0	52	4. 67
8	0	9. 094047	9. 094132	9. 094216	45		1 = 17
	15	9. 094300	9. 094384	9. 094468	30		2. 34
	30	9. 094552	9. 094636	9. 094720	15		3. 50
	45	9. 094804	9. 094888	9. 094972	0	51	4. 67
9	0	9. 095056	9. 095140	9. 095223	45		1 = 17
	15	9. 095307	9. 095391	9. 095475	30		2. 34
	30	9. 095559	9. 095643	9. 095727	15		3. 50
	45	9. 095810	9. 095894	9. 095978	0	50	4. 67
10	0	9. 096062	9. 096145	9. 096229	45		1 = 17
	15	9. 096313	9. 096396	9. 096480	30		2. 33
	30	9. 096564	9. 096647	9. 096731	15		3. 50
	45	9. 096814	9. 096898	9. 096982	0	49	4. 67
11	0	9. 097065	9. 097149	9. 097232	45		1 = 17
	15	9. 097316	9. 097399	9. 097483	30		2. 33
	30	9. 097566	9. 097649	9. 097733	15		3. 50
	45	9. 097816	9. 097900	9. 097983	0	48	4. 67
12	0	9. 098066	9. 098150	9. 098233	45		1 = 17
	15	9. 098316	9. 098400	9. 098483	30		2. 33
	30	9. 098566	9. 098649	9. 098732	15		3. 50
	45	9. 098816	9. 098899	9. 098982	0	47	4. 67
13	0	9. 099065	9. 099148	9. 099231	45		1 = 17
	15	9. 099314	9. 099398	9. 099481	30		2. 33
	30	9. 099564	9. 099647	9. 099730	15		3. 50
	45	9. 099813	9. 099896	9. 099979	0	46	4. 66
14	0	9. 100062	9. 100145	9. 100228	45		1 = 17
	15	9. 100310	9. 100393	9. 100476	30		2. 33
	30	9. 100559	9. 100642	9. 100725	15		3. 50
	45	9. 100808	9. 100890	9. 100973	0	45	4. 66
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-sine of 82 degrees, or Sine of 172 degrees.					

Minutes	Seconds	Sine of 7 degrees, or Co-sine of 97 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
15	0	9. 101056	9. 101139	9. 101221	45		1″ = 1
	15	9. 101304	9. 101387	9. 101469	30		2. 3
	30	9. 101552	9. 101635	9. 101717	15		3. 5
	45	9. 101800	9. 101883	9. 101965	0	44	4. 6
16	0	9. 102048	9. 102130	9. 102213	45		1 = 1
	15	9. 102295	9. 102378	9. 102460	30		2. 3
	30	9. 102543	9. 102625	9. 102708	15		3. 4
	45	9. 102790	9. 102873	9. 102955	0	43	4. 6
17	0	9. 103037	9. 103120	9. 103202	45		1 = 1
	15	9. 103284	9. 103367	9. 103449	30		2. 3
	30	9. 103531	9. 103614	9. 103696	15		3. 4
	45	9. 103778	9. 103860	9. 103942	0	42	4. 6
18	0	9. 104025	9. 104107	9. 104189	45		1 = 1
	15	9. 104271	9. 104353	9. 104435	30		2. 3
	30	9. 104517	9. 104600	9. 104682	15		3. 4
	45	9. 104764	9. 104846	9. 104928	0	41	4. 6
19	0	9. 105010	9. 105092	9. 105174	45		1 = 1
	15	9. 105256	9. 105338	9. 105419	30		2. 3
	30	9. 105501	9. 105583	9. 105665	15		3. 4
	45	9. 105747	9. 105829	9. 105911	0	40	4. 6
20	0	9. 105992	9. 106074	9. 106156	45		1 = 1
	15	9. 106238	9. 106320	9. 106401	30		2. 3
	30	9. 106483	9. 106565	9. 106646	15		3. 4
	45	9. 106728	9. 106810	9. 106891	0	39	4. 6
21	0	9. 106973	9. 107055	9. 107136	45		1 = 1
	15	9. 107218	9. 107299	9. 107381	30		2. 3
	30	9. 107462	9. 107544	9. 107625	15		3. 4
	45	9. 107707	9. 107788	9. 107870	0	38	4. 6
22	0	9. 107951	9. 108033	9. 108114	45		1 = 1
	15	9. 108195	9. 108277	9. 108358	30		2. 3
	30	9. 108440	9. 108521	9. 108602	15		3. 4
	45	9. 108683	9. 108765	9. 108846	0	37	4. 6
23	0	9. 108927	9. 109008	9. 109090	45		1 = 1
	15	9. 109171	9. 109252	9. 109333	30		2. 3
	30	9. 109414	9. 109496	9. 109577	15		3. 4
	45	9. 109658	9. 109739	9. 109820	0	36	4. 6
24	0	9. 109901	9. 109982	9. 110063	45		1 = 1
	15	9. 110144	9. 110225	9. 110306	30		2. 3
	30	9. 110387	9. 110468	9. 110549	15		3. 4
	45	9. 110630	9. 110711	9. 110792	0	35	4. 6
25	0	9. 110873	9. 110954	9. 111034	45		1 = 1
	15	9. 111115	9. 111196	9. 111277	30		2. 3
	30	9. 111358	9. 111438	9. 111519	15		3. 4
	45	9. 111600	9. 111681	9. 111761	0	34	4. 6
26	0	9. 111842	9. 111923	9. 112003	45		1 = 1
	15	9. 112084	9. 112165	9. 112245	30		2. 3
	30	9. 112326	9. 112406	9. 112487	15		3. 4
	45	9. 112568	9. 112648	9. 112729	0	33	4. 6
27	0	9. 112809	9. 112890	9. 112970	45		1 = 1
	15	9. 113051	9. 113131	9. 113212	30		2. 3
	30	9. 113292	9. 113372	9. 113453	15		3. 4
	45	9. 113533	9. 113614	9. 113694	0	32	4. 6
28	0	9. 113774	9. 113855	9. 113935	45		1 = 1
	15	9. 114015	9. 114095	9. 114176	30		2. 3
	30	9. 114256	9. 114336	9. 114416	15		3. 4
	45	9. 114497	9. 114577	9. 114657	0	31	4. 6
29	0	9. 114737	9. 114817	9. 114897	45		1 = 1
	15	9. 114977	9. 115058	9. 115138	30		2. 3
	30	9. 115218	9. 115298	9. 115378	15		3. 4
	45	9. 115458	9. 115538	9. 115618	0	30	4. 6
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-sine of 82 degrees, or Sine of 172 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 7 degrees, or Co-sine of 97 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9.115698	9.115778	9.115858	45		1″=16
	15	9.115938	9.116017	9.116097	30		2. 32
	30	9.116177	9.116257	9.116337	15		3. 48
	45	9.116417	9.116497	9.116576	0	29	4. 64
31	0	9.116656	9.116736	9.116816	45		1= 16
	15	9.116896	9.116975	9.117055	30		2. 32
	30	9.117135	9.117214	9.117294	15		3. 48
	45	9.117374	9.117453	9.117533	0	28	4. 64
32	0	9.117613	9.117692	9.117772	45		1= 16
	15	9.117851	9.117931	9.118010	30		2. 32
	30	9.118090	9.118169	9.118249	15		3. 48
	45	9.118328	9.118408	9.118487	0	27	4. 64
33	0	9.118567	9.118646	9.118726	45		1= 16
	15	9.118805	9.118884	9.118964	30		2. 32
	30	9.119043	9.119122	9.119202	15		3. 48
	45	9.119281	9.119360	9.119439	0	26	4. 63
34	0	9.119519	9.119598	9.119677	45		1= 16
	15	9.119757	9.119836	9.119915	30		2. 32
	30	9.119994	9.120073	9.120152	15		3. 47
	45	9.120232	9.120311	9.120390	0	25	4. 63
35	0	9.120469	9.120548	9.120627	45		1= 16
	15	9.120706	9.120785	9.120864	30		2. 32
	30	9.120943	9.121022	9.121101	15		3. 47
	45	9.121180	9.121259	9.121338	0	24	4. 63
36	0	9.121417	9.121496	9.121574	45		1= 16
	15	9.121653	9.121732	9.121811	30		2. 32
	30	9.121890	9.121969	9.122047	15		3. 47
	45	9.122126	9.122205	9.122284	0	23	4. 63
37	0	9.122362	9.122441	9.122520	45		1= 16
	15	9.122599	9.122677	9.122756	30		2. 31
	30	9.122835	9.122913	9.122992	15		3. 47
	45	9.123070	9.123149	9.123228	0	22	4. 63
38	0	9.123306	9.123385	9.123463	45		1= 16
	15	9.123542	9.123620	9.123699	30		2. 31
	30	9.123777	9.123856	9.123934	15		3. 47
	45	9.124013	9.124091	9.124169	0	21	4. 63
39	0	9.124248	9.124326	9.124404	45		1= 16
	15	9.124483	9.124561	9.124639	30		2. 31
	30	9.124718	9.124796	9.124874	15		3. 47
	45	9.124953	9.125031	9.125109	0	20	4. 63
40	0	9.125187	9.125265	9.125344	45		1= 16
	15	9.125422	9.125500	9.125578	30		2. 31
	30	9.125656	9.125734	9.125812	15		3. 47
	45	9.125891	9.125969	9.126047	0	19	4. 62
41	0	9.126125	9.126203	9.126281	45		1= 16
	15	9.126359	9.126437	9.126515	30		2. 31
	30	9.126593	9.126671	9.126749	15		3. 47
	45	9.126826	9.126904	9.126982	0	18	4. 62
42	0	9.127060	9.127138	9.127216	45		1= 16
	15	9.127294	9.127371	9.127449	30		2. 31
	30	9.127527	9.127605	9.127683	15		3. 47
	45	9.127760	9.127838	9.127916	0	17	4. 62
43	0	9.127993	9.128071	9.128149	45		1= 16
	15	9.128226	9.128304	9.128382	30		2. 31
	30	9.128459	9.128537	9.128615	15		3. 47
	45	9.128692	9.128770	9.128847	0	16	4. 62
44	0	9.128925	9.129002	9.129080	45		1= 15
	15	9.129157	9.129235	9.129312	30		2. 31
	30	9.129390	9.129467	9.129544	15		3. 46
	45	9.129622	9.129699	9.129777	0	15	4. 62
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 82 degrees, or Sine of 172 degrees.					

Minutes	Seconds	Sine of 7 degrees, or Co-sine of 97 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.129854	9.129931	9.130009	45		1″=15
	15	9.130086	9.130163	9.130241	30		2. 31
	30	9.130318	9.130395	9.130472	15		3. 46
	45	9.130550	9.130627	9.130704	0	14	4. 62
46	0	9.130781	9.130858	9.130936	45		1= 15
	15	9.131013	9.131090	9.131167	30		2. 31
	30	9.131244	9.131321	9.131398	15		3. 46
	45	9.131475	9.131552	9.131629	0	13	4. 62
47	0	9.131706	9.131784	9.131861	45		1= 15
	15	9.131937	9.132014	9.132091	30		2. 31
	30	9.132168	9.132245	9.132322	15		3. 46
	45	9.132399	9.132476	9.132553	0	12	4. 62
48	0	9.132630	9.132707	9.132783	45		1= 15
	15	9.132860	9.132937	9.133014	30		2. 31
	30	9.133091	9.133167	9.133244	15		3. 46
	45	9.133321	9.133398	9.133474	0	11	4. 61
49	0	9.133551	9.133628	9.133704	45		1= 15
	15	9.133781	9.133858	9.133934	30		2. 31
	30	9.134011	9.134087	9.134164	15		3. 46
	45	9.134241	9.134317	9.134394	0	10	4. 61
50	0	9.134470	9.134547	9.134623	45		1= 15
	15	9.134700	9.134776	9.134853	30		2. 31
	30	9.134929	9.135006	9.135082	15		3. 46
	45	9.135158	9.135235	9.135311	0	9	4. 61
51	0	9.135388	9.135464	9.135540	45		1= 15
	15	9.135617	9.135693	9.135769	30		2. 31
	30	9.135845	9.135922	9.135998	15		3. 46
	45	9.136074	9.136150	9.136227	0	8	4. 61
52	0	9.136303	9.136379	9.136455	45		1= 15
	15	9.136531	9.136607	9.136684	30		2. 30
	30	9.136760	9.136836	9.136912	15		3. 46
	45	9.136988	9.137064	9.137140	0	7	4. 61
53	0	9.137216	9.137292	9.137368	45		1= 15
	15	9.137444	9.137520	9.137596	30		2. 30
	30	9.137672	9.137748	9.137824	15		3. 46
	45	9.137900	9.137976	9.138052	0	6	4. 61
54	0	9.138128	9.138203	9.138279	45		1= 15
	15	9.138355	9.138431	9.138507	30		2. 30
	30	9.138583	9.138658	9.138734	15		3. 45
	45	9.138810	9.138886	9.138961	0	5	4. 61
55	0	9.139037	9.139113	9.139188	45		1= 15
	15	9.139264	9.139340	9.139415	30		2. 30
	30	9.139491	9.139567	9.139642	15		3. 45
	45	9.139718	9.139793	9.139869	0	4	4. 60
56	0	9.139945	9.140020	9.140096	45		1= 15
	15	9.140171	9.140247	9.140322	30		2. 30
	30	9.140398	9.140473	9.140548	15		3. 45
	45	9.140624	9.140699	9.140775	0	3	4. 60
57	0	9.140850	9.140925	9.141001	45		1= 15
	15	9.141076	9.141152	9.141227	30		2. 30
	30	9.141302	9.141377	9.141453	15		3. 45
	45	9.141528	9.141603	9.141679	0	2	4. 60
58	0	9.141754	9.141829	9.141904	45		1= 15
	15	9.141979	9.142055	9.142130	30		2. 30
	30	9.142205	9.142280	9.142355	15		3. 45
	45	9.142430	9.142505	9.142580	0	1	4. 60
59	0	9.142656	9.142731	9.142806	45		1= 15
	15	9.142881	9.142956	9.143031	30		2. 30
	30	9.143106	9.143181	9.143256	15		3. 45
	45	9.143331	9.143406	9.143480	0	0	4. 60
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 82 degrees, or Sine of 172 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 8 degrees, or Co-sine of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	9. 143555	9. 143630	9. 143705	45		1″ = 15
	15	9. 143780	9. 143855	9. 143930	30		2. 30
	30	9. 144005	9. 144079	9. 144154	15		3. 45
	45	9. 144229	9. 144304	9. 144379	0	59	4. 60
1	0	9. 144453	9. 144528	9. 144603	45		1 = 15
	15	9. 144677	9. 144752	9. 144827	30		2. 30
	30	9. 144902	9. 144976	9. 145051	15		3. 45
	45	9. 145126	9. 145200	9. 145275	0	58	4. 60
2	0	9. 145349	9. 145424	9. 145499	45		1 = 15
	15	9. 145573	9. 145648	9. 145722	30		2. 30
	30	9. 145797	9. 145871	9. 145946	15		3. 45
	45	9. 146020	9. 146095	9. 146169	0	57	4. 60
3	0	9. 146244	9. 146318	9. 146392	45		1 = 15
	15	9. 146467	9. 146541	9. 146616	30		2. 30
	30	9. 146690	9. 146764	9. 146839	15		3. 45
	45	9. 146913	9. 146987	9. 147062	0	56	4. 59
4	0	9. 147136	9. 147210	9. 147284	45		1 = 15
	15	9. 147359	9. 147433	9. 147507	30		2. 30
	30	9. 147581	9. 147655	9. 147730	15		3. 45
	45	9. 147804	9. 147878	9. 147952	0	55	4. 59
5	0	9. 148026	9. 148100	9. 148174	45		1 = 15
	15	9. 148249	9. 148323	9. 148397	30		2. 30
	30	9. 148471	9. 148545	9. 148619	15		3. 44
	45	9. 148693	9. 148767	9. 148841	0	54	4. 59
6	0	9. 148915	9. 148989	9. 149063	45		1 = 15
	15	9. 149137	9. 149211	9. 149285	30		2. 30
	30	9. 149358	9. 149432	9. 149506	15		3. 44
	45	9. 149580	9. 149654	9. 149728	0	53	4. 59
7	0	9. 149802	9. 149875	9. 149949	45		1 = 15
	15	9. 150023	9. 150097	9. 150170	30		2. 29
	30	9. 150244	9. 150318	9. 150392	15		3. 44
	45	9. 150465	9. 150539	9. 150613	0	52	4. 59
8	0	9. 150686	9. 150760	9. 150834	45		1 = 15
	15	9. 150907	9. 150981	9. 151055	30		2. 29
	30	9. 151128	9. 151202	9. 151275	15		3. 44
	45	9. 151349	9. 151422	9. 151496	0	51	4. 59
9	0	9. 151569	9. 151643	9. 151716	45		1 = 15
	15	9. 151790	9. 151863	9. 151937	30		2. 29
	30	9. 152010	9. 152084	9. 152157	15		3. 44
	45	9. 152231	9. 152304	9. 152377	0	50	4. 59
10	0	9. 152451	9. 152524	9. 152597	45		1 = 15
	15	9. 152671	9. 152744	9. 152817	30		2. 29
	30	9. 152891	9. 152964	9. 153037	15		3. 44
	45	9. 153110	9. 153184	9. 153257	0	49	4. 59
11	0	9. 153330	9. 153403	9. 153476	45		1 = 15
	15	9. 153550	9. 153623	9. 153696	30		2. 29
	30	9. 153769	9. 153842	9. 153915	15		3. 44
	45	9. 153988	9. 154062	9. 154135	0	48	4. 58
12	0	9. 154208	9. 154281	9. 154354	45		1 = 15
	15	9. 154427	9. 154500	9. 154573	30		2. 29
	30	9. 154646	9. 154719	9. 154792	15		3. 44
	45	9. 154865	9. 154938	9. 155011	0	47	4. 58
13	0	9. 155083	9. 155156	9. 155229	45		1 = 15
	15	9. 155302	9. 155375	9. 155448	30		2. 29
	30	9. 155521	9. 155593	9. 155666	15		3. 44
	45	9. 155739	9. 155812	9. 155885	0	46	4. 58
14	0	9. 155957	9. 156030	9. 156103	45		1 = 15
	15	9. 156176	9. 156248	9. 156321	30		2. 29
	30	9. 156394	9. 156466	9. 156539	15		3. 44
	45	9. 156612	9. 156684	9. 156757	0	45	4. 58
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 81 degrees, or Sine of 171 degrees.					

Minutes	Seconds	Sine of 8 degrees, or Co-sine of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9. 156830	9. 156902	9. 156975	45		1″ = 15
	15	9. 157047	9. 157120	9. 157193	30		2. 30
	30	9. 157265	9. 157338	9. 157410	15		3. 45
	45	9. 157483	9. 157555	9. 157628	0	44	4. 60
16	0	9. 157700	9. 157772	9. 157845	45		1 = 15
	15	9. 157917	9. 157990	9. 158062	30		2. 30
	30	9. 158135	9. 158207	9. 158279	15		3. 45
	45	9. 158352	9. 158424	9. 158496	0	43	4. 60
17	0	9. 158569	9. 158641	9. 158713	45		1 = 15
	15	9. 158786	9. 158858	9. 158930	30		2. 30
	30	9. 159002	9. 159075	9. 159147	15		3. 45
	45	9. 159219	9. 159291	9. 159363	0	42	4. 60
18	0	9. 159435	9. 159508	9. 159580	45		1 = 15
	15	9. 159652	9. 159724	9. 159796	30		2. 30
	30	9. 159868	9. 159940	9. 160012	15		3. 45
	45	9. 160084	9. 160157	9. 160229	0	41	4. 59
19	0	9. 160301	9. 160373	9. 160445	45		1 = 15
	15	9. 160517	9. 160589	9. 160661	30		2. 30
	30	9. 160732	9. 160804	9. 160876	15		3. 45
	45	9. 160948	9. 161020	9. 161092	0	40	4. 59
20	0	9. 161164	9. 161236	9. 161308	45		1 = 15
	15	9. 161379	9. 161451	9. 161523	30		2. 30
	30	9. 161595	9. 161667	9. 161738	15		3. 45
	45	9. 161810	9. 161882	9. 161954	0	39	4. 59
21	0	9. 162025	9. 162097	9. 162169	45		1 = 15
	15	9. 162241	9. 162312	9. 162384	30		2. 30
	30	9. 162456	9. 162527	9. 162599	15		3. 45
	45	9. 162671	9. 162742	9. 162814	0	38	4. 59
22	0	9. 162885	9. 162957	9. 163028	45		1 = 15
	15	9. 163100	9. 163172	9. 163243	30		2. 30
	30	9. 163315	9. 163386	9. 163458	15		3. 45
	45	9. 163529	9. 163601	9. 163672	0	37	4. 59
23	0	9. 163743	9. 163815	9. 163886	45		1 = 15
	15	9. 163958	9. 164029	9. 164100	30		2. 30
	30	9. 164172	9. 164243	9. 164315	15		3. 45
	45	9. 164386	9. 164457	9. 164529	0	36	4. 59
24	0	9. 164600	9. 164671	9. 164742	45		1 = 15
	15	9. 164814	9. 164885	9. 164956	30		2. 30
	30	9. 165027	9. 165099	9. 165170	15		3. 45
	45	9. 165241	9. 165312	9. 165383	0	35	4. 59
25	0	9. 165454	9. 165526	9. 165597	45		1 = 15
	15	9. 165668	9. 165739	9. 165810	30		2. 30
	30	9. 165881	9. 165952	9. 166023	15		3. 45
	45	9. 166094	9. 166165	9. 166236	0	34	4. 59
26	0	9. 166307	9. 166378	9. 166449	45		1 = 15
	15	9. 166520	9. 166591	9. 166662	30		2. 30
	30	9. 166733	9. 166804	9. 166875	15		3. 45
	45	9. 166946	9. 167017	9. 167088	0	33	4. 59
27	0	9. 167159	9. 167229	9. 167300	45		1 = 15
	15	9. 167371	9. 167442	9. 167513	30		2. 30
	30	9. 167584	9. 167654	9. 167725	15		3. 45
	45	9. 167796	9. 167867	9. 167937	0	32	4. 59
28	0	9. 168008	9. 168079	9. 168150	45		1 = 15
	15	9. 168220	9. 168291	9. 168362	30		2. 30
	30	9. 168432	9. 168503	9. 168574	15		3. 45
	45	9. 168644	9. 168715	9. 168785	0	31	4. 59
29	0	9. 168856	9. 168927	9. 168997	45		1 = 15
	15	9. 169068	9. 169138	9. 169209	30		2. 30
	30	9. 169279	9. 169350	9. 169420	15		3. 45
	45	9. 169491	9. 169561	9. 169632	0	30	4. 59
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 81 degrees, or Sine of 171 degrees.					

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Minutes	Seconds	Sine of 8 degrees, or Co-sine of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9. 169702	9. 169773	9. 169843	45		1″ = 14
	15	9. 169913	9. 169984	9. 170054	30		2. 28
	30	9. 170125	9. 170195	9. 170265	15		3. 42
	45	9. 170336	9. 170406	9. 170476	0	29	4. 56
31	0	9. 170547	9. 170617	9. 170687	45		1 = 14
	15	9. 170757	9. 170828	9. 170898	30		2. 28
	30	9. 170968	9. 171038	9. 171109	15		3. 42
	45	9. 171179	9. 171249	9. 171319	0	28	4. 56
32	0	9. 171389	9. 171460	9. 171530	45		1 = 14
	15	9. 171600	9. 171670	9. 171740	30		2. 28
	30	9. 171810	9. 171880	9. 171950	15		3. 42
	45	9. 172020	9. 172090	9. 172160	0	27	4. 56
33	0	9. 172231	9. 172301	9. 172371	45		1 = 14
	15	9. 172441	9. 172511	9. 172580	30		2. 28
	30	9. 172650	9. 172720	9. 172790	15		3. 42
	45	9. 172860	9. 172930	9. 173000	0	26	4. 56
34	0	9. 173070	9. 173140	9. 173210	45		1 = 14
	15	9. 173280	9. 173349	9. 173419	30		2. 28
	30	9. 173489	9. 173559	9. 173629	15		3. 42
	45	9. 173698	9. 173768	9. 173838	0	25	4. 56
35	0	9. 173908	9. 173977	9. 174047	45		1 = 14
	15	9. 174117	9. 174187	9. 174256	30		2. 28
	30	9. 174326	9. 174396	9. 174465	15		3. 42
	45	9. 174535	9. 174605	9. 174674	0	24	4. 56
36	0	9. 174744	9. 174814	9. 174883	45		1 = 14
	15	9. 174953	9. 175022	9. 175092	30		2. 28
	30	9. 175161	9. 175231	9. 175300	15		3. 42
	45	9. 175370	9. 175439	9. 175509	0	23	4. 56
37	0	9. 175578	9. 175648	9. 175717	45		1 = 14
	15	9. 175787	9. 175856	9. 175926	30		2. 28
	30	9. 175995	9. 176064	9. 176134	15		3. 42
	45	9. 176203	9. 176273	9. 176342	0	22	4. 56
38	0	9. 176411	9. 176481	9. 176550	45		1 = 14
	15	9. 176619	9. 176689	9. 176758	30		2. 28
	30	9. 176827	9. 176896	9. 176966	15		3. 42
	45	9. 177035	9. 177104	9. 177173	0	21	4. 55
39	0	9. 177243	9. 177312	9. 177381	45		1 = 14
	15	9. 177450	9. 177519	9. 177588	30		2. 28
	30	9. 177658	9. 177727	9. 177796	15		3. 41
	45	9. 177865	9. 177934	9. 178003	0	20	4. 55
40	0	9. 178072	9. 178141	9. 178210	45		1 = 14
	15	9. 178279	9. 178348	9. 178417	30		2. 28
	30	9. 178486	9. 178555	9. 178624	15		3. 41
	45	9. 178693	9. 178762	9. 178831	0	19	4. 55
41	0	9. 178900	9. 178969	9. 179038	45		1 = 14
	15	9. 179107	9. 179176	9. 179245	30		2. 28
	30	9. 179314	9. 179382	9. 179451	15		3. 41
	45	9. 179520	9. 179589	9. 179658	0	18	4. 55
42	0	9. 179727	9. 179795	9. 179864	45		1 = 14
	15	9. 179933	9. 180002	9. 180070	30		2. 28
	30	9. 180139	9. 180208	9. 180277	15		3. 41
	45	9. 180345	9. 180414	9. 180483	0	17	4. 55
43	0	9. 180551	9. 180620	9. 180689	45		1 = 14
	15	9. 180757	9. 180826	9. 180894	30		2. 27
	30	9. 180963	9. 181032	9. 181100	15		3. 41
	45	9. 181169	9. 181237	9. 181306	0	16	4. 55
44	0	9. 181374	9. 181443	9. 181511	45		1 = 14
	15	9. 181580	9. 181648	9. 181717	30		2. 27
	30	9. 181785	9. 181854	9. 181922	15		3. 41
	45	9. 181991	9. 182059	9. 182128	0	15	4. 55
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 81 degrees, or Sine of 171 degrees.					

Minutes	Seconds	Sine of 8 degrees, or Co-sine of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9. 182196	9. 182264	9. 182333	45		1″ = 14
	15	9. 182401	9. 182470	9. 182538	30		2. 27
	30	9. 182606	9. 182675	9. 182743	15		3. 41
	45	9. 182811	9. 182879	9. 182948	0	14	4. 55
46	0	9. 183016	9. 183084	9. 183153	45		1 = 14
	15	9. 183221	9. 183289	9. 183357	30		2. 27
	30	9. 183425	9. 183494	9. 183562	15		3. 41
	45	9. 183630	9. 183698	9. 183766	0	13	4. 55
47	0	9. 183834	9. 183903	9. 183971	45		1 = 14
	15	9. 184039	9. 184107	9. 184175	30		2. 27
	30	9. 184243	9. 184311	9. 184379	15		3. 41
	45	9. 184447	9. 184515	9. 184583	0	12	4. 54
48	0	9. 184651	9. 184719	9. 184787	45		1 = 14
	15	9. 184855	9. 184923	9. 184991	30		2. 27
	30	9. 185059	9. 185127	9. 185195	15		3. 41
	45	9. 185263	9. 185331	9. 185399	0	11	4. 54
49	0	9. 185467	9. 185534	9. 185602	45		1 = 14
	15	9. 185670	9. 185738	9. 185806	30		2. 27
	30	9. 185874	9. 185941	9. 186009	15		3. 41
	45	9. 186077	9. 186145	9. 186212	0	10	4. 54
50	0	9. 186280	9. 186348	9. 186416	45		1 = 14
	15	9. 186483	9. 186551	9. 186619	30		2. 27
	30	9. 186687	9. 186754	9. 186822	15		3. 41
	45	9. 186889	9. 186957	9. 187025	0	9	4. 54
51	0	9. 187092	9. 187160	9. 187228	45		1 = 14
	15	9. 187295	9. 187363	9. 187430	30		2. 27
	30	9. 187498	9. 187565	9. 187633	15		3. 41
	45	9. 187700	9. 187768	9. 187835	0	8	4. 54
52	0	9. 187903	9. 187970	9. 188038	45		1 = 13
	15	9. 188105	9. 188173	9. 188240	30		2. 27
	30	9. 188308	9. 188375	9. 188443	15		3. 40
	45	9. 188510	9. 188577	9. 188645	0	7	4. 54
53	0	9. 188712	9. 188780	9. 188847	45		1 = 13
	15	9. 188914	9. 188981	9. 189049	30		2. 27
	30	9. 189116	9. 189183	9. 189251	15		3. 40
	45	9. 189318	9. 189385	9. 189452	0	6	4. 54
54	0	9. 189520	9. 189587	9. 189654	45		1 = 13
	15	9. 189721	9. 189788	9. 189856	30		2. 27
	30	9. 189923	9. 189990	9. 190057	15		3. 40
	45	9. 190124	9. 190191	9. 190258	0	5	4. 54
55	0	9. 190325	9. 190393	9. 190460	45		1 = 13
	15	9. 190527	9. 190594	9. 190661	30		2. 27
	30	9. 190728	9. 190795	9. 190862	15		3. 40
	45	9. 190929	9. 190996	9. 191063	0	4	4. 54
56	0	9. 191130	9. 191197	9. 191264	45		1 = 13
	15	9. 191331	9. 191398	9. 191465	30		2. 27
	30	9. 191532	9. 191598	9. 191665	15		3. 40
	45	9. 191732	9. 191799	9. 191866	0	3	4. 54
57	0	9. 191933	9. 192000	9. 192066	45		1 = 13
	15	9. 192133	9. 192200	9. 192267	30		2. 27
	30	9. 192334	9. 192401	9. 192467	15		3. 40
	45	9. 192534	9. 192601	9. 192668	0	2	4. 53
58	0	9. 192734	9. 192801	9. 192868	45		1 = 13
	15	9. 192934	9. 193001	9. 193068	30		2. 27
	30	9. 193134	9. 193201	9. 193268	15		3. 40
	45	9. 193334	9. 193401	9. 193468	0	1	4. 53
59	0	9. 193534	9. 193601	9. 193667	45		1 = 13
	15	9. 193734	9. 193800	9. 193867	30		2. 27
	30	9. 193933	9. 194000	9. 194067	15		3. 40
	45	9. 194133	9. 194200	9. 194266	0	0	4. 53
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 81 degrees, or Sine of 171 degrees.					

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Minutes	Seconds	Sine of 9 degrees, or Co-sine of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	9. 194332	9. 194399	9. 194465	45		1″ = 13
	15	9. 194532	9. 194598	9. 194665	30		2. 27
	30	9. 194731	9. 194798	9. 194864	15		3. 40
	45	9. 194930	9. 194997	9. 195063	0	59	4. 53
1	0	9. 195129	9. 195196	9. 195262	45		1 = 13
	15	9. 195328	9. 195395	9. 195461	30		2. 27
	30	9. 195527	9. 195594	9. 195660	15		3. 40
	45	9. 195726	9. 195792	9. 195859	0	58	4. 53
2	0	9. 195925	9. 195991	9. 196057	45		1 = 13
	15	9. 196123	9. 196190	9. 196256	30		2. 26
	30	9. 196322	9. 196388	9. 196454	15		3. 40
	45	9. 196520	9. 196586	9. 196653	0	57	4. 53
3	0	9. 196719	9. 196785	9. 196851	45		1 = 13
	15	9. 196917	9. 196983	9. 197049	30		2. 26
	30	9. 197115	9. 197181	9. 197247	15		3. 40
	45	9. 197313	9. 197379	9. 197445	0	56	4. 53
4	0	9. 197511	9. 197577	9. 197643	45		1 = 13
	15	9. 197709	9. 197775	9. 197841	30		2. 26
	30	9. 197907	9. 197973	9. 198038	15		3. 40
	45	9. 198104	9. 198170	9. 198236	0	55	4. 53
5	0	9. 198302	9. 198368	9. 198434	45		1 = 13
	15	9. 198499	9. 198565	9. 198631	30		2. 26
	30	9. 198697	9. 198763	9. 198828	15		3. 39
	45	9. 198894	9. 198960	9. 199026	0	54	4. 53
6	0	9. 199091	9. 199157	9. 199223	45		1 = 13
	15	9. 199289	9. 199354	9. 199420	30		2. 26
	30	9. 199486	9. 199551	9. 199617	15		3. 39
	45	9. 199683	9. 199748	9. 199814	0	53	4. 53
7	0	9. 199879	9. 199945	9. 200011	45		1 = 13
	15	9. 200076	9. 200142	9. 200207	30		2. 26
	30	9. 200273	9. 200338	9. 200404	15		3. 39
	45	9. 200469	9. 200535	9. 200600	0	52	4. 52
8	0	9. 200666	9. 200731	9. 200797	45		1 = 13
	15	9. 200862	9. 200928	9. 200993	30		2. 26
	30	9. 201059	9. 201124	9. 201189	15		3. 39
	45	9. 201255	9. 201320	9. 201386	0	51	4. 52
9	0	9. 201451	9. 201516	9. 201582	45		1 = 13
	15	9. 201647	9. 201712	9. 201778	30		2. 26
	30	9. 201843	9. 201908	9. 201974	15		3. 39
	45	9. 202039	9. 202104	9. 202169	0	50	4. 52
10	0	9. 202235	9. 202300	9. 202365	45		1 = 13
	15	9. 202430	9. 202495	9. 202561	30		2. 26
	30	9. 202626	9. 202691	9. 202756	15		3. 39
	45	9. 202821	9. 202886	9. 202952	0	49	4. 52
11	0	9. 203017	9. 203082	9. 203147	45		1 = 13
	15	9. 203212	9. 203277	9. 203342	30		2. 26
	30	9. 203407	9. 203472	9. 203537	15		3. 39
	45	9. 203602	9. 203667	9. 203732	0	48	4. 52
12	0	9. 203797	9. 203862	9. 203927	45		1 = 13
	15	9. 203992	9. 204057	9. 204122	30		2. 26
	30	9. 204187	9. 204252	9. 204317	15		3. 39
	45	9. 204382	9. 204447	9. 204512	0	47	4. 52
13	0	9. 204577	9. 204642	9. 204706	45		1 = 13
	15	9. 204771	9. 204836	9. 204901	30		2. 26
	30	9. 204966	9. 205031	9. 205095	15		3. 39
	45	9. 205160	9. 205225	9. 205290	0	46	4. 52
14	0	9. 205355	9. 205419	9. 205484	45		1 = 13
	15	9. 205549	9. 205613	9. 205678	30		2. 26
	30	9. 205743	9. 205808	9. 205872	15		3. 39
	45	9. 205937	9. 206002	9. 206066	0	45	4. 52
Minutes	Seconds	15′	10′	5	Seconds	Minutes	Propor. parts.
		Co-sine of 80 degrees, or Sine of 170 degrees.					

Minutes	Seconds	Sine of 9 degrees, or Co-sine of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9. 206131	9. 206196	9. 206260	45		1″ = 13
	15	9. 206325	9. 206389	9. 206454	30		2. 26
	30	9. 206519	9. 206583	9. 206648	15		3. 39
	45	9. 206712	9. 206777	9. 206841	0	44	4. 52
16	0	9. 206906	9. 206970	9. 207035	45		1 = 13
	15	9. 207099	9. 207164	9. 207228	30		2. 26
	30	9. 207293	9. 207357	9. 207422	15		3. 39
	45	9. 207486	9. 207551	9. 207615	0	43	4. 52
17	0	9. 207680	9. 207744	9. 207808	45		1 = 13
	15	9. 207873	9. 207937	9. 208001	30		2. 26
	30	9. 208066	9. 208130	9. 208194	15		3. 39
	45	9. 208259	9. 208323	9. 208387	0	42	4. 51
18	0	9. 208452	9. 208516	9. 208580	45		1 = 13
	15	9. 208644	9. 208709	9. 208773	30		2. 26
	30	9. 208837	9. 208901	9. 208966	15		3. 39
	45	9. 209030	9. 209094	9. 209158	0	41	4. 51
19	0	9. 209222	9. 209287	9. 209351	45		1 = 13
	15	9. 209415	9. 209479	9. 209543	30		2. 26
	30	9. 209607	9. 209671	9. 209735	15		3. 38
	45	9. 209800	9. 209864	9. 209928	0	40	4. 51
20	0	9. 209992	9. 210056	9. 210120	45		1 = 13
	15	9. 210184	9. 210248	9. 210312	30		2. 26
	30	9. 210376	9. 210440	9. 210504	15		3. 38
	45	9. 210568	9. 210632	9. 210696	0	39	4. 51
21	0	9. 210760	9. 210824	9. 210888	45		1. = 13
	15	9. 210952	9. 211015	9. 211079	30		2. 26
	30	9. 211143	9. 211207	9. 211271	15		3. 38
	45	9. 211335	9. 211399	9. 211462	0	38	4. 51
22	0	9. 211526	9. 211590	9. 211654	45		1 = 13
	15	9. 211718	9. 211782	9. 211845	30		2. 26
	30	9. 211909	9. 211973	9. 212037	15		3. 38
	45	9. 212100	9. 212164	9. 212228	0	37	4. 51
23	0	9. 212291	9. 212355	9. 212419	45		1 = 13
	15	9. 212483	9. 212546	9. 212610	30		2. 25
	30	9. 212674	9. 212737	9. 212801	15		3. 38
	45	9. 212864	9. 212928	9. 212992	0	36	4. 51
24	0	9. 213055	9. 213119	9. 213182	45		1 = 13
	15	9. 213246	9. 213310	9. 213373	30		2. 25
	30	9. 213437	9. 213500	9. 213564	15		3. 38
	45	9. 213627	9. 213691	9. 213754	0	35	4. 51
25	0	9. 213818	9. 213881	9. 213945	45		1 = 13
	15	9. 214008	9. 214072	9. 214135	30		2. 25
	30	9. 214198	9. 214262	9. 214325	15		3. 38
	45	9. 214389	9. 214452	9. 214515	0	34	4. 51
26	0	9. 214579	9. 214642	9. 214705	45		1 = 13
	15	9. 214769	9. 214832	9. 214895	30		2. 25
	30	9. 214959	9. 215022	9. 215085	15		3. 38
	45	9. 215149	9. 215212	9. 215275	0	33	4. 51
27	0	9. 215338	9. 215402	9. 215465	45		1 = 13
	15	9. 215528	9. 215591	9. 215655	30		2. 25
	30	9. 215718	9. 215781	9. 215844	15		3. 38
	45	9. 215907	9. 215970	9. 216034	0	32	4. 51
28	0	9. 216097	9. 216160	9. 216223	45		1 = 13
	15	9. 216286	9. 216349	9. 216412	30		2. 25
	30	9. 216475	9. 216538	9. 216602	15		3. 38
	45	9. 216665	9. 216728	9. 216791	0	31	4. 50
29	0	9. 216854	9. 216917	9. 216980	45		1 = 13
	15	9. 217043	9. 217106	9. 217169	30		2. 25
	30	9. 217232	9. 217295	9. 217358	15		3. 38
	45	9. 217421	9. 217483	9. 217546	0	30	4. 50
Minutes	Seconds	15	10′	5	Seconds	Minutes	Propor. parts.
		Co-sine of 80 degrees, or Sine of 170 degrees.					

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LOGARITHMIC SINES.

Minutes	Seconds	Sine of 9 degrees, or Co-sine of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9.217609	9.217672	9.217735	45		1″ = 13
	15	9.217798	9.217861	9.217924	30		2. 25
	30	9.217987	9.218049	9.218112	15		3. 38
	45	9.218175	9.218238	9.218301	0	29	4. 50
31	0	9.218364	9.218426	9.218489	45		1 = 13
	15	9.218552	9.218615	9.218677	30		2. 25
	30	9.218740	9.218803	9.218866	15		3. 38
	45	9.218928	9.218991	9.219054	0	28	4. 50
32	0	9.219116	9.219179	9.219242	45		1 = 13
	15	9.219304	9.219367	9.219430	30		2. 25
	30	9.219492	9.219555	9.219618	15		3. 38
	45	9.219680	9.219743	9.219805	0	27	4. 50
33	0	9.219868	9.219931	9.219993	45		1 = 13
	15	9.220056	9.220118	9.220181	30		2. 25
	30	9.220243	9.220306	9.220368	15		3. 38
	45	9.220431	9.220493	9.220556	0	26	4. 50
34	0	9.220618	9.220681	9.220743	45		1 = 12
	15	9.220806	9.220868	9.220930	30		2. 25
	30	9.220993	9.221055	9.221118	15		3. 37
	45	9.221180	9.221242	9.221305	0	25	4. 50
35	0	9.221367	9.221429	9.221492	45		1 = 12
	15	9.221554	9.221616	9.221679	30		2. 25
	30	9.221741	9.221803	9.221866	15		3. 37
	45	9.221928	9.221990	9.222052	0	24	4. 50
36	0	9.222115	9.222177	9.222239	45		1 = 12
	15	9.222301	9.222364	9.222426	30		2. 25
	30	9.222488	9.222550	9.222612	15		3. 37
	45	9.222675	9.222737	9.222799	0	23	4. 50
37	0	9.222861	9.222923	9.222985	45		1 = 12
	15	9.223047	9.223109	9.223172	30		2. 25
	30	9.223234	9.223296	9.223358	15		3. 37
	45	9.223420	9.223482	9.223544	0	22	4. 50
38	0	9.223606	9.223668	9.223730	45		1 = 12
	15	9.223792	9.223854	9.223916	30		2. 25
	30	9.223978	9.224040	9.224102	15		3. 37
	45	9.224164	9.224226	9.224288	0	21	4. 50
39	0	9.224350	9.224411	9.224473	45		1 = 12
	15	9.224535	9.224597	9.224659	30		2. 25
	30	9.224721	9.224783	9.224845	15		3. 37
	45	9.224906	9.224968	9.225030	0	20	4. 49
40	0	9.225092	9.225154	9.225215	45		1 = 12
	15	9.225277	9.225339	9.225401	30		2. 25
	30	9.225463	9.225524	9.225586	15		3. 37
	45	9.225648	9.225709	9.225771	0	19	4. 49
41	0	9.225833	9.225895	9.225956	45		1 = 12
	15	9.226018	9.226080	9.226141	30		2. 25
	30	9.226203	9.226265	9.226326	15		3. 37
	45	9.226388	9.226449	9.226511	0	18	4. 49
42	0	9.226573	9.226634	9.226696	45		1 = 12
	15	9.226757	9.226819	9.226880	30		2. 25
	30	9.226942	9.227003	9.227065	15		3. 37
	45	9.227127	9.227188	9.227250	0	17	4. 49
43	0	9.227311	9.227372	9.227434	45		1 = 12
	15	9.227495	9.227557	9.227618	30		2. 25
	30	9.227680	9.227741	9.227803	15		3. 37
	45	9.227864	9.227925	9.227987	0	16	4. 49
44	0	9.228048	9.228110	9.228171	45		1 = 12
	15	9.228232	9.228294	9.228355	30		2. 25
	30	9.228416	9.228478	9.228539	15		3. 37
	45	9.228600	9.228661	9.228723	0	15	4. 49
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 80 degrees, or Sine of 170 degrees.					

Minutes	Seconds	Sine of 9 degrees, or Co-sine of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.228784	9.228845	9.228906	45		1″ = 12
	15	9.228968	9.229029	9.229090	30		2. 24
	30	9.229151	9.229213	9.229274	15		3. 37
	45	9.229335	9.229396	9.229457	0	14	4. 49
46	0	9.229519	9.229580	9.229641	45		1 = 12
	15	9.229702	9.229763	9.229824	30		2. 24
	30	9.229885	9.229946	9.230008	15		3. 37
	45	9.230069	9.230130	9.230191	0	13	4. 49
47	0	9.230252	9.230313	9.230374	45		1 = 12
	15	9.230435	9.230496	9.230557	30		2. 24
	30	9.230618	9.230679	9.230740	15		3. 37
	45	9.230801	9.230862	9.230923	0	12	4. 49
48	0	9.230984	9.231045	9.231106	45		1 = 12
	15	9.231167	9.231228	9.231288	30		2. 24
	30	9.231349	9.231410	9.231471	15		3. 37
	45	9.231532	9.231593	9.231654	0	11	4. 49
49	0	9.231715	9.231775	9.231836	45		1 = 12
	15	9.231897	9.231958	9.232019	30		2. 24
	30	9.232079	9.232140	9.232201	15		3. 36
	45	9.232262	9.232323	9.232383	0	10	4. 49
50	0	9.232444	9.232505	9.232566	45		1 = 12
	15	9.232626	9.232687	9.232748	30		2. 24
	30	9.232808	9.232869	9.232930	15		3. 36
	45	9.232990	9.233051	9.233112	0	9	4. 49
51	0	9.233172	9.233233	9.233294	45		1 = 12
	15	9.233354	9.233415	9.233475	30		2. 24
	30	9.233536	9.233597	9.233657	15		3. 36
	45	9.233718	9.233778	9.233839	0	8	4. 48
52	0	9.233899	9.233960	9.234020	45		1 = 12
	15	9.234081	9.234141	9.234202	30		2. 24
	30	9.234262	9.234323	9.234383	15		3. 36
	45	9.234444	9.234504	9.234565	0	7	4. 48
53	0	9.234625	9.234685	9.234746	45		1 = 12
	15	9.234806	9.234867	9.234927	30		2. 24
	30	9.234987	9.235048	9.235108	15		3. 36
	45	9.235168	9.235229	9.235289	0	6	4. 48
54	0	9.235349	9.235410	9.235470	45		1 = 12
	15	9.235530	9.235591	9.235651	30		2. 24
	30	9.235711	9.235771	9.235832	15		3. 36
	45	9.235892	9.235952	9.236012	0	5	4. 48
55	0	9.236073	9.236133	9.236193	45		1 = 12
	15	9.236253	9.236313	9.236374	30		2. 24
	30	9.236434	9.236494	9.236554	15		3. 36
	45	9.236614	9.236674	9.236735	0	4	4. 48
56	0	9.236795	9.236855	9.236915	45		1 = 12
	15	9.236975	9.237035	9.237095	30		2. 24
	30	9.237155	9.237215	9.237275	15		3. 36
	45	9.237335	9.237395	9.237455	0	3	4. 48
57	0	9.237515	9.237575	9.237635	45		1 = 12
	15	9.237695	9.237755	9.237815	30		2. 24
	30	9.237875	9.237935	9.237995	15		3. 36
	45	9.238055	9.238115	9.238175	0	2	4. 48
58	0	9.238235	9.238295	9.238355	45		1 = 12
	15	9.238415	9.238474	9.238534	30		2. 24
	30	9.238594	9.238654	9.238714	15		3. 36
	45	9.238774	9.238834	9.238893	0	1	4. 48
59	0	9.238953	9.239013	9.239073	45		1 = 12
	15	9.239133	9.239192	9.239252	30		2. 24
	30	9.239312	9.239372	9.239431	15		3. 36
	45	9.239491	9.239551	9.239611	0	0	4. 48
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-sine of 80 degrees, or Sine of 170 degrees.					

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LOGARITHMIC SINES.

Minutes	Sine of 10 degrees, or Co-sine of 100 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 239670	239730	239790	239849	239909	239969	240028	240088	240148	240207	240267	240327	59	1″ = 12
1	9. 240386	240446	240505	240565	240624	240684	240744	240803	240863	240922	240982	241041	58	2. 24
2	9. 241101	241160	241220	241279	241339	241398	241458	241517	241577	241636	241695	241755	57	3. 36
3	9. 241814	241874	241933	241992	242052	242111	242170	242230	242289	242348	242408	242467	56	4. 48
4	9. 242526	242586	242645	242704	242764	242823	242882	242941	243001	243060	243119	243178	55	1 = 12
5	9. 243237	243297	243356	243415	243474	243533	243592	243652	243711	243770	243829	243888	54	2. 24
6	9. 243947	244006	244065	244125	244184	244243	244302	244361	244420	244479	244538	244597	53	3. 36
7	9. 244656	244715	244774	244833	244892	244951	245010	245069	245128	245187	245245	245304	52	4. 48
8	9. 245363	245422	245481	245540	245599	245658	245717	245775	245834	245893	245952	246011	51	1 = 12
9	9. 246070	246128	246187	246246	246305	246363	246422	246481	246540	246598	246657	246716	50	2. 24
10	9. 246775	246833	246892	246951	247009	247068	247127	247185	247244	247303	247361	247420	49	3. 36
11	9. 247478	247537	247596	247654	247713	247771	247830	247889	247947	248006	248064	248123	48	4. 48
12	9. 248181	248240	248298	248357	248415	248474	248532	248591	248649	248707	248766	248824	47	1 = 12
13	9. 248883	248941	249000	249058	249116	249175	249233	249291	249350	249408	249466	249525	46	2. 24
14	9. 249583	249641	249700	249758	249816	249875	249933	249991	250049	250108	250166	250224	45	3. 36
15	9. 250282	250341	250399	250457	250515	250573	250631	250690	250748	250806	250864	250922	44	4. 48
16	9. 250980	251038	251097	251155	251213	251271	251329	251387	251445	251503	251561	251619	43	1 = 12
17	9. 251677	251735	251793	251851	251909	251967	252025	252083	252141	252199	252257	252315	42	2. 24
18	9. 252373	252431	252489	252547	252605	252662	252720	252778	252836	252894	252952	253010	41	3. 36
19	9. 253068	253125	253183	253241	253299	253357	253414	253472	253530	253588	253645	253703	40	4. 48
20	9. 253761	253819	253876	253934	253992	254050	254107	254165	254223	254280	254338	254396	39	1 = 12
21	9. 254453	254511	254569	254626	254684	254741	254799	254857	254914	254972	255029	255087	38	2. 24
22	9. 255144	255202	255259	255317	255375	255432	255490	255547	255605	255662	255720	255777	37	3. 36
23	9. 255834	255892	255949	256007	256064	256122	256179	256236	256294	256351	256409	256466	36	4. 48
24	9. 256523	256581	256638	256695	256753	256810	256867	256925	256982	257039	257097	257154	35	1 = 12
25	9. 257211	257268	257326	257383	257440	257497	257555	257612	257669	257726	257783	257841	34	2. 24
26	9. 257898	257955	258012	258069	258126	258183	258241	258298	258355	258412	258469	258526	33	3. 36
27	9. 258583	258640	258697	258754	258811	258869	258926	258983	259040	259097	259154	259211	32	4. 48
28	9. 259268	259325	259382	259439	259496	259552	259609	259666	259723	259780	259837	259894	31	1 = 12
29	9. 259951	260008	260065	260122	260178	260235	260292	260349	260406	260463	260519	260576	30	2. 24
30	9. 260633	260690	260747	260803	260860	260917	260974	261031	261087	261144	261201	261257	29	3. 36
31	9. 261314	261371	261428	261484	261541	261598	261654	261711	261768	261824	261881	261938	28	4. 48
32	9. 261994	262051	262107	262164	262221	262277	262334	262390	262447	262503	262560	262616	27	1 = 12
33	9. 262673	262730	262786	262843	262899	262956	263012	263068	263125	263181	263238	263294	26	2. 24
34	9. 263351	263407	263464	263520	263576	263633	263689	263746	263802	263858	263915	263971	25	3. 36
35	9. 264027	264084	264140	264196	264253	264309	264365	264422	264478	264534	264591	264647	24	4. 48
36	9. 264703	264759	264816	264872	264928	264984	265040	265097	265153	265209	265265	265321	23	1 = 12
37	9. 265378	265434	265490	265546	265602	265658	265714	265770	265827	265883	265939	265995	22	2. 24
38	9. 266051	266107	266163	266219	266275	266331	266387	266443	266499	266555	266611	266667	21	3. 36
39	9. 266723	266779	266835	266891	266947	267003	267059	267115	267171	267227	267283	267339	20	4. 48
40	9. 267395	267450	267506	267562	267618	267674	267730	267786	267841	267897	267953	268009	19	1 = 12
41	9. 268065	268121	268176	268232	268288	268344	268399	268455	268511	268567	268622	268678	18	2. 24
42	9. 268734	268790	268845	268901	268957	269012	269068	269124	269179	269235	269291	269346	17	3. 36
43	9. 269402	269458	269513	269569	269624	269680	269736	269791	269847	269902	269958	270013	16	4. 48
44	9. 270069	270124	270180	270236	270291	270347	270402	270458	270513	270568	270624	270679	15	1 = 12
45	9. 270735	270790	270846	270901	270957	271012	271067	271123	271178	271234	271289	271344	14	2. 24
46	9. 271400	271455	271510	271566	271621	271676	271732	271787	271842	271898	271953	272008	13	3. 36
47	9. 272064	272119	272174	272229	272285	272340	272395	272450	272506	272561	272616	272671	12	4. 48
48	9. 272726	272782	272837	272892	272947	273002	273057	273112	273168	273223	273278	273333	11	1 = 12
49	9. 273388	273443	273498	273553	273608	273663	273719	273774	273829	273884	273939	273994	10	2. 24
50	9. 274049	274104	274159	274214	274269	274324	274379	274434	274489	274544	274599	274653	9	3. 36
51	9. 274708	274763	274818	274873	274928	274983	275038	275093	275148	275202	275257	275312	8	4. 48
52	9. 275367	275422	275477	275531	275586	275641	275696	275751	275805	275860	275915	275970	7	1 = 12
53	9. 276025	276079	276134	276189	276244	276298	276353	276408	276462	276517	276572	276626	6	2. 24
54	9. 276681	276736	276790	276845	276900	276954	277009	277064	277118	277173	277227	277282	5	3. 36
55	9. 277337	277391	277446	277500	277555	277609	277664	277719	277773	277828	277882	277937	4	4. 48
56	9. 277991	278046	278100	278155	278209	278264	278318	278372	278427	278481	278536	278590	3	1 = 12
57	9. 278645	278699	278753	278808	278862	278917	278971	279025	279080	279134	279188	279243	2	2. 24
58	9. 279297	279351	279406	279460	279514	279569	279623	279677	279731	279786	279840	279894	1	3. 36
59	9. 279948	280003	280057	280111	280165	280220	280274	280328	280382	280436	280491	280545	0	4. 48
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 79 degrees, or Sine of 169 degrees.													

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LOGARITHMIC SINES.

Sine of 11 *degrees, or Cosine of* 101 *degrees.*

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.280599	280653	280707	280761	280815	280870	280924	280978	281032	281086	281140	281194	59	1 = 11
1	9.281248	281302	281356	281411	281465	281519	281573	281627	281681	281735	281789	281843	58	2. 22
2	9.281897	281951	282005	282059	282113	282167	282221	282274	282328	282382	282436	282490	57	3. 32
3	9.282544	282598	282652	282706	282760	282814	282867	282921	282975	283029	283083	283137	56	4. 43
4	9.283191	283244	283298	283352	283406	283460	283513	283567	283621	283675	283728	283782	55	1 = 11
5	9.283836	283890	283943	283997	284051	284105	284158	284212	284266	284319	284373	284427	54	2. 21
6	9.284480	284534	284588	284641	284695	284749	284802	284856	284909	284963	285017	285070	53	3. 32
7	9.285124	285177	285231	285284	285338	285392	285445	285499	285552	285606	285659	285713	52	4. 43
8	9.285766	285820	285873	285927	285980	286034	286087	286140	286194	286247	286301	286354	51	1 = 11
9	9.286408	286461	286514	286568	286621	286675	286728	286781	286835	286888	286941	286995	50	2. 21
10	9.287048	287101	287155	287208	287261	287315	287368	287421	287475	287528	287581	287634	49	3. 32
11	9.287688	287741	287794	287847	287901	287954	288007	288060	288113	288167	288220	288273	48	4. 43
12	9.288326	288379	288432	288486	288539	288592	288645	288698	288751	288804	288857	288911	47	1 = 11
13	9.288964	289017	289070	289123	289176	289229	289282	289335	289388	289441	289494	289547	46	2. 21
14	9.289600	289653	289706	289759	289812	289865	289918	289971	290024	290077	290130	290183	45	3. 32
15	9.290236	290289	290342	290395	290447	290500	290553	290606	290659	290712	290765	290818	44	4. 42
16	9.290870	290923	290976	291029	291082	291135	291187	291240	291293	291346	291399	291451	43	1 = 11
17	9.291504	291557	291610	291662	291715	291768	291821	291873	291926	291979	292031	292084	42	2. 21
18	9.292137	292189	292242	292295	292347	292400	292453	292505	292558	292611	292663	292716	41	3. 32
19	9.292769	292821	292874	292926	292979	293031	293084	293137	293189	293242	293294	293347	40	4. 42
20	9.293399	293452	293504	293557	293609	293662	293714	293767	293819	293872	293924	293977	39	1 = 10
21	9.294029	294082	294134	294186	294239	294291	294344	294396	294449	294501	294553	294606	38	2. 21
22	9.294658	294710	294763	294815	294867	294920	294972	295024	295077	295129	295181	295234	37	3. 31
23	9.295286	295338	295391	295443	295495	295547	295600	295652	295704	295756	295809	295861	36	4. 42
24	9.295913	295965	296017	296070	296122	296174	296226	296278	296330	296383	296435	296487	35	1 = 10
25	9.296539	296591	296643	296695	296748	296800	296852	296904	296956	297008	297060	297112	34	2. 21
26	9.297164	297216	297268	297320	297372	297424	297476	297528	297580	297632	297684	297736	33	3. 31
27	9.297788	297840	297892	297944	297996	298048	298100	298152	298204	298256	298308	298360	32	4. 42
28	9.298412	298464	298515	298567	298619	298671	298723	298775	298827	298878	298930	298982	31	1 = 10
29	9.299034	299086	299138	299189	299241	299293	299345	299397	299448	299500	299552	299604	30	2. 21
30	9.299655	299707	299759	299811	299862	299914	299966	300017	300069	300121	300172	300224	29	3. 31
31	9.300276	300327	300379	300431	300482	300534	300586	300637	300689	300741	300792	300844	28	4. 41
32	9.300895	300947	300999	301050	301102	301153	301205	301256	301308	301359	301411	301463	27	1 = 10
33	9.301514	301566	301617	301669	301720	301772	301823	301874	301926	301977	302029	302080	26	2. 21
34	9.302132	302183	302235	302286	302337	302389	302440	302492	302543	302594	302646	302697	25	3. 31
35	9.302749	302800	302851	302903	302954	303005	303057	303108	303159	303211	303262	303313	24	4. 41
36	9.303364	303416	303467	303518	303570	303621	303672	303723	303775	303826	303877	303928	23	1 = 10
37	9.303979	304031	304082	304133	304184	304235	304287	304338	304389	304440	304491	304542	22	2. 20
38	9.304593	304645	304696	304747	304798	304849	304900	304951	305002	305053	305105	305156	21	3. 31
39	9.305207	305258	305309	305360	305411	305462	305513	305564	305615	305666	305717	305768	20	4. 41
40	9.305819	305870	305921	305972	306023	306074	306125	306176	306227	306278	306328	306379	19	1 = 10
41	9.306430	306481	306532	306583	306634	306685	306736	306787	306837	306888	306939	306990	18	2. 20
42	9.307041	307092	307142	307193	307244	307295	307346	307396	307447	307498	307549	307600	17	3. 31
43	9.307650	307701	307752	307803	307853	307904	307955	308006	308056	308107	308158	308208	16	4. 41
44	9.308259	308310	308360	308411	308462	308512	308563	308614	308664	308715	308766	308816	15	1 = 10
45	9.308867	308917	308968	309019	309069	309120	309170	309221	309272	309322	309373	309423	14	2. 20
46	9.309474	309524	309575	309625	309676	309726	309777	309827	309878	309928	309979	310029	13	3. 30
47	9.310080	310130	310181	310231	310282	310332	310383	310433	310483	310534	310584	310635	12	4. 40
48	9.310685	310735	310786	310836	310886	310937	310987	311038	311088	311138	311189	311239	11	1 = 10
49	9.311289	311340	311390	311440	311490	311541	311591	311641	311692	311742	311792	311842	10	2. 20
50	9.311893	311943	311993	312043	312094	312144	312194	312244	312294	312345	312395	312445	9	3. 30
51	9.312495	312545	312596	312646	312696	312746	312796	312846	312896	312946	312997	313047	8	4. 40
52	9.313097	313147	313197	313247	313297	313347	313397	313447	313497	313547	313598	313648	7	1 = 10
53	9.313698	313748	313798	313848	313898	313948	313998	314048	314098	314148	314198	314248	6	2. 20
54	9.314298	314347	314397	314447	314497	314547	314597	314647	314697	314747	314797	314847	5	3. 30
55	9.314897	314946	314996	315046	315096	315146	315196	315246	315295	315345	315395	315445	4	4. 40
56	9.315495	315545	315594	315644	315694	315744	315794	315843	315893	315943	315993	316042	3	1 = 10
57	9.316092	316142	316192	316241	316291	316341	316390	316440	316490	316540	316589	316639	2	2. 20
58	9.316689	316738	316788	316838	316887	316937	316986	317036	317086	317135	317185	317235	1	3. 30
59	9.317284	317334	317383	317433	317483	317532	317582	317631	317681	317730	317780	317829	0	4. 40
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Cosine of 78 *degrees, or Sine of* 168 *degrees.*

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LOGARITHMIC SINES.

Minutes	Sine of 12 degrees, or Co-sine of 102 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.317879	317928	317978	318028	318077	318127	318176	318226	318275	318324	318374	318423	59	1″ = 1
1	9.318473	318522	318572	318621	318671	318720	318770	318819	318868	318918	318967	319017	58	2. 2
2	9.319066	319115	319165	319214	319263	319313	319362	319412	319461	319510	319560	319609	57	3. 3
3	9.319658	319707	319757	319806	319855	319905	319954	320003	320053	320102	320151	320200	56	4. 4
4	9.320250	320299	320348	320397	320446	320496	320545	320594	320643	320693	320742	320791	55	1 = 1
5	9.320840	320889	320938	320988	321037	321086	321135	321184	321233	321282	321332	321381	54	2. 2
6	9.321430	321479	321528	321577	321626	321675	321724	321773	321822	321872	321921	321970	53	3. 3
7	9.322019	322068	322117	322166	322215	322264	322313	322362	322411	322460	322509	322558	52	4. 3
8	9.322607	322656	322705	322754	322803	322851	322900	322949	322998	323047	323096	323145	51	1 = 1
9	9.323194	323243	323292	323341	323389	323438	323487	323536	323585	323634	323683	323731	50	2. 2
10	9.323780	323829	323878	323927	323976	324024	324073	324122	324171	324219	324268	324317	49	3. 2
11	9.324366	324415	324463	324512	324561	324610	324658	324707	324756	324804	324853	324902	48	4. 3
12	9.324951	324999	325048	325097	325145	325194	325243	325291	325340	325389	325437	325486	47	1 = 1
13	9.325534	325583	325632	325680	325729	325777	325826	325875	325923	325972	326020	326069	46	2. 1
14	9.326117	326166	326215	326263	326312	326360	326409	326457	326506	326554	326603	326651	45	3. 2
15	9.326700	326748	326797	326845	326894	326942	326991	327039	327087	327136	327184	327233	44	4. 3
16	9.327281	327330	327378	327426	327475	327523	327572	327620	327668	327717	327765	327813	43	1 = 1
17	9.327862	327910	327958	328007	328055	328103	328152	328200	328248	328297	328345	328393	42	2. 1
18	9.328442	328490	328538	328586	328635	328683	328731	328779	328828	328876	328924	328972	41	3. 2
19	9.329021	329069	329117	329165	329213	329262	329310	329358	329406	329454	329502	329551	40	4. 3
20	9.329599	329647	329695	329743	329791	329839	329888	329936	329984	330032	330080	330128	39	1 = 1
21	9.330176	330224	330272	330320	330368	330417	330465	330513	330561	330609	330657	330705	38	2. 1
22	9.330753	330801	330849	330897	330945	330993	331041	331089	331137	331185	331233	331281	37	3. 2
23	9.331329	331377	331424	331472	331520	331568	331616	331664	331712	331760	331808	331856	36	4. 2
24	9.331904	331951	331999	332047	332095	332143	332191	332239	332286	332334	332382	332430	35	1 = 1
25	9.332478	332526	332573	332621	332669	332717	332765	332812	332860	332908	332956	333003	34	2. 1
26	9.333051	333099	333147	333194	333242	333290	333338	333385	333433	333481	333528	333576	33	3. 2
27	9.333624	333671	333719	333767	333814	333862	333910	333957	334005	334053	334100	334148	32	4. 2
28	9.334196	334243	334291	334338	334386	334434	334481	334529	334576	334624	334671	334719	31	1 = 1
29	9.334767	334814	334862	334909	334957	335004	335052	335099	335147	335194	335242	335289	30	2. 1
30	9.335337	335384	335432	335479	335527	335574	335622	335669	335717	335764	335811	335859	29	3. 2
31	9.335906	335954	336001	336048	336096	336143	336191	336238	336285	336333	336380	336428	28	4. 2
32	9.336475	336522	336570	336617	336664	336712	336759	336806	336854	336901	336948	336996	27	1 = 1
33	9.337043	337090	337137	337185	337232	337279	337326	337374	337421	337468	337515	337563	26	2. 1
34	9.337610	337657	337704	337752	337799	337846	337893	337940	337988	338035	338082	338129	25	3. 2
35	9.338176	338223	338271	338318	338365	338412	338459	338506	338553	338600	338648	338695	24	4. 2
36	9.338742	338789	338836	338883	338930	338977	339024	339071	339118	339165	339213	339260	23	1 = 1
37	9.339307	339354	339401	339448	339495	339542	339589	339636	339683	339730	339777	339824	22	2. 1
38	9.339871	339918	339965	340012	340058	340105	340152	340199	340246	340293	340340	340387	21	3. 2
39	9.340434	340481	340528	340575	340621	340668	340715	340762	340809	340856	340903	340950	20	4. 2
40	9.340996	341043	341090	341137	341184	341230	341277	341324	341371	341418	341464	341511	19	1 = 1
41	9.341558	341605	341652	341698	341745	341792	341839	341885	341932	341979	342026	342072	18	2. 1
42	9.342119	342166	342212	342259	342306	342353	342399	342446	342493	342539	342586	342633	17	3. 2
43	9.342679	342726	342773	342819	342866	342912	342959	343006	343052	343099	343145	343192	16	4. 1
44	9.343239	343285	343332	343378	343425	343472	343518	343565	343611	343658	343704	343751	15	1 = 1
45	9.343797	343844	343890	343937	343983	344030	344076	344123	344169	344216	344262	344309	14	2. 1
46	9.344355	344402	344448	344495	344541	344588	344634	344680	344727	344773	344820	344866	13	3. 2
47	9.344912	344959	345005	345052	345098	345144	345191	345237	345283	345330	345376	345423	12	4. 1
48	9.345469	345515	345562	345608	345654	345700	345747	345793	345839	345886	345932	345978	11	1 = 1
49	9.346025	346071	346117	346163	346210	346256	346302	346348	346395	346441	346487	346533	10	2. 1
50	9.346579	346626	346672	346718	346764	346810	346857	346903	346949	346995	347041	437087	9	3. 2
51	9.347134	347180	347226	347272	347318	347364	347410	347457	347503	347549	347595	347641	8	4. 1
52	9.347687	347733	347779	347825	347871	347917	347964	348010	348056	348102	348148	348194	7	1 = 1
53	9.348240	348286	348332	348378	348424	348470	348516	348562	348608	348654	348700	348746	6	2. 1
54	9.348792	348838	348884	348930	348976	349022	349067	349113	349159	349205	349251	349297	5	3. 2
55	9.349343	349389	349435	349481	349527	349572	349618	349664	349710	349756	349802	349848	4	4. 1
56	9.349893	349939	349985	350031	350077	350123	350168	350214	350260	350306	350352	350397	3	1 = 1
57	9.350443	350489	350535	350581	350626	350672	350718	350764	350809	350855	350901	350947	2	2. 1
58	9.350992	351038	351084	351129	351175	351221	351266	351312	351358	351404	351449	351495	1	3. 1
59	9.351541	351586	351632	351677	351723	351769	351814	351860	351906	351951	351997	352042	0	4. 1
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-sine of 77 degrees, or Sine of 167 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 13 degrees, or Co-sine of 103 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.352088	352134	352179	352225	352270	352316	352362	352407	352453	352498	352544	352589	59	1″ = 9
1	9.352635	352680	352726	352772	352817	352863	352908	352954	352999	353045	353090	353136	58	2. 18
2	9.353181	353227	353272	353317	353363	353408	353454	353499	353545	353590	353636	353681	57	3. 27
3	9.353726	353772	353817	353863	353908	353953	353999	354044	354090	354135	354180	354226	56	4. 36
4	9.354271	354316	354362	354407	354452	354498	354543	354588	354634	354679	354724	354770	55	1 = 9
5	9.354815	354860	354906	354951	354996	355041	355087	355132	355177	355223	355268	355313	54	2. 18
6	9.355358	355404	355449	355494	355539	355584	355630	355675	355720	355765	355810	355856	53	3. 27
7	9.355901	355946	355991	356036	356081	356127	356172	356217	356262	356307	356352	356397	52	4. 36
8	9.356443	356488	356533	356578	356623	356668	356713	356758	356803	356848	356894	356939	51	1 = 9
9	9.356984	357029	357074	357119	357164	357209	357254	357299	357344	357389	357434	357479	50	2. 18
10	9.357524	357569	357614	357659	357704	357749	357794	357839	357884	357929	357974	358019	49	3. 27
11	9.358064	358109	358154	358199	358243	358288	358333	358378	358423	358468	358513	358558	48	4. 36
12	9.358603	358648	358692	358737	358782	358827	358872	358917	358962	359006	359051	359096	47	1 = 9
13	9.359141	359186	359231	359275	359320	359365	359410	359455	359499	359544	359589	359634	46	2. 18
14	9.359679	359723	359768	359813	359858	359902	359947	359992	360037	360081	360126	360171	45	3. 27
15	9.360215	360260	360305	360350	360394	360439	360484	360528	360573	360618	360662	360707	44	4. 36
16	9.360752	360796	360841	360885	360930	360975	361019	361064	361109	361153	361198	361242	43	1 = 9
17	9.361287	361332	361376	361421	361465	361510	361554	361599	361644	361688	361733	361777	42	2. 18
18	9.361822	361866	361911	361955	362000	362044	362089	362133	362178	362222	362267	362311	41	3. 27
19	9.362356	362400	362445	362489	362534	362578	362623	362667	362712	362756	362800	362845	40	4. 36
20	9.362889	362934	362978	363022	363067	363111	363156	363200	363244	363289	363333	363378	39	1 = 9
21	9.363422	363466	363511	363555	363599	363644	363688	363732	363777	363821	363865	363910	38	2. 18
22	9.363954	363998	364043	364087	364131	364175	364220	364264	364308	364352	364397	364441	37	3. 27
23	9.364485	364529	364574	364618	364662	364706	364751	364795	364839	364883	364927	364972	36	4. 35
24	9.365016	365060	365104	365148	365193	365237	365281	365325	365369	365413	365458	365502	35	1 = 9
25	9.365546	365590	365634	365678	365722	365766	365811	365855	365899	365943	365987	366031	34	2. 18
26	9.366075	366119	366163	366207	366251	366295	366339	366383	366428	366472	366516	366560	33	3. 26
27	9.366604	366648	366692	366736	366780	366824	366868	366912	366956	367000	367044	367088	32	4. 35
28	9.367132	367175	367219	367263	367307	367351	367395	367439	367483	367527	367571	367615	31	1 = 9
29	9.367659	367703	367747	367790	367834	367878	367922	367966	368010	368054	368097	368141	30	2. 18
30	9.368185	368229	368273	368317	368361	368404	368448	368492	368536	368580	368624	368667	29	3. 26
31	9.368711	368755	368799	368843	368886	368930	368974	369018	369061	369105	369149	369193	28	4. 35
32	9.369236	369280	369324	369368	369411	369455	369499	369542	369586	369630	369674	369717	27	1 = 9
33	9.369761	369805	369848	369892	369936	369979	370023	370067	370110	370154	370197	370241	26	2. 17
34	9.370285	370328	370372	370416	370459	370503	370546	370590	370634	370677	370721	370764	25	3. 26
35	9.370808	370852	370895	370939	370982	371026	371069	371113	371156	371200	371243	371287	24	4. 35
36	9.371330	371374	371417	371461	371504	371548	371591	371635	371678	371722	371765	371809	23	1 = 9
37	9.371852	371896	371939	371983	372026	372070	372113	372156	372200	372243	372287	372330	22	2. 17
38	9.372374	372417	372460	372504	372547	372590	372634	372677	372721	372764	372807	372851	21	3. 26
39	9.372894	372937	372981	373024	373067	373111	373154	373197	373241	373284	373327	373371	20	4. 35
40	9.373414	373457	373501	373544	373587	373630	373674	373717	373760	373803	373847	373890	19	1 = 9
41	9.373933	373976	374020	374063	374106	374149	374193	374236	374279	374322	374365	374409	18	2. 17
42	9.374452	374495	374538	374581	374624	374668	374711	374754	374797	374840	374883	374926	17	3. 26
43	9.374970	375013	375056	375099	375142	375185	375228	375271	375315	375358	375401	375444	16	4. 35
44	9.375487	375530	375573	375616	375659	375702	375745	375788	375831	375874	375917	375960	15	1 = 9
45	9.376003	376046	376089	376133	376176	376219	376262	376305	376347	376390	376433	376476	14	2. 17
46	9.376519	376562	376605	376648	376691	376734	376777	376820	376863	376906	376949	376992	13	3. 26
47	9.377035	377078	377121	377163	377206	377249	377292	377335	377378	377421	377464	377506	12	4. 34
48	9.377549	377592	377635	377678	377721	377764	377806	377849	377892	377935	377978	378021	11	1 = 9
49	9.378063	378106	378149	378192	378235	378277	378320	378363	378406	378448	378491	378534	10	2. 17
50	9.378577	378619	378662	378705	378748	378790	378833	378876	378919	378961	379004	379047	9	3. 26
51	9.379089	379132	379175	379218	379260	379303	379346	379388	379431	379474	379516	379559	8	4. 34
52	9.379602	379644	379687	379729	379772	379815	379857	379900	379943	379985	380028	380070	7	1 = 9
53	9.380113	380156	380198	380241	380283	380326	380368	380411	380454	380496	380539	380581	6	2. 17
54	9.380624	380666	380709	380751	380794	380836	380879	380921	380964	381006	381049	381091	5	3. 26
55	9.381134	381176	381219	381261	381304	381346	381389	381431	381474	381516	381559	381601	4	4. 34
56	9.381643	381686	381728	381771	381813	381856	381898	381940	381983	382025	382068	382110	3	1 = 8
57	9.382152	382195	382237	382279	382322	382364	382407	382449	382491	382534	382576	382618	2	2. 17
58	9.382661	382703	382745	382788	382830	382872	382914	382957	382999	383041	383084	383126	1	3. 25
59	9.383168	383211	383253	383295	383337	383380	383422	383464	383506	383549	383591	383633	0	4. 34
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 76 degrees, or Sine of 166 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 14 degrees, or Co-sine of 104 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.383675	383717	383760	383802	383844	383886	383928	383971	384013	384055	384097	384139	59	1″=
1	9.384182	384224	384266	384308	384350	384392	384435	384477	384519	384561	384603	384645	58	2.
2	9.384687	384729	384772	384814	384856	384898	384940	384982	385024	385066	385108	385150	57	3.
3	9.385192	385235	385277	385319	385361	385403	385445	385487	385529	385571	385613	385655	56	4.
4	9.385697	385739	385781	385823	385865	385907	385949	385991	386033	386075	386117	386159	55	1″=
5	9.386201	386243	386285	386327	386369	386411	386453	386494	386536	386578	386620	386662	54	2.
6	9.386704	386746	386788	386830	386872	386914	386955	386997	387039	387081	387123	387165	53	3.
7	9.387207	387249	387290	387332	387374	387416	387458	387500	387541	387583	387625	387667	52	4.
8	9.387709	387751	387792	387834	387876	387918	387960	388001	388043	388085	388127	388168	51	1″=
9	9.388210	388252	388294	388335	388377	388419	388461	388502	388544	388586	388628	388669	50	2.
10	9.388711	388753	388794	388836	388878	388919	388961	389003	389044	389086	389128	389169	49	3.
11	9.389211	389253	389294	389336	389378	389419	389461	389503	389544	389586	389627	389669	48	4.
12	9.389711	389752	389794	389835	389877	389919	389960	390002	390043	390085	390127	390168	47	1″=
13	9.390210	390251	390293	390334	390376	390417	390459	390500	390542	390583	390625	390666	46	2.
14	9.390708	390749	390791	390832	390874	390915	390957	390998	391040	391081	391123	391164	45	3.
15	9.391206	391247	391289	391330	391371	391413	391454	391496	391537	391579	391620	391661	44	4.
16	9.391703	391744	391786	391827	391868	391910	391951	391993	392034	392075	392117	392158	43	1″=
17	9.392199	392241	392282	392323	392365	392406	392447	392489	392530	392571	392613	392654	42	2.
18	9.392695	392737	392778	392819	392860	392902	392943	392984	393026	393067	393108	393149	41	3.
19	9.393191	393232	393273	393314	393356	393397	393438	393479	393520	393562	393603	393644	40	4.
20	9.393685	393726	393768	393809	393850	393891	393932	393974	394015	394056	394097	394138	39	1″=
21	9.394179	394221	394262	394303	394344	394385	394426	394467	394508	394550	394591	394632	38	2.
22	9.394673	394714	394755	394796	394837	394878	394919	394961	395002	395043	395084	395125	37	3.
23	9.395166	395207	395248	395289	395330	395371	395412	395453	395494	395535	395576	395617	36	4.
24	9.395658	395699	395740	395781	395822	395863	395904	395945	395986	396027	396068	396109	35	1″=
25	9.396150	396191	396232	396273	396314	396355	396396	396436	396477	396518	396559	396600	34	2.
26	9.396641	396682	396723	396764	396805	396846	396886	396927	396968	397009	397050	397091	33	3.
27	9.397132	397172	397213	397254	397295	397336	397377	397417	397458	397499	397540	397581	32	4.
28	9.397622	397662	397703	397744	397785	397826	397866	397907	397948	397989	398029	398070	31	1″=
29	9.398111	398152	398192	398233	398274	398315	398355	398396	398437	398478	398518	398559	30	2.
30	9.398600	398640	398681	398722	398762	398803	398844	398885	398925	398966	399007	399047	29	3.
31	9.399088	399129	399169	399210	399250	399291	399332	399372	399413	399454	399494	399535	28	4.
32	9.399575	399616	399657	399697	399738	399778	399819	399860	399900	399941	399981	400022	27	1″=
33	9.400063	400103	400144	400184	400225	400265	400306	400346	400387	400427	400468	400508	26	2.
34	9.400549	400589	400630	400670	400711	400751	400792	400832	400873	400913	400954	400994	25	3.
35	9.401035	401075	401116	401156	401197	401237	401278	401318	401358	401399	401439	401480	24	4.
36	9.401520	401561	401601	401641	401682	401722	401763	401803	401843	401884	401924	401964	23	1″=
37	9.402005	402045	402086	402126	402166	402207	402247	402287	402328	402368	402408	402449	22	2.
38	9.402489	402529	402570	402610	402650	402690	402731	402771	402811	402852	402892	402932	21	3.
39	9.402972	403013	403053	403093	403134	403174	403214	403254	403295	403335	403375	403415	20	4.
40	9.403455	403496	403536	403576	403616	403657	403697	403737	403777	403817	403858	403898	19	1″=
41	9.403938	403978	404018	404058	404099	404139	404179	404219	404259	404299	404339	404380	18	2.
42	9.404420	404460	404500	404540	404580	404620	404660	404701	404741	404781	404821	404861	17	3.
43	9.404901	404941	404981	405021	405061	405101	405141	405181	405221	405262	405302	405342	16	4.
44	9.405382	405422	405462	405502	405542	405582	405622	405662	405702	405742	405782	405822	15	1″=
45	9.405862	405902	405942	405982	406022	406062	406102	406142	406182	406221	406261	406301	14	2.
46	9.406341	406381	406421	406461	406501	406541	406581	406621	406661	406701	406741	406780	13	3.
47	9.406820	406860	406900	406940	406980	407020	407060	407099	407139	407179	407219	407259	12	4.
48	9.407299	407339	407378	407418	407458	407498	407538	407578	407617	407657	407697	407737	11	1″=
49	9.407777	407816	407856	407896	407936	407976	408015	408055	408095	408135	408174	408214	10	2.
50	9.408254	408294	408333	408373	408413	408453	408492	408532	408572	408612	408651	408691	9	3.
51	9.408731	408770	408810	408850	408889	408929	408969	409008	409048	409088	409128	409167	8	4.
52	9.409207	409246	409286	409326	409365	409405	409445	409484	409524	409564	409603	409643	7	1″=
53	9.409682	409722	409762	409801	409841	409880	409920	409960	409999	410039	410078	410118	6	2.
54	9.410158	410197	410237	410276	410316	410355	410395	410434	410474	410513	410553	410593	5	3.
55	9.410632	410672	410711	410751	410790	410830	410869	410909	410948	410988	411027	411067	4	4.
56	9.411106	411145	411185	411224	411264	411303	411343	411382	411422	411461	411501	411540	3	1″=
57	9.411579	411619	411658	411698	411737	411776	411816	411855	411895	411934	411973	412013	2	2.
58	9.412052	412092	412131	412170	412210	412249	412288	412328	412367	412407	412446	412485	1	3.
59	9.412525	412564	412603	412643	412682	412721	412760	412800	412839	412878	412918	412957	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 75 degrees, or Sine of 165 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 15 degrees, or Co-sine of 105 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.412996	413036	413075	413114	413153	413193	413232	413271	413310	413350	413389	413428	59	1″ = 8
1	9.413467	413507	413546	413585	413624	413664	413703	413742	413781	413821	413860	413899	58	2. 16
2	9.413938	413977	414017	414056	414095	414134	414173	414212	414252	414291	414330	414369	57	3. 24
3	9.414408	414447	414487	414526	414565	414604	414643	414682	414721	414760	414800	414839	56	4. 31
4	9.414878	414917	414956	414995	415034	415073	415112	415151	415191	415230	415269	415308	55	1 = 8
5	9.415347	415386	415425	415464	415503	415542	415581	415620	415659	415698	415737	415776	54	2. 16
6	9.415815	415854	415893	415932	415971	416010	416049	416088	416127	416166	416205	416244	53	3. 23
7	9.416283	416322	416361	416400	416439	416478	416517	416556	416595	416634	416673	416712	52	4. 31
8	9.416751	416790	416828	416867	416906	416945	416984	417023	417062	417101	417140	417179	51	1 = 8
9	9.417217	417256	417295	417334	417373	417412	417451	417490	417528	417567	417606	417645	50	2. 16
10	9.417684	417723	417761	417800	417839	417878	417917	417956	417994	418033	418072	418111	49	3. 23
11	9.418150	418188	418227	418266	418305	418343	418382	418421	418460	418499	418537	418576	48	4. 31
12	9.418615	418654	418692	418731	418770	418809	418847	418886	418925	418963	419002	419041	47	1 = 8
13	9.419080	419118	419157	419196	419234	419273	419312	419350	419389	419428	419466	419505	46	2. 15
14	9.419544	419582	419621	419660	419698	419737	419776	419814	419853	419891	419930	419969	45	3. 23
15	9.420007	420046	420085	420123	420162	420200	420239	420278	420316	420355	420393	420432	44	4. 31
16	9.420470	420509	420548	420586	420625	420663	420702	420740	420779	420817	420856	420895	43	1 = 8
17	9.420933	420972	421010	421049	421087	421126	421164	421203	421241	421280	421318	421357	42	2. 15
18	9.421395	421434	421472	421511	421549	421587	421626	421664	421703	421741	421780	421818	41	3. 23
19	9.421857	421895	421933	421972	422010	422049	422087	422126	422164	422202	422241	422279	40	4. 31
20	9.422318	422356	422394	422433	422471	422510	422548	422586	422625	422663	422701	422740	39	1 = 8
21	9.422778	422816	422855	422893	422931	422970	423008	423046	423085	423123	423161	423200	38	2. 15
22	9.423238	423276	423315	423353	423391	423430	423468	423506	423544	423583	423621	423659	37	3. 23
23	9.423697	423736	423774	423812	423850	423889	423927	423965	424003	424042	424080	424118	36	4. 31
24	9.424156	424195	424233	424271	424309	424347	424386	424424	424462	424500	424538	424577	35	1 = 8
25	9.424615	424653	424691	424729	424767	424806	424844	424882	424920	424958	424996	425034	34	2. 15
26	9.425073	425111	425149	425187	425225	425263	425301	425339	425378	425416	425454	425492	33	3. 23
27	9.425530	425568	425606	425644	425682	425720	425758	425796	425835	425873	425911	425949	32	4. 31
28	9.425987	426025	426063	426101	426139	426177	426215	426253	426291	426329	426367	426405	31	1 = 8
29	9.426443	426481	426519	426557	426595	426633	426671	426709	426747	426785	426823	426861	30	2. 15
30	9.426899	426937	426975	427013	427051	427089	427127	427165	427202	427240	427278	427316	29	3. 23
31	9.427354	427392	427430	427468	427506	427544	427582	427619	427657	427695	427733	427771	28	4. 30
32	9.427809	427847	427885	427923	427960	427998	428036	428074	428112	428150	428187	428225	27	1 = 8
33	9.428263	428301	428339	428377	428414	428452	428490	428528	428566	428604	428641	428679	26	2. 15
34	9.428717	428755	428792	428830	428868	428906	428944	428981	429019	429057	429095	429132	25	3. 23
35	9.429170	429208	429246	429283	429321	429359	429397	429434	429472	429510	429547	429585	24	4. 30
36	9.429623	429661	429698	429736	429774	429811	429849	429887	429924	429962	430000	430037	23	1 = 8
37	9.430075	430113	430150	430188	430226	430263	430301	430339	430376	430414	430452	430489	22	2. 15
38	9.430527	430564	430602	430640	430677	430715	430752	430790	430828	430865	430903	430940	21	3. 23
39	9.430978	431016	431053	431091	431128	431166	431203	431241	431279	431316	431354	431391	20	4. 30
40	9.431429	431466	431504	431541	431579	431616	431654	431691	431729	431766	431804	431841	19	1 = 8
41	9.431879	431916	431954	431991	432029	432066	432104	432141	432179	432216	432254	432291	18	2. 15
42	9.432329	432366	432403	432441	432478	432516	432553	432591	432628	432665	432703	432740	17	3. 23
43	9.432778	432815	432853	432890	432927	432965	433002	433040	433077	433114	433152	433189	16	4. 30
44	9.433226	433264	433301	433339	433376	433413	433451	433488	433525	433563	433600	433637	15	1 = 7
45	9.433675	433712	433749	433787	433824	433861	433899	433936	433973	434010	434048	434085	14	2. 15
46	9.434122	434160	434197	434234	434271	434309	434346	434383	434420	434458	434495	434532	13	3. 22
47	9.434569	434607	434644	434681	434718	434756	434793	434830	434867	434905	434942	434979	12	4. 30
48	9.435016	435053	435091	435128	435165	435202	435239	435277	435314	435351	435388	435425	11	1 = 7
49	9.435462	435500	435537	435574	435611	435648	435685	435722	435760	435797	435834	435871	10	2. 15
50	9.435908	435945	435982	436019	436057	436094	436131	436168	436205	436242	436279	436316	9	3. 22
51	9.436353	436390	436427	436465	436502	436539	436576	436613	436650	436687	436724	436761	8	4. 30
52	9.436798	436835	436872	436909	436946	436983	437020	437057	437094	437131	437168	437205	7	1 = 7
53	9.437242	437279	437316	437353	437390	437427	437464	437501	437538	437575	437612	437649	6	2. 15
54	9.437686	437723	437760	437797	437834	437871	437908	437945	437982	438018	438055	438092	5	3. 22
55	9.438129	438166	438203	438240	438277	438314	438351	438388	438424	438461	438498	438535	4	4. 30
56	9.438572	438609	438646	438683	438719	438756	438793	438830	438867	438904	438941	438977	3	1 = 7
57	9.439014	439051	439088	439125	439162	439198	439235	439272	439309	439346	439382	439419	2	2. 15
58	9.439456	439493	439530	439566	439603	439640	439677	439713	439750	439787	439824	439861	1	3. 22
59	9.439897	439934	439971	440008	440044	440081	440118	440155	440191	440228	440265	440301	0	4. 29
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-sine of 74 degrees, or Sine of 164 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 16 degrees, or Co-sine of 106 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.440338	440375	440412	440448	440485	440522	440558	440595	440632	440668	440705	440742	59	1″ =
1	9.440778	440815	440852	440888	440925	440962	440998	441035	441072	441108	441145	441182	58	2.
2	9.441218	441255	441292	441328	441365	441401	441438	441475	441511	441548	441584	441621	57	3.
3	9.441658	441694	441731	441767	441804	441841	441877	441914	441950	441987	442023	442060	56	4.
4	9.442097	442133	442170	442206	442243	442279	442316	442352	442389	442425	442462	442498	55	1 =
5	9.442535	442571	442608	442644	442681	442717	442754	442790	442827	442863	442900	442936	54	2.
6	9.442973	443009	443046	443082	443119	443155	443192	443228	443265	443301	443337	443374	53	3.
7	9.443410	443447	443483	443520	443556	443592	443629	443665	443702	443738	443774	443811	52	4.
8	9.443847	443884	443920	443956	443993	444029	444066	444102	444138	444175	444211	444247	51	1 =
9	9.444284	444320	444356	444393	444429	444466	444502	444538	444575	444611	444647	444683	50	2.
10	9.444720	444756	444792	444829	444865	444901	444938	444974	445010	445046	445083	445119	49	3.
11	9.445155	445192	445228	445264	445300	445337	445373	445409	445445	445482	445518	445554	48	4.
12	9.445590	445627	445663	445699	445735	445772	445808	445844	445880	445916	445953	445989	47	1 =
13	9.446025	446061	446097	446134	446170	446206	446242	446278	446314	446351	446387	446423	46	2.
14	9.446459	446495	446531	446568	446604	446640	446676	446712	446748	446784	446821	446857	45	3.
15	9.446893	446929	446965	447001	447037	447073	447109	447146	447182	447218	447254	447290	44	4.
16	9.447326	447362	447398	447434	447470	447506	447542	447578	447615	447651	447687	447723	43	1 =
17	9.447759	447795	447831	447867	447903	447939	447975	448011	448047	448083	448119	448155	42	2.
18	9.448191	448227	448263	448299	448335	448371	448407	448443	448479	448515	448551	448587	41	3.
19	9.448623	448659	448695	448731	448767	448803	448838	448874	448910	448946	448982	449018	40	4.
20	9.449054	449090	449126	449162	449198	449234	449270	449305	449341	449377	449413	449449	39	1 =
21	9.449485	449521	449557	449593	449628	449664	449700	449736	449772	449808	449844	449879	38	2.
22	9.449915	449951	449987	450023	450059	450094	450130	450166	450202	450238	450274	450309	37	3.
23	9.450345	450381	450417	450453	450488	450524	450560	450596	450632	450667	450703	450739	36	4.
24	9.450775	450810	450846	450882	450918	450954	450989	451025	451061	451096	451132	451168	35	1 =
25	9.451204	451239	451275	451311	451347	451382	451418	451454	451489	451525	451561	451597	34	2.
26	9.451632	451668	451704	451739	451775	451811	451846	451882	451918	451953	451989	452025	33	3.
27	9.452060	452096	452132	452167	452203	452239	452274	452310	452345	452381	452417	452452	32	4.
28	9.452488	452524	452559	452595	452630	452666	452702	452737	452773	452808	452844	452880	31	1 =
29	9.452915	452951	452986	453022	453057	453093	453129	453164	453200	453235	453271	453306	30	2.
30	9.453342	453377	453413	453448	453484	453520	453555	453591	453626	453662	453697	453733	29	3.
31	9.453768	453804	453839	453875	453910	453946	453981	454017	454052	454088	454123	454158	28	4.
32	9.454194	454229	454265	454300	454336	454371	454407	454442	454478	454513	454548	454584	27	1 =
33	9.454619	454655	454690	454726	454761	454796	454832	454867	454903	454938	454973	455009	26	2.
34	9.455044	455080	455115	455150	455186	455221	455256	455292	455327	455363	455398	455433	25	3.
35	9.455469	455504	455539	455575	455610	455645	455681	455716	455751	455787	455822	455857	24	4.
36	9.455893	455928	455963	455999	456034	456069	456104	456140	456175	456210	456246	456281	23	1 =
37	9.456316	456351	456387	456422	456457	456492	456528	456563	456598	456634	456669	456704	22	2.
38	9.456739	456774	456810	456845	456880	456915	456951	456986	457021	457056	457091	457127	21	3.
39	9.457162	457197	457232	457267	457303	457338	457373	457408	457443	457479	457514	457549	20	4.
40	9.457584	457619	457654	457690	457725	457760	457795	457830	457865	457900	457936	457971	19	1 =
41	9.458006	458041	458076	458111	458146	458181	458217	458252	458287	458322	458357	458392	18	2.
42	9.458427	458462	458497	458532	458567	458603	458638	458673	458708	458743	458778	458813	17	3.
43	9.458848	458883	458918	458953	458988	459023	459058	459093	459128	459163	459198	459233	16	4.
44	9.459268	459303	459338	459373	459408	459443	459478	459513	459548	459583	459618	459653	15	1 =
45	9.459688	459723	459758	459793	459828	459863	459898	459933	459968	460003	460038	460073	14	2.
46	9.460108	460143	460178	460213	460248	460283	460318	460352	460387	460422	460457	460492	13	3.
47	9.460527	460562	460597	460632	460667	460702	460736	460771	460806	460841	460876	460911	12	4.
48	9.460946	460981	461015	461050	461085	461120	461155	461190	461225	461259	461294	461329	11	1 =
49	9.461364	461399	461434	461468	461503	461538	461573	461608	461642	461677	461712	461747	10	2.
50	9.461782	461816	461851	461886	461921	461956	461990	462025	462060	462095	462129	462164	9	3.
51	9.462199	462234	462268	462303	462338	462373	462407	462442	462477	462512	462546	462581	8	4.
52	9.462616	462651	462685	462720	462755	462789	462824	462859	462893	462928	462963	462998	7	1 =
53	9.463032	463067	463102	463136	463171	463206	463240	463275	463310	463344	463379	463414	6	2.
54	9.463448	463483	463518	463552	463587	463622	463656	463691	463725	463760	463795	463829	5	3.
55	9.463864	463899	463933	463968	464002	464037	464072	464106	464141	464175	464210	464245	4	4.
56	9.464279	464314	464348	464383	464417	464452	464487	464521	464556	464590	464625	464659	3	1 =
57	9.464694	464728	464763	464797	464832	464866	464901	464936	464970	465005	465039	465074	2	2.
58	9.465108	465143	465177	465212	465246	465281	465315	465350	465384	465419	465453	465487	1	3.
59	9.465522	465556	465591	465625	465660	465694	465729	465763	465798	465832	465867	465901	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 73 degrees, or Sine of 163 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 17 degrees, or Co-sine of 107 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.465935	465970	466004	466039	466073	466108	466142	466176	466211	466245	466280	466314	59	1″ = 7
1	9.466348	466383	466417	466452	466486	466520	466555	466589	466623	466658	466692	466727	58	2. 14
2	9.466761	466795	466830	466864	466898	466933	466967	467001	467036	467070	467104	467139	57	3. 21
3	9.467173	467207	467242	467276	467310	467345	467379	467413	467448	467482	467516	467551	56	4. 28
4	9.467585	467619	467653	467688	467722	467756	467790	467825	467859	467893	467928	467962	55	1 = 7
5	9.467996	468030	468065	468099	468133	468167	468202	468236	468270	468304	468338	468373	54	2. 14
6	9.468407	468441	468475	468510	468544	468578	468612	468646	468681	468715	468749	468783	53	3. 21
7	9.468817	468852	468886	468920	468954	468988	469022	469057	469091	469125	469159	469193	52	4. 27
8	9.469227	469262	469296	469330	469364	469398	469432	469466	469500	469535	469569	469603	51	1 = 7
9	9.469637	469671	469705	469739	469773	469808	469842	469876	469910	469944	469978	470012	50	2. 14
10	9.470046	470080	470114	470148	470182	470216	470251	470285	470319	470353	470387	470421	49	3. 20
11	9.470455	470489	470523	470557	470591	470625	470659	470693	470727	470761	470795	470829	48	4. 27
12	9.470863	470897	470931	470965	470999	471033	471067	471101	471135	471169	471203	471237	47	1 = 7
13	9.471271	471305	471339	471373	471407	471441	471475	471509	471543	471577	471611	471645	46	2. 14
14	9.471679	471713	471746	471780	471814	471848	471882	471916	471950	471984	472018	472052	45	3. 20
15	9.472086	472120	472153	472187	472221	472255	472289	472323	472357	472391	472425	472458	44	4. 27
16	9.472492	472526	472560	472594	472628	472662	472695	472729	472763	472797	472831	472865	43	1 = 7
17	9.472899	472932	472966	473000	473034	473068	473101	473135	473169	473203	473237	473271	42	2. 14
18	9.473304	473338	473372	473406	473439	473473	473507	473541	473575	473608	473642	473676	41	3. 20
19	9.473710	473743	473777	473811	473845	473879	473912	473946	473980	474013	474047	474081	40	4. 27
20	9.474115	474148	474182	474216	474250	474283	474317	474351	474384	474418	474452	474486	39	1 = 7
21	9.474519	474553	474587	474620	474654	474688	474721	474755	474789	474822	474856	474890	38	2. 13
22	9.474923	474957	474991	475024	475058	475092	475125	475159	475193	475226	475260	475294	37	3. 20
23	9.475327	475361	475394	475428	475462	475495	475529	475562	475596	475630	475663	475697	36	4. 27
24	9.475730	475764	475798	475831	475865	475898	475932	475966	475999	476033	476066	476100	35	1 = 7
25	9.476133	476167	476201	476234	476268	476301	476335	476368	476402	476435	476469	476502	34	2. 13
26	9.476536	476569	476603	476636	476670	476704	476737	476771	476804	476838	476871	476905	33	3. 20
27	9.476938	476971	477005	477038	477072	477105	477139	477172	477206	477239	477273	477306	32	4. 27
28	9.477340	477373	477407	477440	477474	477507	477540	477574	477607	477641	477674	477708	31	1 = 7
29	9.477741	477774	477808	477841	477875	477908	477941	477975	478008	478042	478075	478108	30	2. 13
30	9.478142	478175	478209	478242	478275	478309	478342	478376	478409	478442	478476	478509	29	3. 20
31	9.478542	478576	478609	478642	478676	478709	478742	478776	478809	478842	478876	478909	28	4. 27
32	9.478942	478976	479009	479042	479076	479109	479142	479176	479209	479242	479275	479309	27	1 = 7
33	9.479342	479375	479409	479442	479475	479508	479542	479575	479608	479642	479675	479708	26	2. 13
34	9.479741	479775	479808	479841	479874	479908	479941	479974	480007	480040	480074	480107	25	3. 20
35	9.480140	480173	480207	480240	480273	480306	480339	480373	480406	480439	480472	480505	24	4. 27
36	9.480539	480572	480605	480638	480671	480704	480738	480771	480804	480837	480870	480903	23	1 = 7
37	9.480937	480970	481003	481036	481069	481102	481136	481169	481202	481235	481268	481301	22	2. 13
38	9.481334	481367	481401	481434	481467	481500	481533	481566	481599	481632	481665	481698	21	3. 20
39	9.481732	481765	481798	481831	481864	481897	481930	481963	481996	482029	482062	482095	20	4. 27
40	9.482128	482161	482194	482228	482261	482294	482327	482360	482393	482426	482459	482492	19	1 = 7
41	9.482525	482558	482591	482624	482657	482690	482723	482756	482789	482822	482855	482888	18	2. 13
42	9.482921	482954	482987	483020	483053	483086	483119	483152	483185	483218	483251	483284	17	3. 20
43	9.483317	483349	483382	483415	483448	483481	483514	483547	483580	483613	483646	483679	16	4. 26
44	9.483712	483745	483778	483811	483843	483876	483909	483942	483975	484008	484041	484074	15	1 = 7
45	9.484107	484140	484172	484205	484238	484271	484304	484337	484370	484402	484435	484468	14	2. 13
46	9.484501	484534	484567	484600	484632	484665	484698	484731	484764	484797	484829	484862	13	3. 20
47	9.484895	484928	484961	484994	485026	485059	485092	485125	485158	485190	485223	485256	12	4. 26
48	9.485289	485322	485354	485387	485420	485453	485486	485518	485551	485584	485617	485649	11	1 = 7
49	9.485682	485715	485748	485780	485813	485846	485879	485911	485944	485977	486010	486042	10	2. 13
50	9.486075	486108	486140	486173	486206	486239	486271	486304	486337	486369	486402	486435	9	3. 20
51	9.486467	486500	486533	486566	486598	486631	486664	486696	486729	486762	486794	486827	8	4. 26
52	9.486860	486892	486925	486958	486990	487023	487055	487088	487121	487153	487186	487219	7	1 = 7
53	9.487251	487284	487317	487349	487382	487414	487447	487480	487512	487545	487577	487610	6	2. 13
54	9.487643	487675	487708	487740	487773	487806	487838	487871	487903	487936	487968	488001	5	3. 20
55	9.488034	488066	488099	488131	488164	488196	488229	488261	488294	488326	488359	488392	4	4. 26
56	9.488424	488457	488489	488522	488554	488587	488619	488652	488684	488717	488749	488782	3	1 = 7
57	9.488814	488847	488879	488912	488944	488977	489009	489042	489074	489107	489139	489172	2	2. 13
58	9.489204	489236	489269	489301	489334	489366	489399	489431	489464	489496	489529	489561	1	3. 20
59	9.489593	489626	489658	489691	489723	489756	489788	489820	489853	489885	489918	489950	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 72 degrees, or Sine of 162 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 18 degrees, or Co-sine of 108 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 489982	490015	490047	490080	490112	490144	490177	490209	490242	490274	490306	490339	59	1″ =
1	9. 490371	490403	490436	490468	490500	490533	490565	490598	490630	490662	490695	490727	58	2.
2	9. 490759	490792	490824	490856	490889	490921	490953	490986	491018	491050	491082	491115	57	3.
3	9. 491147	491179	491212	491244	491276	491309	491341	491373	491405	491438	491470	491502	56	4.
4	9. 491535	491567	491599	491631	491664	491696	491728	491760	491793	491825	491857	491889	55	1 =
5	9. 491922	491954	491986	492018	492051	492083	492115	492147	492179	492212	492244	492276	54	2.
6	9. 492308	492341	492373	492405	492437	492469	492502	492534	492566	492598	492630	492662	53	3.
7	9. 492695	492727	492759	492791	492823	492856	492888	492920	492952	492984	493016	493048	52	4.
8	9. 493081	493113	493145	493177	493209	493241	493273	493306	493338	493370	493402	493434	51	1 =
9	9. 493466	493498	493530	493563	493595	493627	493659	493691	493723	493755	493787	493819	50	2.
10	9. 493851	493883	493916	493948	493980	494012	494044	494076	494108	494140	494172	494204	49	3.
11	9. 494236	494268	494300	494332	494364	494396	494428	494460	494492	494525	494557	494589	48	4.
12	9. 494621	494653	494685	494717	494749	494781	494813	494845	494877	494909	494941	494973	47	1 =
13	9. 495005	495037	495069	495101	495133	495165	495197	495228	495260	495292	495324	495356	46	2.
14	9. 495388	495420	495452	495484	495516	495548	495580	495612	495644	495676	495708	495740	45	3.
15	9. 495772	495804	495835	495867	495899	495931	495963	495995	496027	496059	496091	496123	44	4.
16	9. 496155	496186	496218	496250	496282	496314	496346	496378	496410	496441	496473	496505	43	1 =
17	9. 496537	496569	496601	496633	496665	496696	496728	496760	496792	496824	496856	496887	42	2.
18	9. 496919	496951	496983	497015	497047	497078	497110	497142	497174	497206	497237	497269	41	3.
19	9. 497301	497333	497365	497396	497428	497460	497492	497524	497555	497587	497619	497651	40	4.
20	9. 497682	497714	497746	497778	497810	497841	497873	497905	497937	497968	498000	498032	39	1 =
21	9. 498064	498095	498127	498159	498190	498222	498254	498286	498317	498349	498381	498413	38	2.
22	9. 498444	498476	498508	498539	498571	498603	498634	498666	498698	498730	498761	498793	37	3.
23	9. 498825	498856	498888	498920	498951	498983	499015	499046	499078	499110	499141	499173	36	4.
24	9. 499205	499236	499268	499299	499331	499363	499394	499426	499458	499489	499521	499552	35	1 =
25	9. 499584	499616	499647	499679	499711	499742	499774	499805	499837	499869	499900	499932	34	2.
26	9. 499963	499995	500026	500058	500090	500121	500153	500184	500216	500247	500279	500311	33	3.
27	9. 500342	500374	500405	500437	500468	500500	500531	500563	500595	500626	500658	500689	32	4.
28	9. 500721	500752	500784	500815	500847	500878	500910	500941	500973	501004	501036	501067	31	1 =
29	9. 501099	501130	501162	501193	501225	501256	501288	501319	501351	501382	501414	501445	30	2.
30	9. 501476	501508	501539	501571	501602	501634	501665	501697	501728	501760	501791	501822	29	3.
31	9. 501854	501885	501917	501948	501980	502011	502042	502074	502105	502137	502168	502199	28	4.
32	9. 502231	502262	502294	502325	502356	502388	502419	502451	502482	502513	502545	502576	27	1 =
33	9. 502608	502639	502670	502702	502733	502764	502796	502827	502858	502890	502921	502952	26	2.
34	9. 502984	503015	503047	503078	503109	503141	503172	503203	503234	503266	503297	503328	25	3.
35	9. 503360	503391	503422	503454	503485	503516	503548	503579	503610	503641	503673	503704	24	4.
36	9. 503735	503767	503798	503829	503860	503892	503923	503954	503986	504017	504048	504079	23	1 =
37	9. 504111	504142	504173	504204	504236	504267	504298	504329	504360	504392	504423	504454	22	2.
38	9. 504485	504517	504548	504579	504610	504641	504673	504704	504735	504766	504797	504829	21	3.
39	9. 504860	504891	504922	504953	504985	505016	505047	505078	505109	505140	505172	505203	20	4.
40	9. 505234	505265	505296	505327	505359	505390	505421	505452	505483	505514	505545	505577	19	1 =
41	9. 505608	505639	505670	505701	505732	505763	505795	505826	505857	505888	505919	505950	18	2.
42	9. 505981	506012	506043	506074	506106	506137	506168	506199	506230	506261	506292	506323	17	3.
43	9. 506354	506385	506416	506447	506478	506510	506541	506572	506603	506634	506665	506696	16	4.
44	9. 506727	506758	506789	506820	506851	506882	506913	506944	506975	507006	507037	507068	15	1 =
45	9. 507099	507130	507161	507192	507223	507254	507285	507316	507347	507378	507409	507440	14	2.
46	9. 507471	507502	507533	507564	507595	507626	507657	507688	507719	507750	507781	507812	13	3.
47	9. 507843	507874	507905	507936	507967	507998	508029	508059	508090	508121	508152	508183	12	4.
48	9. 508214	508245	508276	508307	508338	508369	508400	508431	508461	508492	508523	508554	11	1 =
49	9. 508585	508616	508647	508678	508709	508739	508770	508801	508832	508863	508894	508925	10	2.
50	9. 508956	508986	509017	509048	509079	509110	509141	509172	509202	509233	509264	509295	9	3.
51	9. 509326	509357	509387	509418	509449	509480	509511	509542	509572	509603	509634	509665	8	4.
52	9. 509696	509726	509757	509788	509819	509850	509880	509911	509942	509973	510004	510034	7	1 =
53	9. 510065	510096	510127	510158	510188	510219	510250	510281	510311	510342	510373	510404	6	2.
54	9. 510434	510465	510496	510527	510557	510588	510619	510650	510680	510711	510742	510772	5	3.
55	9. 510803	510834	510865	510895	510926	510957	510987	511018	511049	511080	511110	511141	4	4.
56	9. 511172	511202	511233	511264	511294	511325	511356	511386	511417	511448	511478	511509	3	1 =
57	9. 511540	511570	511601	511632	511662	511693	511724	511754	511785	511816	511846	511877	2	2.
58	9. 511907	511938	511969	511999	512030	512061	512091	512122	512152	512183	512214	512244	1	3.
59	9. 512275	512306	512336	512367	512397	512428	512458	512489	512520	512550	512581	512611	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 71 degrees, or Sine of 161 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 19 degrees, or Co-sine of 109 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.512642	512673	512703	512734	512764	512795	512825	512856	512886	512917	512948	512978	59	1″ = 6
1	9.513009	513039	513070	513100	513131	513161	513192	513222	513253	513283	513314	513345	58	2. 12
2	9.513375	513406	513436	513467	513497	513528	513558	513589	513619	513650	513680	513711	57	3. 18
3	9.513741	513772	513802	513833	513863	513893	513924	513954	513985	514015	514046	514076	56	4. 24
4	9.514107	514137	514168	514198	514229	514259	514289	514320	514350	514381	514411	514442	55	1 = 6
5	9.514472	514503	514533	514563	514594	514624	514655	514685	514715	514746	514776	514807	54	2. 12
6	9.514837	514868	514898	514928	514959	514989	515019	515050	515080	515111	515141	515171	53	3. 18
7	9.515202	515232	515262	515293	515323	515354	515384	515414	515445	515475	515505	515536	52	4. 24
8	9.515566	515596	515627	515657	515687	515718	515748	515778	515809	515839	515869	515900	51	1 = 6
9	9.515930	515960	515991	516021	516051	516082	516112	516142	516172	516203	516233	516263	50	2. 12
10	9.516294	516324	516354	516385	516415	516445	516475	516506	516536	516566	516596	516627	49	3. 18
11	9.516657	516687	516717	516748	516778	516808	516838	516869	516899	516929	516959	516990	48	4. 24
12	9.517020	517050	517080	517111	517141	517171	517201	517231	517262	517292	517322	517352	47	1 = 6
13	9.517382	517413	517443	517473	517503	517533	517564	517594	517624	517654	517684	517715	46	2. 12
14	9.517745	517775	517805	517835	517865	517896	517926	517956	517986	518016	518046	518077	45	3. 18
15	9.518107	518137	518167	518197	518227	518257	518288	518318	518348	518378	518408	518438	44	4. 24
16	9.518468	518498	518528	518559	518589	518619	518649	518679	518709	518739	518769	518799	43	1 = 6
17	9.518830	518860	518890	518920	518950	518980	519010	519040	519070	519100	519130	519160	42	2. 12
18	9.519190	519220	519251	519281	519311	519341	519371	519401	519431	519461	519491	519521	41	3. 18
19	9.519551	519581	519611	519641	519671	519701	519731	519761	519791	519821	519851	519881	40	4. 24
20	9.519911	519941	519971	520001	520031	520061	520091	520121	520151	520181	520211	520241	39	1 = 6
21	9.520271	520301	520331	520361	520391	520421	520451	520481	520511	520541	520571	520601	38	2. 12
22	9.520631	520661	520691	520721	520751	520780	520810	520840	520870	520900	520930	520960	37	3. 18
23	9.520990	521020	521050	521080	521110	521140	521169	521199	521229	521259	521289	521319	36	4. 24
24	9.521349	521379	521409	521439	521468	521498	521528	521558	521588	521618	521648	521678	35	1 = 6
25	9.521707	521737	521767	521797	521827	521857	521887	521916	521946	521976	522006	522036	34	2. 12
26	9.522066	522096	522125	522155	522185	522215	522245	522274	522304	522334	522364	522394	33	3. 18
27	9.522424	522453	522483	522513	522543	522573	522602	522632	522662	522692	522722	522751	32	4. 24
28	9.522781	522811	522841	522870	522900	522930	522960	522990	523019	523049	523079	523109	31	1 = 6
29	9.523138	523168	523198	523228	523257	523287	523317	523347	523376	523406	523436	523466	30	2. 12
30	9.523495	523525	523555	523584	523614	523644	523674	523703	523733	523763	523792	523822	29	3. 18
31	9.523852	523882	523911	523941	523971	524000	524030	524060	524089	524119	524149	524178	28	4. 24
32	9.524208	524238	524267	524297	524327	524356	524386	524416	524445	524475	524505	524534	27	1 = 6
33	9.524564	524594	524623	524653	524683	524712	524742	524772	524801	524831	524860	524890	26	2. 12
34	9.524920	524949	524979	525009	525038	525068	525097	525127	525157	525186	525216	525245	25	3. 18
35	9.525275	525305	525334	525364	525393	525423	525452	525482	525512	525541	525571	525600	24	4. 24
36	9.525630	525659	525689	525719	525748	525778	525807	525837	525866	525896	525925	525955	23	1 = 6
37	9.525984	526014	526044	526073	526103	526132	526162	526191	526221	526250	526280	526309	22	2. 12
38	9.526339	526368	526398	526427	526457	526486	526516	526545	526575	526604	526634	526663	21	3. 18
39	9.526693	526722	526752	526781	526811	526840	526870	526899	526929	526958	526987	527017	20	4. 24
40	9.527046	527076	527105	527135	527164	527194	527223	527253	527282	527311	527341	527370	19	1 = 6
41	9.527400	527429	527459	527488	527517	527547	527576	527606	527635	527664	527694	527723	18	2. 12
42	9.527753	527782	527811	527841	527870	527900	527929	527958	527988	528017	528047	528076	17	3. 18
43	9.528105	528135	528164	528193	528223	528252	528282	528311	528340	528370	528399	528428	16	4. 24
44	9.528458	528487	528516	528546	528575	528604	528634	528663	528692	528722	528751	528780	15	1 = 6
45	9.528810	528839	528868	528898	528927	528956	528986	529015	529044	529074	529103	529132	14	2. 12
46	9.529161	529191	529220	529249	529279	529308	529337	529366	529396	529425	529454	529484	13	3. 18
47	9.529513	529542	529571	529601	529630	529659	529688	529718	529747	529776	529805	529835	12	4. 23
48	9.529864	529893	529922	529952	529981	530010	530039	530069	530098	530127	530156	530185	11	1 = 6
49	9.530215	530244	530273	530302	530331	530361	530390	530419	530448	530477	530507	530536	10	2. 12
50	9.530565	530594	530623	530653	530682	530711	530740	530769	530798	530828	530857	530886	9	3. 18
51	9.530915	530944	530973	531003	531032	531061	531090	531119	531148	531177	531207	531236	8	4. 23
52	9.531265	531294	531323	531352	531381	531411	531440	531469	531498	531527	531556	531585	7	1 = 6
53	9.531614	531643	531673	531702	531731	531760	531789	531818	531847	531876	531905	531934	6	2. 12
54	9.531964	531993	532022	532051	532080	532109	532138	532167	532196	532225	532254	532283	5	3. 17
55	9.532312	532341	532370	532399	532429	532458	532487	532516	532545	532574	532603	532632	4	4. 23
56	9.532661	532690	532719	532748	532777	532806	532835	532864	532893	532922	532951	532980	3	1 = 6
57	9.533009	533038	533067	533096	533125	533154	533183	533212	533241	533270	533299	533328	2	2. 12
58	9.533357	533386	533415	533444	533473	533502	533531	533560	533589	533618	533646	533675	1	3. 17
59	9.533704	533733	533762	533791	533820	533849	533878	533907	533936	533965	533994	534023	0	4. 23
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 70 degrees, or Sine of 160 degrees.													

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LOGARITHMIC SINES.

Minutes	*Sine of 10 degrees, or Co-sine of 100 degrees.*												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 239670	239730	239790	239849	239909	239969	240028	240088	240148	240207	240267	240327	59	1″ = 12
1	9. 240386	240446	240505	240565	240624	240684	240744	240803	240863	240922	240982	241041	58	2. 24
2	9. 241101	241160	241220	241279	241339	241398	241458	241517	241577	241636	241695	241755	57	3. 36
3	9. 241814	241874	241933	241992	242052	242111	242170	242230	242289	242348	242408	242467	56	4. 48
4	9. 242526	242586	242645	242704	242764	242823	242882	242941	243001	243060	243119	243178	55	1 = 12
5	9. 243237	243297	243356	243415	243474	243533	243592	243652	243711	243770	243829	243888	54	2. 24
6	9. 243947	244006	244065	244125	244184	244243	244302	244361	244420	244479	244538	244597	53	3. 36
7	9. 244656	244715	244774	244833	244892	244951	245010	245069	245128	245187	245245	245304	52	4. 48
8	9. 245363	245422	245481	245540	245599	245658	245717	245775	245834	245893	245952	246011	51	1 = 12
9	9. 246070	246128	246187	246246	246305	246363	246422	246481	246540	246598	246657	246716	50	2. 24
10	9. 246775	246833	246892	246951	247009	247068	247127	247185	247244	247303	247361	247420	49	3. 36
11	9. 247478	247537	247596	247654	247713	247771	247830	247889	247947	248006	248064	248123	48	4. 48
12	9. 248181	248240	248298	248357	248415	248474	248532	248591	248649	248707	248766	248824	47	1 = 12
13	9. 248883	248941	249000	249058	249116	249175	249233	249291	249350	249408	249466	249525	46	2. 24
14	9. 249583	249641	249700	249758	249816	249875	249933	249991	250049	250108	250166	250224	45	3. 36
15	9. 250282	250341	250399	250457	250515	250573	250631	250690	250748	250806	250864	250923	44	4. 48
16	9. 250980	251038	251097	251155	251213	251271	251329	251387	251445	251503	251561	251619	43	1 = 12
17	9. 251677	251735	251793	251851	251909	251967	252025	252083	252141	252199	252257	252315	42	2. 24
18	9. 252373	252431	252489	252547	252605	252662	252720	252778	252836	252894	252952	253010	41	3. 36
19	9. 253068	253125	253183	253241	253299	253357	253414	253472	253530	253588	253645	253703	40	4. 48
20	9. 253761	253819	253876	253934	253992	254050	254107	254165	254223	254280	254338	254396	39	1 = 12
21	9. 254453	254511	254569	254626	254684	254741	254799	254857	254914	254972	255029	255087	38	2. 24
22	9. 255144	255202	255259	255317	255375	255432	255490	255547	255605	255662	255720	255777	37	3. 36
23	9. 255834	255892	255949	256007	256064	256122	256179	256236	256294	256351	256409	256466	36	4. 48
24	9. 256523	256581	256638	256695	256753	256810	256867	256925	256982	257039	257097	257154	35	1 = 12
25	9. 257211	257268	257326	257383	257440	257497	257555	257612	257669	257726	257783	257841	34	2. 24
26	9. 257898	257955	258012	258069	258126	258183	258241	258298	258355	258412	258469	258526	33	3. 36
27	9. 258583	258640	258697	258754	258811	258869	258926	258983	259040	259097	259154	259211	32	4. 48
28	9. 259268	259325	259382	259439	259496	259552	259609	259666	259723	259780	259837	259894	31	1 = 12
29	9. 259951	260008	260065	260122	260178	260235	260292	260349	260406	260463	260519	260576	30	2. 24
30	9. 260633	260690	260747	260803	260860	260917	260974	261031	261087	261144	261201	261257	29	3. 36
31	9. 261314	261371	261428	261484	261541	261598	261654	261711	261768	261824	261881	261938	28	4. 48
32	9. 261994	262051	262107	262164	262221	262277	262334	262390	262447	262503	262560	262616	27	1 = 12
33	9. 262673	262730	262786	262843	262899	262956	263012	263068	263125	263181	263238	263294	26	2. 24
34	9. 263351	263407	263464	263520	263576	263633	263689	263746	263802	263858	263915	263971	25	3. 36
35	9. 264027	264084	264140	264196	264253	264309	264365	264422	264478	264534	264591	264647	24	4. 48
36	9. 264703	264759	264816	264872	264928	264984	265040	265097	265153	265209	265265	265321	23	1 = 12
37	9. 265378	265434	265490	265546	265602	265658	265714	265770	265827	265883	265939	265995	22	2. 24
38	9. 266051	266107	266163	266219	266275	266331	266387	266443	266499	266555	266611	266667	21	3. 36
39	9. 266723	266779	266835	266891	266947	267003	267059	267115	267171	267227	267283	267339	20	4. 48
40	9. 267395	267450	267506	267562	267618	267674	267730	267786	267841	267897	267953	268009	19	1 = 12
41	9. 268065	268121	268176	268232	268288	268344	268399	268455	268511	268567	268622	268678	18	2. 24
42	9. 268734	268790	268845	268901	268957	269012	269068	269124	269179	269235	269291	269346	17	3. 36
43	9. 269402	269458	269513	269569	269624	269680	269736	269791	269847	269902	269958	270013	16	4. 48
44	9. 270069	270124	270180	270236	270291	270347	270402	270458	270513	270568	270624	270679	15	1 = 12
45	9. 270735	270790	270846	270901	270957	271012	271067	271123	271178	271234	271289	271344	14	2. 24
46	9. 271400	271455	271510	271566	271621	271676	271732	271787	271842	271898	271953	272008	13	3. 36
47	9. 272064	272119	272174	272229	272285	272340	272395	272450	272506	272561	272616	272671	12	4. 48
48	9. 272726	272782	272837	272892	272947	273002	273057	273112	273168	273223	273278	273333	11	1 = 12
49	9. 273388	273443	273498	273553	273608	273663	273719	273774	273829	273884	273939	273994	10	2. 24
50	9. 274049	274104	274159	274214	274269	274324	274379	274434	274489	274544	274599	274653	9	3. 36
51	9. 274708	274763	274818	274873	274928	274983	275038	275093	275148	275202	275257	275312	8	4. 48
52	9. 275367	275422	275477	275531	275586	275641	275696	275751	275805	275860	275915	275970	7	1 = 12
53	9. 276025	276079	276134	276189	276244	276298	276353	276408	276462	276517	276572	276626	6	2. 24
54	9. 276681	276736	276790	276845	276900	276954	277009	277064	277118	277173	277227	277282	5	3. 36
55	9. 277337	277391	277446	277500	277555	277609	277664	277719	277773	277828	277882	277937	4	4. 48
56	9. 277991	278046	278100	278155	278209	278264	278318	278372	278427	278481	278536	278590	3	1 = 12
57	9. 278645	278699	278753	278808	278862	278917	278971	279025	279080	279134	279188	279243	2	2. 24
58	9. 279297	279351	279406	279460	279514	279569	279623	279677	279731	279786	279840	279894	1	3. 36
59	9. 279948	280003	280057	280111	280165	280220	280274	280328	280382	280436	280491	280545	0	4. 48
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	
	Co-sine of 79 degrees, or Sine of 169 degrees.													

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LOGARITHMIC SINES.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
	Sine of 11 *degrees, or Cosine of* 101 *degrees.*													
0	9.280599	280653	280707	280761	280815	280870	280924	280978	281032	281086	281140	281194	59	1 = 11
1	9.281248	281302	281356	281411	281465	281519	281573	281627	281681	281735	281789	281843	58	2. 22
2	9.281897	281951	282005	282059	282113	282167	282221	282274	282328	282382	282436	282490	57	3. 32
3	9.282544	282598	282652	282706	282760	282814	282867	282921	282975	283029	283083	283137	56	4. 43
4	9.283191	283244	283298	283352	283406	283460	283513	283567	283621	283675	283728	283782	55	1 = 11
5	9.283836	283890	283943	283997	284051	284105	284158	284212	284266	284319	284373	284427	54	2. 21
6	9.284480	284534	284588	284641	284695	284749	284802	284856	284909	284963	285017	285070	53	3. 32
7	9.285124	285177	285231	285284	285338	285392	285445	285499	285552	285606	285659	285713	52	4. 43
8	9.285766	285820	285873	285927	285980	286034	286087	286140	286194	286247	286301	286354	51	1 = 11
9	9.286408	286461	286514	286568	286621	286675	286728	286781	286835	286888	286941	286995	50	2. 21
10	9.287048	287101	287155	287208	287261	287315	287368	287421	287475	287528	287581	287634	49	3. 32
11	9.287688	287741	287794	287847	287901	287954	288007	288060	288113	288167	288220	288273	48	4. 43
12	9.288326	288379	288432	288486	288539	288592	288645	288698	288751	288804	288857	288911	47	1 = 11
13	9.288964	289017	289070	289123	289176	289229	289282	289335	289388	289441	289494	289547	46	2. 21
14	9.289600	289653	289706	289759	289812	289865	289918	289971	290024	290077	290130	290183	45	3. 32
15	9.290236	290289	290342	290395	290447	290500	290553	290606	290659	290712	290765	290818	44	4. 42
16	9.290870	290923	290976	291029	291082	291135	291187	291240	291293	291346	291399	291451	43	1 = 11
17	9.291504	291557	291610	291662	291715	291768	291821	291873	291926	291979	292031	292084	42	2. 21
18	9.292137	292189	292242	292295	292347	292400	292453	292505	292558	292611	292663	292716	41	3. 32
19	9.292769	292821	292874	292926	292979	293031	293084	293137	293189	293242	293294	293347	40	4. 42
20	9.293399	293452	293504	293557	293609	293662	293714	293767	293819	293872	293924	293977	39	1 = 10
21	9.294029	294082	294134	294186	294239	294291	294344	294396	294449	294501	294553	294606	38	2. 21
22	9.294658	294710	294763	294815	294867	294920	294972	295024	295077	295129	295181	295234	37	3. 31
23	9.295286	295338	295391	295443	295495	295547	295600	295652	295704	295756	295809	295861	36	4. 42
24	9.295913	295965	296017	296070	296122	296174	296226	296278	296330	296383	296435	296487	35	1 = 10
25	9.296539	296591	296643	296695	296748	296800	296852	296904	296956	297008	297060	297112	34	2. 21
26	9.297164	297216	297268	297320	297372	297424	297476	297528	297580	297632	297684	297736	33	3. 31
27	9.297788	297840	297892	297944	297996	298048	298100	298152	298204	298256	298308	298360	32	4. 42
28	9.298412	298464	298515	298567	298619	298671	298723	298775	298827	298878	298930	298982	31	1 = 10
29	9.299034	299086	299138	299189	299241	299293	299345	299397	299448	299500	299552	299604	30	2. 21
30	9.299655	299707	299759	299811	299862	299914	299966	300017	300069	300121	300172	300224	29	3. 31
31	9.300276	300327	300379	300431	300482	300534	300586	300637	300689	300741	300792	300844	28	4. 41
32	9.300895	300947	300999	301050	301102	301153	301205	301256	301308	301359	301411	301463	27	1 = 10
33	9.301514	301566	301617	301669	301720	301772	301823	301874	301926	301977	302029	302080	26	2. 21
34	9.302132	302183	302235	302286	302337	302389	302440	302492	302543	302594	302646	302697	25	3. 31
35	9.302749	302800	302851	302903	302954	303005	303057	303108	303159	303211	303262	303313	24	4. 41
36	9.303364	303416	303467	303518	303570	303621	303672	303723	303775	303826	303877	303928	23	1 = 10
37	9.303979	304031	304082	304133	304184	304235	304287	304338	304389	304440	304491	304542	22	2. 20
38	9.304593	304645	304696	304747	304798	304849	304900	304951	305002	305053	305105	305156	21	3. 31
39	9.305207	305258	305309	305360	305411	305462	305513	305564	305615	305666	305717	305768	20	4. 41
40	9.305819	305870	305921	305972	306023	306074	306125	306176	306227	306278	306328	306379	19	1 = 10
41	9.306430	306481	306532	306583	306634	306685	306736	306787	306837	306888	306939	306990	18	2. 20
42	9.307041	307092	307142	307193	307244	307295	307346	307396	307447	307498	307549	307600	17	3. 31
43	9.307650	307701	307752	307803	307853	307904	307955	308006	308056	308107	308158	308208	16	4. 41
44	9.308259	308310	308360	308411	308462	308512	308563	308614	308664	308715	308766	308816	15	1 = 10
45	9.308867	308917	308968	309019	309069	309120	309170	309221	309272	309322	309373	309423	14	2. 20
46	9.309474	309524	309575	309625	309676	309726	309777	309827	309878	309928	309979	310029	13	3. 30
47	9.310080	310130	310181	310231	310282	310332	310383	310433	310483	310534	310584	310635	12	4. 40
48	9.310685	310735	310786	310836	310886	310937	310987	311038	311088	311138	311189	311239	11	1 = 10
49	9.311289	311340	311390	311440	311490	311541	311591	311641	311692	311742	311792	311842	10	2. 20
50	9.311893	311943	311993	312043	312094	312144	312194	312244	312294	312345	312395	312445	9	3. 30
51	9.312495	312545	312596	312646	312696	312746	312796	312846	312896	312946	312997	313047	8	4. 40
52	9.313097	313147	313197	313247	313297	313347	313397	313447	313497	313547	313598	313648	7	1 = 10
53	9.313698	313748	313798	313848	313898	313948	313998	314048	314098	314148	314198	314248	6	2. 20
54	9.314298	314347	314397	314447	314497	314547	314597	314647	314697	314747	314797	314847	5	3. 30
55	9.314897	314946	314996	315046	315096	315146	315196	315246	315295	315345	315395	315445	4	4. 40
56	9.315495	315545	315594	315644	315694	315744	315794	315843	315893	315943	315993	316042	3	1 = 10
57	9.316092	316142	316192	316241	316291	316341	316390	316440	316490	316540	316589	316639	2	2. 20
58	9.316689	316738	316788	316838	316887	316937	316986	317036	317086	317135	317185	317235	1	3. 30
59	9.317284	317334	317383	317433	317483	317532	317582	317631	317681	317730	317780	317829	0	4. 40
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Cosine of 78 *degrees, or Sine of* 168 *degrees.*													

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LOGARITHMIC SINES.

Minutes	Sine of 12 degrees, or Co-sine of 102 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.317879	317928	317978	318028	318077	318127	318176	318226	318275	318324	318374	318423	59	1″=1
1	9.318473	318522	318572	318621	318671	318720	318770	318819	318868	318918	318967	319017	58	2. 2
2	9.319066	319115	319165	319214	319263	319313	319362	319412	319461	319510	319560	319609	57	3. 3
3	9.319658	319707	319757	319806	319855	319905	319954	320003	320053	320102	320151	320200	56	4. 4
4	9.320250	320299	320348	320397	320446	320496	320545	320594	320643	320693	320742	320791	55	1 = 1
5	9.320840	320889	320938	320988	321037	321086	321135	321184	321233	321282	321332	321381	54	2. 2
6	9.321430	321479	321528	321577	321626	321675	321724	321773	321822	321872	321921	321970	53	3. 3
7	9.322019	322068	322117	322166	322215	322264	322313	322362	322411	322460	322509	322558	52	4. 3
8	9.322607	322656	322705	322754	322803	322851	322900	322949	322998	323047	323096	323145	51	1 = 1
9	9.323194	323243	323292	323341	323389	323438	323487	323536	323585	323634	323683	323731	50	2. 2
10	9.323780	323829	323878	323927	323976	324024	324073	324122	324171	324219	324268	324317	49	3. 2
11	9.324366	324415	324463	324512	324561	324610	324658	324707	324756	324804	324853	324902	48	4. 3
12	9.324951	324999	325048	325097	325145	325194	325243	325291	325340	325389	325437	325486	47	1 = 1
13	9.325534	325583	325632	325680	325729	325777	325826	325875	325923	325972	326020	326069	46	2. 2
14	9.326117	326166	326215	326263	326312	326360	326409	326457	326506	326554	326603	326651	45	3. 2
15	9.326700	326748	326797	326845	326894	326942	326991	327039	327087	327136	327184	327233	44	4. 3
16	9.327281	327330	327378	327426	327475	327523	327572	327620	327668	327717	327765	327813	43	1 = 1
17	9.327862	327910	327958	328007	328055	328103	328152	328200	328248	328297	328345	328393	42	2. 1
18	9.328442	328490	328538	328586	328635	328683	328731	328779	328828	328876	328924	328972	41	3. 2
19	9.329021	329069	329117	329165	329213	329262	329310	329358	329406	329454	329502	329551	40	4. 3
20	9.329599	329647	329695	329743	329791	329839	329888	329936	329984	330032	330080	330128	39	1 = 1
21	9.330176	330224	330272	330320	330368	330417	330465	330513	330561	330609	330657	330705	38	2. 1
22	9.330753	330801	330849	330897	330945	330993	331041	331089	331137	331185	331233	331281	37	3. 2
23	9.331329	331377	331424	331472	331520	331568	331616	331664	331712	331760	331808	331856	36	4. 2
24	9.331904	331951	331999	332047	332095	332143	332191	332239	332286	332334	332382	332430	35	1 = 1
25	9.332478	332526	332573	332621	332669	332717	332765	332812	332860	332908	332956	333003	34	2. 1
26	9.333051	333099	333147	333194	333242	333290	333338	333385	333433	333481	333528	333576	33	3. 2
27	9.333624	333671	333719	333767	333814	333862	333910	333957	334005	334053	334100	334148	32	4. 2
28	9.334196	334243	334291	334338	334386	334434	334481	334529	334576	334624	334671	334719	31	1 = 1
29	9.334767	334814	334862	334909	334957	335004	335052	335099	335147	335194	335242	335289	30	2. 1
30	9.335337	335384	335432	335479	335527	335574	335622	335669	335717	335764	335811	335859	29	3. 2
31	9.335906	335954	336001	336048	336096	336143	336191	336238	336285	336333	336380	336428	28	4. 2
32	9.336475	336522	336570	336617	336664	336712	336759	336806	336854	336901	336948	336996	27	1 = 1
33	9.337043	337090	337137	337185	337232	337279	337326	337374	337421	337468	337515	337563	26	2. 1
34	9.337610	337657	337704	337752	337799	337846	337893	337940	337988	338035	338082	338129	25	3. 2
35	9.338176	338223	338271	338318	338365	338412	338459	338506	338553	338600	338648	338695	24	4. 2
36	9.338742	338789	338836	338883	338930	338977	339024	339071	339118	339165	339213	339260	23	1 = 1
37	9.339307	339354	339401	339448	339495	339542	339589	339636	339683	339730	339777	339824	22	2. 1
38	9.339871	339918	339965	340012	340058	340105	340152	340199	340246	340293	340340	340387	21	3. 2
39	9.340434	340481	340528	340575	340621	340668	340715	340762	340809	340856	340903	340950	20	4. 2
40	9.340996	341043	341090	341137	341184	341230	341277	341324	341371	341418	341464	341511	19	1 = 1
41	9.341558	341605	341652	341698	341745	341792	341839	341885	341932	341979	342026	342072	18	2. 1
42	9.342119	342166	342212	342259	342306	342353	342399	342446	342493	342539	342586	342633	17	3. 2
43	9.342679	342726	342773	342819	342866	342912	342959	343006	343052	343099	343145	343192	16	4. 2
44	9.343239	343285	343332	343378	343425	343472	343518	343565	343611	343658	343704	343751	15	1 = 1
45	9.343797	343844	343890	343937	343983	344030	344076	344123	344169	344216	344262	344309	14	2. 1
46	9.344355	344402	344448	344495	344541	344588	344634	344680	344727	344773	344820	344866	13	3. 2
47	9.344912	344959	345005	345052	345098	345144	345191	345237	345283	345330	345376	345423	12	4. 2
48	9.345469	345515	345562	345608	345654	345700	345747	345793	345839	345886	345932	345978	11	1 = 1
49	9.346025	346071	346117	346163	346210	346256	346302	346348	346395	346441	346487	346533	10	2. 1
50	9.346579	346626	346672	346718	346764	346810	346857	346903	346949	346995	347041	437087	9	3. 2
51	9.347134	347180	347226	347272	347318	347364	347410	347457	347503	347549	347595	347641	8	4. 2
52	9.347687	347733	347779	347825	347871	347917	347964	348010	348056	348102	348148	348194	7	1 = 1
53	9.348240	348286	348332	348378	348424	348470	348516	348562	348608	348654	348700	348746	6	2. 1
54	9.348792	348838	348884	348930	348976	349022	349067	349113	349159	349205	349251	349297	5	3. 2
55	9.349343	349389	349435	349481	349527	349572	349618	349664	349710	349756	349802	349848	4	4. 2
56	9.349893	349939	349985	350031	350077	350123	350168	350214	350260	350306	350352	350397	3	1 = 1
57	9.350443	350489	350535	350581	350626	350672	350718	350764	350809	350855	350901	350947	2	2. 1
58	9.350992	351038	351084	351129	351175	351221	351266	351312	351358	351404	351449	351495	1	3. 2
59	9.351541	351586	351632	351677	351723	351769	351814	351860	351906	351951	351997	352042	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-sine of 77 degrees, or Sine of 167 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 13 degrees, or Co-sine of 103 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.352088	352134	352179	352225	352270	352316	352362	352407	352453	352498	352544	352589	59	1″ = 9
1	9.352635	352680	352726	352772	352817	352863	352908	352954	352999	353045	353090	353136	58	2. 18
2	9.353181	353227	353272	353317	353363	353408	353454	353499	353545	353590	353636	353681	57	3. 27
3	9.353726	353772	353817	353863	353908	353953	353999	354044	354090	354135	354180	354226	56	4. 36
4	9.354271	354316	354362	354407	354452	354498	354543	354588	354634	354679	354724	354770	55	1 = 9
5	9.354815	354860	354906	354951	354996	355041	355087	355132	355177	355223	355268	355313	54	2. 18
6	9.355358	355404	355449	355494	355539	355584	355630	355675	355720	355765	355810	355856	53	3. 27
7	9.355901	355946	355991	356036	356081	356127	356172	356217	356262	356307	356352	356397	52	4. 36
8	9.356443	356488	356533	356578	356623	356668	356713	356758	356803	356848	356894	356939	51	1 = 9
9	9.356984	357029	357074	357119	357164	357209	357254	357299	357344	357389	357434	357479	50	2. 18
10	9.357524	357569	357614	357659	357704	357749	357794	357839	357884	357929	357974	358019	49	3. 27
11	9.358064	358109	358154	358199	358243	358288	358333	358378	358423	358468	358513	358558	48	4. 36
12	9.358603	358648	358692	358737	358782	358827	358872	358917	358962	359006	359051	359096	47	1 = 9
13	9.359141	359186	359231	359275	359320	359365	359410	359455	359499	359544	359589	359634	46	2. 18
14	9.359679	359723	359768	359813	359858	359902	359947	359992	360037	360081	360126	360171	45	3. 27
15	9.360215	360260	360305	360350	360394	360439	360484	360528	360573	360618	360662	360707	44	4. 36
16	9.360752	360796	360841	360885	360930	360975	361019	361064	361109	361153	361198	361242	43	1 = 9
17	9.361287	361332	361376	361421	361465	361510	361554	361599	361644	361688	361733	361777	42	2. 18
18	9.361822	361866	361911	361955	362000	362044	362089	362133	362178	362222	362267	362311	41	3. 27
19	9.362356	362400	362445	362489	362534	362578	362623	362667	362712	362756	362800	362845	40	4. 36
20	9.362889	362934	362978	363022	363067	363111	363156	363200	363244	363289	363333	363378	39	1 = 9
21	9.363422	363466	363511	363555	363599	363644	363688	363732	363777	363821	363865	363910	38	2. 18
22	9.363954	363998	364043	364087	364131	364175	364220	364264	364308	364352	364397	364441	37	3. 27
23	9.364485	364529	364574	364618	364662	364706	364751	364795	364839	364883	364927	364972	36	4. 35
24	9.365016	365060	365104	365148	365193	365237	365281	365325	365369	365413	365458	365502	35	1 = 9
25	9.365546	365590	365634	365678	365722	365766	365811	365855	365899	365943	365987	366031	34	2. 18
26	9.366075	366119	366163	366207	366251	366295	366339	366383	366428	366472	366516	366560	33	3. 26
27	9.366604	366648	366692	366736	366780	366824	366868	366912	366956	367000	367044	367088	32	4. 35
28	9.367132	367175	367219	367263	367307	367351	367395	367439	367483	367527	367571	367615	31	1 = 9
29	9.367659	367703	367747	367790	367834	367878	367922	367966	368010	368054	368097	368141	30	2. 18
30	9.368185	368229	368273	368317	368361	368404	368448	368492	368536	368580	368624	368667	29	3. 26
31	9.368711	368755	368799	368843	368886	368930	368974	369018	369061	369105	369149	369193	28	4. 35
32	9.369236	369280	369324	369368	369411	369455	369499	369542	369586	369630	369674	369717	27	1 = 9
33	9.369761	369805	369848	369892	369936	369979	370023	370067	370110	370154	370197	370241	26	2. 17
34	9.370285	370328	370372	370416	370459	370503	370546	370590	370634	370677	370721	370764	25	3. 26
35	9.370808	370852	370895	370939	370982	371026	371069	371113	371156	371200	371243	371287	24	4. 35
36	9.371330	371374	371417	371461	371504	371548	371591	371635	371678	371722	371765	371809	23	1 = 9
37	9.371852	371896	371939	371983	372026	372070	372113	372156	372200	372243	372287	372330	22	2. 17
38	9.372374	372417	372460	372504	372547	372590	372634	372677	372721	372764	372807	372851	21	3. 26
39	9.372894	372937	372981	373024	373067	373111	373154	373197	373241	373284	373327	373371	20	4. 35
40	9.373414	373457	373501	373544	373587	373630	373674	373717	373760	373803	373847	373890	19	1 = 9
41	9.373933	373976	374020	374063	374106	374149	374193	374236	374279	374322	374365	374409	18	2. 17
42	9.374452	374495	374538	374581	374624	374668	374711	374754	374797	374840	374883	374926	17	3. 26
43	9.374970	375013	375056	375099	375142	375185	375228	375271	375315	375358	375401	375444	16	4. 35
44	9.375487	375530	375573	375616	375659	375702	375745	375788	375831	375874	375917	375960	15	1 = 9
45	9.376003	376046	376089	376133	376176	376219	376262	376305	376347	376390	376433	376476	14	2. 17
46	9.376519	376562	376605	376648	376691	376734	376777	376820	376863	376906	376949	376992	13	3. 26
47	9.377035	377078	377121	377163	377206	377249	377292	377335	377378	377421	377464	377506	12	4. 34
48	9.377549	377592	377635	377678	377721	377764	377806	377849	377892	377935	377978	378021	11	1 = 9
49	9.378063	378106	378149	378192	378235	378277	378320	378363	378406	378448	378491	378534	10	2. 17
50	9.378577	378619	378662	378705	378748	378790	378833	378876	378919	378961	379004	379047	9	3. 26
51	9.379089	379132	379175	379218	379260	379303	379346	379388	379431	379474	379516	379559	8	4. 34
52	9.379602	379644	379687	379729	379772	379815	379857	379900	379943	379985	380028	380070	7	1 = 9
53	9.380113	380156	380198	380241	380283	380326	380368	380411	380454	380496	380539	380581	6	2. 17
54	9.380624	380666	380709	380751	380794	380836	380879	380921	380964	381006	381049	381091	5	3. 26
55	9.381134	381176	381219	381261	381304	381346	381389	381431	381474	381516	381559	381601	4	4. 34
56	9.381643	381686	381728	381771	381813	381856	381898	381940	381983	382025	382068	382110	3	1 = 8
57	9.382152	382195	382237	382279	382322	382364	382407	382449	382491	382534	382576	382618	2	2. 17
58	9.382661	382703	382745	382788	382830	382872	382914	382957	382999	383041	383084	383126	1	3. 25
59	9.383168	383211	383253	383295	383337	383380	383422	383464	383506	383549	383591	383633	0	4. 34
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 76 degrees, or Sine of 166 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 14 degrees, or Co-sine of 104 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.383675	383717	383760	383802	383844	383886	383928	383971	384013	384055	384097	384139	59	1″=
1	9.384182	384224	384266	384308	384350	384392	384435	384477	384519	384561	384603	384645	58	2.
2	9.384687	384729	384772	384814	384856	384898	384940	384982	385024	385066	385108	385150	57	3.
3	9.385192	385235	385277	385319	385361	385403	385445	385487	385529	385571	385613	385655	56	4.
4	9.385697	385739	385781	385823	385865	385907	385949	385991	386033	386075	386117	386159	55	1 =
5	9.386201	386243	386285	386327	386369	386411	386453	386494	386536	386578	386620	386662	54	2.
6	9.386704	386746	386788	386830	386872	386914	386955	386997	387039	387081	387123	387165	53	3.
7	9.387207	387249	387290	387332	387374	387416	387458	387500	387541	387583	387625	387667	52	4.
8	9.387709	387751	387792	387834	387876	387918	387960	388001	388043	388085	388127	388168	51	1 =
9	9.388210	388252	388294	388335	388377	388419	388461	388502	388544	388586	388628	388669	50	2.
10	9.388711	388753	388794	388836	388878	388919	388961	389003	389044	389086	389128	389169	49	3.
11	9.389211	389253	389294	389336	389378	389419	389461	389503	389544	389586	389627	389669	48	4.
12	9.389711	389752	389794	389835	389877	389919	389960	390002	390043	390085	390127	390168	47	1 =
13	9.390210	390251	390293	390334	390376	390417	390459	390500	390542	390583	390625	390666	46	2.
14	9.390708	390749	390791	390832	390874	390915	390957	390998	391040	391081	391123	391164	45	3.
15	9.391206	391247	391289	391330	391371	391413	391454	391496	391537	391579	391620	391661	44	4.
16	9.391703	391744	391786	391827	391868	391910	391951	391993	392034	392075	392117	392158	43	1 =
17	9.392199	392241	392282	392323	392365	392406	392447	392489	392530	392571	392613	392654	42	2.
18	9.392695	392737	392778	392819	392860	392902	392943	392984	393026	393067	393108	393149	41	3.
19	9.393191	393232	393273	393314	393356	393397	393438	393479	393520	393562	393603	393644	40	4.
20	9.393685	393726	393768	393809	393850	393891	393932	393974	394015	394056	394097	394138	39	1 =
21	9.394179	394221	394262	394303	394344	394385	394426	394467	394508	394550	394591	394632	38	2.
22	9.394673	394714	394755	394796	394837	394878	394919	394961	395002	395043	395084	395125	37	3.
23	9.395166	395207	395248	395289	395330	395371	395412	395453	395494	395535	395576	395617	36	4.
24	9.395658	395699	395740	395781	395822	395863	395904	395945	395986	396027	396068	396109	35	1 =
25	9.396150	396191	396232	396273	396314	396355	396396	396436	396477	396518	396559	396600	34	2.
26	9.396641	396682	396723	396764	396805	396846	396886	396927	396968	397009	397050	397091	33	3.
27	9.397132	397172	397213	397254	397295	397336	397377	397417	397458	397499	397540	397581	32	4.
28	9.397622	397662	397703	397744	397785	397826	397866	397907	397948	397989	398029	398070	31	1 =
29	9.398111	398152	398192	398233	398274	398315	398355	398396	398437	398478	398518	398559	30	2.
30	9.398600	398640	398681	398722	398762	398803	398844	398885	398925	398966	399007	399047	29	3.
31	9.399088	399129	399169	399210	399250	399291	399332	399372	399413	399454	399494	399535	28	4.
32	9.399575	399616	399657	399697	399738	399778	399819	399860	399900	399941	399981	400022	27	1 =
33	9.400063	400103	400144	400184	400225	400265	400306	400346	400387	400427	400468	400508	26	2.
34	9.400549	400589	400630	400670	400711	400751	400792	400832	400873	400913	400954	400994	25	3.
35	9.401035	401075	401116	401156	401197	401237	401278	401318	401358	401399	401439	401480	24	4.
36	9.401520	401561	401601	401641	401682	401722	401763	401803	401843	401884	401924	401964	23	1 =
37	9.402005	402045	402086	402126	402166	402207	402247	402287	402328	402368	402408	402449	22	2.
38	9.402489	402529	402570	402610	402650	402690	402731	402771	402811	402852	402892	402932	21	3.
39	9.402972	403013	403053	403093	403134	403174	403214	403254	403295	403335	403375	403415	20	4.
40	9.403455	403496	403536	403576	403616	403657	403697	403737	403777	403817	403858	403898	19	1 =
41	9.403938	403978	404018	404058	404099	404139	404179	404219	404259	404299	404339	404380	18	2.
42	9.404420	404460	404500	404540	404580	404620	404660	404701	404741	404781	404821	404861	17	3.
43	9.404901	404941	404981	405021	405061	405101	405141	405181	405221	405262	405302	405342	16	4.
44	9.405382	405422	405462	405502	405542	405582	405622	405662	405702	405742	405782	405822	15	1 =
45	9.405862	405902	405942	405982	406022	406062	406102	406142	406182	406221	406261	406301	14	2.
46	9.406341	406381	406421	406461	406501	406541	406581	406621	406661	406701	406741	406780	13	3.
47	9.406820	406860	406900	406940	406980	407020	407060	407099	407139	407179	407219	407259	12	4.
48	9.407299	407339	407378	407418	407458	407498	407538	407578	407617	407657	407697	407737	11	1 =
49	9.407777	407816	407856	407896	407936	407976	408015	408055	408095	408135	408174	408214	10	2.
50	9.408254	408294	408333	408373	408413	408453	408492	408532	408572	408612	408651	408691	9	3.
51	9.408731	408770	408810	408850	408889	408929	408969	409008	409048	409088	409128	409167	8	4.
52	9.409207	409246	409286	409326	409365	409405	409445	409484	409524	409564	409603	409643	7	1 =
53	9.409682	409722	409762	409801	409841	409880	409920	409960	409999	410039	410078	410118	6	2.
54	9.410158	410197	410237	410276	410316	410355	410395	410434	410474	410513	410553	410593	5	3.
55	9.410632	410672	410711	410751	410790	410830	410869	410909	410948	410988	411027	411067	4	4.
56	9.411106	411145	411185	411224	411264	411303	411343	411382	411422	411461	411501	411540	3	1 =
57	9.411579	411619	411658	411698	411737	411776	411816	411855	411895	411934	411973	412013	2	2.
58	9.412052	412092	412131	412170	412210	412249	412288	412328	412367	412407	412446	412485	1	3.
59	9.412525	412564	412603	412643	412682	412721	412760	412800	412839	412878	412918	412957	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 75 degrees, or Sine of 165 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 15 degrees, or Co-sine of 105 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.412996	413036	413075	413114	413153	413193	413232	413271	413310	413350	413389	413428	59	1″ = 8
1	9.413467	413507	413546	413585	413624	413664	413703	413742	413781	413821	413860	413899	58	2. 16
2	9.413938	413977	414017	414056	414095	414134	414173	414212	414252	414291	414330	414369	57	3. 24
3	9.414408	414447	414487	414526	414565	414604	414643	414682	414721	414760	414800	414839	56	4. 31
4	9.414878	414917	414956	414995	415034	415073	415112	415151	415191	415230	415269	415308	55	1 = 8
5	9.415347	415386	415425	415464	415503	415542	415581	415620	415659	415698	415737	415776	54	2. 16
6	9.415815	415854	415893	415932	415971	416010	416049	416088	416127	416166	416205	416244	53	3. 23
7	9.416283	416322	416361	416400	416439	416478	416517	416556	416595	416634	416673	416712	52	4. 31
8	9.416751	416790	416828	416867	416906	416945	416984	417023	417062	417101	417140	417179	51	1 = 8
9	9.417217	417256	417295	417334	417373	417412	417451	417490	417528	417567	417606	417645	50	2. 16
10	9.417684	417723	417761	417800	417839	417878	417917	417956	417994	418033	418072	418111	49	3. 23
11	9.418150	418188	418227	418266	418305	418343	418382	418421	418460	418499	418537	418576	48	4. 31
12	9.418615	418654	418692	418731	418770	418809	418847	418886	418925	418963	419002	419041	47	1 = 8
13	9.419080	419118	419157	419196	419234	419273	419312	419350	419389	419428	419466	419505	46	2. 15
14	9.419544	419582	419621	419660	419698	419737	419776	419814	419853	419891	419930	419969	45	3. 23
15	9.420007	420046	420085	420123	420162	420200	420239	420278	420316	420355	420393	420432	44	4. 31
16	9.420470	420509	420548	420586	420625	420663	420702	420740	420779	420817	420856	420895	43	1 = 8
17	9.420933	420972	421010	421049	421087	421126	421164	421203	421241	421280	421318	421357	42	2. 15
18	9.421395	421434	421472	421511	421549	421587	421626	421664	421703	421741	421780	421818	41	3. 23
19	9.421857	421895	421933	421972	422010	422049	422087	422126	422164	422202	422241	422279	40	4. 31
20	9.422318	422356	422394	422433	422471	422510	422548	422586	422625	422663	422701	422740	39	1 = 8
21	9.422778	422816	422855	422893	422931	422970	423008	423046	423085	423123	423161	423200	38	2. 15
22	9.423238	423276	423315	423353	423391	423430	423468	423506	423544	423583	423621	423659	37	3. 23
23	9.423697	423736	423774	423812	423850	423889	423927	423965	424003	424042	424080	424118	36	4. 31
24	9.424156	424195	424233	424271	424309	424347	424386	424424	424462	424500	424538	424577	35	1 = 8
25	9.424615	424653	424691	424729	424767	424806	424844	424882	424920	424958	424996	425034	34	2. 15
26	9.425073	425111	425149	425187	425225	425263	425301	425339	425378	425416	425454	425492	33	3. 23
27	9.425530	425568	425606	425644	425682	425720	425758	425796	425835	425873	425911	425949	32	4. 31
28	9.425987	426025	426063	426101	426139	426177	426215	426253	426291	426329	426367	426405	31	1 = 8
29	9.426443	426481	426519	426557	426595	426633	426671	426709	426747	426785	426823	426861	30	2. 15
30	9.426899	426937	426975	427013	427051	427089	427127	427165	427202	427240	427278	427316	29	3. 23
31	9.427354	427392	427430	427468	427506	427544	427582	427619	427657	427695	427733	427771	28	4. 30
32	9.427809	427847	427885	427923	427960	427998	428036	428074	428112	428150	428187	428225	27	1 = 8
33	9.428263	428301	428339	428377	428414	428452	428490	428528	428566	428604	428641	428679	26	2. 15
34	9.428717	428755	428792	428830	428868	428906	428944	428981	429019	429057	429095	429132	25	3. 23
35	9.429170	429208	429246	429283	429321	429359	429397	429434	429472	429510	429547	429585	24	4. 30
36	9.429623	429661	429698	429736	429774	429811	429849	429887	429924	429962	430000	430037	23	1 = 8
37	9.430075	430113	430150	430188	430226	430263	430301	430339	430376	430414	430452	430489	22	2. 15
38	9.430527	430564	430602	430640	430677	430715	430752	430790	430828	430865	430903	430940	21	3. 23
39	9.430978	431016	431053	431091	431128	431166	431203	431241	431279	431316	431354	431391	20	4. 30
40	9.431429	431466	431504	431541	431579	431616	431654	431691	431729	431766	431804	431841	19	1 = 8
41	9.431879	431916	431954	431991	432029	432066	432104	432141	432179	432216	432254	432291	18	2. 15
42	9.432329	432366	432403	432441	432478	432516	432553	432591	432628	432665	432703	432740	17	3. 23
43	9.432778	432815	432853	432890	432927	432965	433002	433040	433077	433114	433152	433189	16	4. 30
44	9.433226	433264	433301	433339	433376	433413	433451	433488	433525	433563	433600	433637	15	1 = 7
45	9.433675	433712	433749	433787	433824	433861	433899	433936	433973	434010	434048	434085	14	2. 15
46	9.434122	434160	434197	434234	434271	434309	434346	434383	434420	434458	434495	434532	13	3. 22
47	9.434569	434607	434644	434681	434718	434756	434793	434830	434867	434905	434942	434979	12	4. 30
48	9.435016	435053	435091	435128	435165	435202	435239	435277	435314	435351	435388	435425	11	1 = 7
49	9.435462	435500	435537	435574	435611	435648	435685	435722	435760	435797	435834	435871	10	2. 15
50	9.435908	435945	435982	436019	436057	436094	436131	436168	436205	436242	436279	436316	9	3. 22
51	9.436353	436390	436427	436465	436502	436539	436576	436613	436650	436687	436724	436761	8	4. 30
52	9.436798	436835	436872	436909	436946	436983	437020	437057	437094	437131	437168	437205	7	1 = 7
53	9.437242	437279	437316	437353	437390	437427	437464	437501	437538	437575	437612	437649	6	2. 15
54	9.437686	437723	437760	437797	437834	437871	437908	437945	437982	438018	438055	438092	5	3. 22
55	9.438129	438166	438203	438240	438277	438314	438351	438388	438424	438461	438498	438535	4	4. 30
56	9.438571	438609	438646	438683	438719	438756	438793	438830	438867	438904	438941	438977	3	1 = 7
57	9.439014	439051	439088	439125	439162	439198	439235	439272	439309	439346	439382	439419	2	2. 15
58	9.439456	439493	439530	439566	439603	439640	439677	439713	439750	439787	439824	439861	1	3. 22
59	9.439897	439934	439971	440008	440044	440081	440118	440155	440191	440228	440265	440301	0	4. 29
Minutes	60′	55′	50′	45″	40′	35″	30′	25″	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-sine of 74 degrees, or Sine of 164 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 16 degrees, or Co-sine of 106 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.440338	440375	440412	440448	440485	440522	440558	440595	440632	440668	440705	440742	59	1″ =
1	9.440778	440815	440852	440888	440925	440962	440998	441035	441072	441108	441145	441182	58	2.
2	9.441218	441255	441292	441328	441365	441401	441438	441475	441511	441548	441584	441621	57	3.
3	9.441658	441694	441731	441767	441804	441841	441877	441914	441950	441987	442023	442060	56	4.
4	9.442097	442133	442170	442206	442243	442279	442316	442352	442389	442425	442462	442498	55	1 =
5	9.442535	442571	442608	442644	442681	442717	442754	442790	442827	442863	442900	442936	54	2.
6	9.442973	443009	443046	443082	443119	443155	443192	443228	443265	443301	443337	443374	53	3.
7	9.443410	443447	443483	443520	443556	443592	443629	443665	443702	443738	443774	443811	52	4.
8	9.443847	443884	443920	443956	443993	444029	444066	444102	444138	444175	444211	444247	51	1 =
9	9.444284	444320	444356	444393	444429	444466	444502	444538	444575	444611	444647	444683	50	2.
10	9.444720	444756	444792	444829	444865	444901	444938	444974	445010	445046	445083	445119	49	3.
11	9.445155	445192	445228	445264	445300	445337	445373	445409	445445	445482	445518	445554	48	4.
12	9.445590	445627	445663	445699	445735	445772	445808	445844	445880	445916	445953	445989	47	1 =
13	9.446025	446061	446097	446134	446170	446206	446242	446278	446314	446351	446387	446423	46	2.
14	9.446459	446495	446531	446568	446604	446640	446676	446712	446748	446784	446821	446857	45	3.
15	9.446893	446929	446965	447001	447037	447073	447109	447146	447182	447218	447254	447290	44	4.
16	9.447326	447362	447398	447434	447470	447506	447542	447578	447615	447651	447687	447723	43	1 =
17	9.447759	447795	447831	447867	447903	447939	447975	448011	448047	448083	448119	448155	42	2.
18	9.448191	448227	448263	448299	448335	448371	448407	448443	448479	448515	448551	448587	41	3.
19	9.448623	448659	448695	448731	448767	448803	448838	448874	448910	448946	448982	449018	40	4.
20	9.449054	449090	449126	449162	449198	449234	449270	449305	449341	449377	449413	449449	39	1 =
21	9.449485	449521	449557	449593	449628	449664	449700	449736	449772	449808	449844	449879	38	2.
22	9.449915	449951	449987	450023	450059	450094	450130	450166	450202	450238	450274	450309	37	3.
23	9.450345	450381	450417	450453	450488	450524	450560	450596	450632	450667	450703	450739	36	4.
24	9.450775	450810	450846	450882	450918	450954	450989	451025	451061	451096	451132	451168	35	1 =
25	9.451204	451239	451275	451311	451347	451382	451418	451454	451489	451525	451561	451597	34	2.
26	9.451632	451668	451704	451739	451775	451811	451846	451882	451918	451953	451989	452025	33	3.
27	9.452060	452096	452132	452167	452203	452239	452274	452310	452345	452381	452417	452452	32	4.
28	9.452488	452524	452559	452595	452630	452666	452702	452737	452773	452808	452844	452880	31	1 =
29	9.452915	452951	452986	453022	453057	453093	453129	453164	453200	453235	453271	453306	30	2.
30	9.453342	453377	453413	453448	453484	453520	453555	453591	453626	453662	453697	453733	29	3.
31	9.453768	453804	453839	453875	453910	453946	453981	454017	454052	454088	454123	454158	28	4.
32	9.454194	454229	454265	454300	454336	454371	454407	454442	454478	454513	454548	454584	27	1 =
33	9.454619	454655	454690	454726	454761	454796	454832	454867	454903	454938	454973	455009	26	2.
34	9.455044	455080	455115	455150	455186	455221	455256	455292	455327	455363	455398	455433	25	3.
35	9.455469	455504	455539	455575	455610	455645	455681	455716	455751	455787	455822	455857	24	4.
36	9.455893	455928	455963	455999	456034	456069	456104	456140	456175	456210	456246	456281	23	1 =
37	9.456316	456351	456387	456422	456457	456492	456528	456563	456598	456634	456669	456704	22	2.
38	9.456739	456774	456810	456845	456880	456915	456951	456986	457021	457056	457091	457127	21	3.
39	9.457162	457197	457232	457267	457303	457338	457373	457408	457443	457479	457514	457549	20	4.
40	9.457584	457619	457654	457690	457725	457760	457795	457830	457865	457900	457936	457971	19	1 =
41	9.458006	458041	458076	458111	458146	458181	458217	458252	458287	458322	458357	458392	18	2.
42	9.458427	458462	458497	458532	458567	458603	458638	458673	458708	458743	458778	458813	17	3.
43	9.458848	458883	458918	458953	458988	459023	459058	459093	459128	459163	459198	459233	16	4.
44	9.459268	459303	459338	459373	459408	459443	459478	459513	459548	459583	459618	459653	15	1 =
45	9.459688	459723	459758	459793	459828	459863	459898	459933	459968	460003	460038	460073	14	2.
46	9.460108	460143	460178	460213	460248	460283	460318	460352	460387	460422	460457	460492	13	3.
47	9.460527	460562	460597	460632	460667	460702	460736	460771	460806	460841	460876	460911	12	4.
48	9.460946	460981	461015	461050	461085	461120	461155	461190	461225	461259	461294	461329	11	1 =
49	9.461364	461399	461434	461468	461503	461538	461573	461608	461642	461677	461712	461747	10	2.
50	9.461782	461816	461851	461886	461921	461956	461990	462025	462060	462095	462129	462164	9	3.
51	9.462199	462234	462268	462303	462338	462373	462407	462442	462477	462512	462546	462581	8	4.
52	9.462616	462651	462685	462720	462755	462789	462824	462859	462893	462928	462963	462998	7	1 =
53	9.463032	463067	463102	463136	463171	463206	463240	463275	463310	463344	463379	463414	6	2.
54	9.463448	463483	463518	463552	463587	463622	463656	463691	463725	463760	463795	463829	5	3.
55	9.463864	463899	463933	463968	464002	464037	464072	464106	464141	464175	464210	464245	4	4.
56	9.464279	464314	464348	464383	464417	464452	464487	464521	464556	464590	464625	464659	3	1 =
57	9.464694	464728	464763	464797	464832	464866	464901	464936	464970	465005	465039	465074	2	2.
58	9.465108	465143	465177	465212	465246	465281	465315	465350	465384	465419	465453	465487	1	3.
59	9.465522	465556	465591	465625	465660	465694	465729	465763	465798	465832	465867	465901	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 73 degrees, or Sine of 163 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 17 degrees, or Co-sine of 107 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.465935	465970	466004	466039	466073	466108	466142	466176	466211	466245	466280	466314	59	1″ = 7
1	9.466348	466383	466417	466452	466486	466520	466555	466589	466623	466658	466692	466727	58	2. 14
2	9.466761	466795	466830	466864	466898	466933	466967	467001	467036	467070	467104	467139	57	3. 21
3	9.467173	467207	467242	467276	467310	467345	467379	467413	467448	467482	467516	467551	56	4. 28
4	9.467585	467619	467653	467688	467722	467756	467790	467825	467859	467893	467928	467962	55	1 = 7
5	9.467996	468030	468065	468099	468133	468167	468202	468236	468270	468304	468338	468373	54	2. 14
6	9.468407	468441	468475	468510	468544	468578	468612	468646	468681	468715	468749	468783	53	3. 21
7	9.468817	468852	468886	468920	468954	468988	469022	469057	469091	469125	469159	469193	52	4. 27
8	9.469227	469262	469296	469330	469364	469398	469432	469466	469500	469535	469569	469603	51	1 = 7
9	9.469637	469671	469705	469739	469773	469808	469842	469876	469910	469944	469978	470012	50	2. 14
10	9.470046	470080	470114	470148	470182	470216	470251	470285	470319	470353	470387	470421	49	3. 20
11	9.470455	470489	470523	470557	470591	470625	470659	470693	470727	470761	470795	470829	48	4. 27
12	9.470863	470897	470931	470965	470999	471033	471067	471101	471135	471169	471203	471237	47	1 = 7
13	9.471271	471305	471339	471373	471407	471441	471475	471509	471543	471577	471611	471645	46	2. 14
14	9.471679	471713	471746	471780	471814	471848	471882	471916	471950	471984	472018	472052	45	3. 20
15	9.472086	472120	472153	472187	472221	472255	472289	472323	472357	472391	472425	472458	44	4. 27
16	9.472492	472526	472560	472594	472628	472662	472695	472729	472763	472797	472831	472865	43	1 = 7
17	9.472899	472932	472966	473000	473034	473068	473101	473135	473169	473203	473237	473271	42	2. 14
18	9.473304	473338	473372	473406	473439	473473	473507	473541	473575	473608	473642	473676	41	3. 20
19	9.473710	473743	473777	473811	473845	473879	473912	473946	473980	474013	474047	474081	40	4. 27
20	9.474115	474148	474182	474216	474250	474283	474317	474351	474384	474418	474452	474486	39	1 = 7
21	9.474519	474553	474587	474620	474654	474688	474721	474755	474789	474822	474856	474890	38	2. 13
22	9.474923	474957	474991	475024	475058	475092	475125	475159	475193	475226	475260	475294	37	3. 20
23	9.475327	475361	475394	475428	475462	475495	475529	475562	475596	475630	475663	475697	36	4. 27
24	9.475730	475764	475798	475831	475865	475898	475932	475966	475999	476033	476066	476100	35	1 = 7
25	9.476133	476167	476201	476234	476268	476301	476335	476368	476402	476435	476469	476502	34	2. 13
26	9.476536	476569	476603	476636	476670	476704	476737	476771	476804	476838	476871	476905	33	3. 20
27	9.476938	476971	477005	477038	477072	477105	477139	477172	477206	477239	477273	477306	32	4. 27
28	9.477340	477373	477407	477440	477474	477507	477540	477574	477607	477641	477674	477708	31	1 = 7
29	9.477741	477774	477808	477841	477875	477908	477941	477975	478008	478042	478075	478108	30	2. 13
30	9.478142	478175	478209	478242	478275	478309	478342	478376	478409	478442	478476	478509	29	3. 20
31	9.478542	478576	478609	478642	478676	478709	478742	478776	478809	478842	478876	478909	28	4. 27
32	9.478942	478976	479009	479042	479076	479109	479142	479176	479209	479242	479275	479309	27	1 = 7
33	9.479342	479375	479409	479442	479475	479508	479542	479575	479608	479642	479675	479708	26	2. 13
34	9.479741	479775	479808	479841	479874	479908	479941	479974	480007	480040	480074	480107	25	3. 20
35	9.480140	480173	480207	480240	480273	480306	480339	480373	480406	480439	480472	480505	24	4. 27
36	9.480539	480572	480605	480638	480671	480704	480738	480771	480804	480837	480870	480903	23	1 = 7
37	9.480937	480970	481003	481036	481069	481102	481136	481169	481202	481235	481268	481301	22	2. 13
38	9.481334	481367	481401	481434	481467	481500	481533	481566	481599	481632	481665	481698	21	3. 20
39	9.481732	481765	481798	481831	481864	481897	481930	481963	481996	482029	482062	482095	20	4. 27
40	9.482128	482161	482194	482228	482261	482294	482327	482360	482393	482426	482459	482492	19	1 = 7
41	9.482525	482558	482591	482624	482657	482690	482723	482756	482789	482822	482855	482888	18	2. 13
42	9.482921	482954	482987	483020	483053	483086	483119	483152	483185	483218	483251	483284	17	3. 20
43	9.483317	483349	483382	483415	483448	483481	483514	483547	483580	483613	483646	483679	16	4. 26
44	9.483712	483745	483778	483811	483843	483876	483909	483942	483975	484008	484041	484074	15	1 = 7
45	9.484107	484140	484172	484205	484238	484271	484304	484337	484370	484402	484435	484468	14	2. 13
46	9.484501	484534	484567	484600	484632	484665	484698	484731	484764	484797	484829	484862	13	3. 20
47	9.484895	484928	484961	484994	485026	485059	485092	485125	485158	485190	485223	485256	12	4. 26
48	9.485289	485322	485354	485387	485420	485453	485486	485518	485551	485584	485617	485649	11	1 = 7
49	9.485682	485715	485748	485780	485813	485846	485879	485911	485944	485977	486010	486042	10	2. 13
50	9.486075	486108	486140	486173	486206	486239	486271	486304	486337	486369	486402	486435	9	3. 20
51	9.486467	486500	486533	486566	486598	486631	486664	486696	486729	486762	486794	486827	8	4. 26
52	9.486860	486892	486925	486958	486990	487023	487055	487088	487121	487153	487186	487219	7	1 = 7
53	9.487251	487284	487317	487349	487382	487414	487447	487480	487512	487545	487577	487610	6	2. 13
54	9.487643	487675	487708	487740	487773	487806	487838	487871	487903	487936	487968	488001	5	3. 20
55	9.488034	488066	488099	488131	488164	488196	488229	488261	488294	488326	488359	488392	4	4. 26
56	9.488424	488457	488489	488522	488554	488587	488619	488652	488684	488717	488749	488782	3	1 = 7
57	9.488814	488847	488879	488912	488944	488977	489009	489042	489074	489107	489139	489172	2	2. 13
58	9.489204	489236	489269	489301	489334	489366	489399	489431	489464	489496	489529	489561	1	3. 20
59	9.489593	489626	489658	489691	489723	489756	489788	489820	489853	489885	489918	489950	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 72 degrees, or Sine of 162 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 18 degrees, or Co-sine of 108 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 489982	490015	490047	490080	490112	490144	490177	490209	490242	490274	490306	490339	59	1″ =
1	9. 490371	490403	490436	490468	490500	490533	490565	490598	490630	490662	490695	490727	58	2.
2	9. 490759	490792	490824	490856	490889	490921	490953	490986	491018	491050	491082	491115	57	3.
3	9. 491147	491179	491212	491244	491276	491309	491341	491373	491405	491438	491470	491502	56	4.
4	9. 491535	491567	491599	491631	491664	491696	491728	491760	491793	491825	491857	491889	55	1 =
5	9. 491922	491954	491986	492018	492051	492083	492115	492147	492179	492212	492244	492276	54	2.
6	9. 492308	492341	492373	492405	492437	492469	492502	492534	492566	492598	492630	492662	53	3.
7	9. 492695	492727	492759	492791	492823	492856	492888	492920	492952	492984	493016	493048	52	4.
8	9. 493081	493113	493145	493177	493209	493241	493273	493306	493338	493370	493402	493434	51	1 =
9	9. 493466	493498	493530	493563	493595	493627	493659	493691	493723	493755	493787	493819	50	2.
10	9. 493851	493883	493916	493948	493980	494012	494044	494076	494108	494140	494172	494204	49	3.
11	9. 494236	494268	494300	494332	494364	494396	494428	494460	494492	494525	494557	494589	48	4.
12	9. 494621	494653	494685	494717	494749	494781	494813	494845	494877	494909	494941	494973	47	1 =
13	9. 495005	495037	495069	495101	495133	495165	495197	495228	495260	495292	495324	495356	46	2.
14	9. 495388	495420	495452	495484	495516	495548	495580	495612	495644	495676	495708	495740	45	3.
15	9. 495772	495804	495835	495867	495899	495931	495963	495995	496027	496059	496091	496123	44	4.
16	9. 496155	496186	496218	496250	496282	496314	496346	496378	496410	496441	496473	496505	43	1 =
17	9. 496537	496569	496601	496633	496665	496696	496728	496760	496792	496824	496856	496887	42	2.
18	9. 496919	496951	496983	497015	497047	497078	497110	497142	497174	497206	497237	497269	41	3.
19	9. 497301	497333	497365	497396	497428	497460	497492	497524	497555	497587	497619	497651	40	4.
20	9. 497682	497714	497746	497778	497810	497841	497873	497905	497937	497968	498000	498032	39	1 =
21	9. 498064	498095	498127	498159	498190	498222	498254	498286	498317	498349	498381	498413	38	2.
22	9. 498444	498476	498508	498539	498571	498603	498634	498666	498698	498730	498761	498793	37	3.
23	9. 498825	498856	498888	498920	498951	498983	499015	499046	499078	499110	499141	499173	36	4.
24	9. 499205	499236	499268	499299	499331	499363	499394	499426	499458	499489	499521	499552	35	1 =
25	9. 499584	499616	499647	499679	499711	499742	499774	499805	499837	499869	499900	499932	34	2.
26	9. 499963	499995	500026	500058	500090	500121	500153	500184	500216	500247	500279	500311	33	3.
27	9. 500342	500374	500405	500437	500468	500500	500531	500563	500595	500626	500658	500689	32	4.
28	9. 500721	500752	500784	500815	500847	500878	500910	500941	500973	501004	501036	501067	31	1 =
29	9. 501099	501130	501162	501193	501225	501256	501288	501319	501351	501382	501414	501445	30	2.
30	9. 501476	501508	501539	501571	501602	501634	501665	501697	501728	501760	501791	501822	29	3.
31	9. 501854	501885	501917	501948	501980	502011	502042	502074	502105	502137	502168	502199	28	4.
32	9. 502231	502262	502294	502325	502356	502388	502419	502451	502482	502513	502545	502576	27	1 =
33	9. 502608	502639	502670	502702	502733	502764	502796	502827	502858	502890	502921	502952	26	2.
34	9. 502984	503015	503047	503078	503109	503141	503172	503203	503234	503266	503297	503328	25	3.
35	9. 503360	503391	503422	503454	503485	503516	503548	503579	503610	503641	503673	503704	24	4.
36	9. 503735	503767	503798	503829	503860	503892	503923	503954	503986	504017	504048	504079	23	1 =
37	9. 504111	504142	504173	504204	504236	504267	504298	504329	504360	504392	504423	504454	22	2.
38	9. 504485	504517	504548	504579	504610	504641	504673	504704	504735	504766	504797	504829	21	3.
39	9. 504860	504891	504922	504953	504985	505016	505047	505078	505109	505140	505172	505203	20	4.
40	9. 505234	505265	505296	505327	505359	505390	505421	505452	505483	505514	505545	505577	19	1 =
41	9. 505608	505639	505670	505701	505732	505763	505795	505826	505857	505888	505919	505950	18	2.
42	9. 505981	506012	506043	506074	506106	506137	506168	506199	506230	506261	506292	506323	17	3.
43	9. 506354	506385	506416	506447	506478	506510	506541	506572	506603	506634	506665	506696	16	4.
44	9. 506727	506758	506789	506820	506851	506882	506913	506944	506975	507006	507037	507068	15	1 =
45	9. 507099	507130	507161	507192	507223	507254	507285	507316	507347	507378	507409	507440	14	2.
46	9. 507471	507502	507533	507564	507595	507626	507657	507688	507719	507750	507781	507812	13	3.
47	9. 507843	507874	507905	507936	507967	507998	508029	508059	508090	508121	508152	508183	12	4.
48	9. 508214	508245	508276	508307	508338	508369	508400	508431	508461	508492	508523	508554	11	1 =
49	9. 508585	508616	508647	508678	508709	508739	508770	508801	508832	508863	508894	508925	10	2.
50	9. 508956	508986	509017	509048	509079	509110	509141	509172	509202	509233	509264	509295	9	3.
51	9. 509326	509357	509387	509418	509449	509480	509511	509542	509572	509603	509634	509665	8	4.
52	9. 509696	509726	509757	509788	509819	509850	509880	509911	509942	509973	510004	510034	7	1 =
53	9. 510065	510096	510127	510158	510188	510219	510250	510281	510311	510342	510373	510404	6	2.
54	9. 510434	510465	510496	510527	510557	510588	510619	510650	510680	510711	510742	510772	5	3.
55	9. 510803	510834	510865	510895	510926	510957	510987	511018	511049	511080	511110	511141	4	4.
56	9. 511172	511202	511233	511264	511294	511325	511356	511386	511417	511448	511478	511509	3	1 =
57	9. 511540	511570	511601	511632	511662	511693	511724	511754	511785	511816	511846	511877	2	2.
58	9. 511907	511938	511969	511999	512030	512061	512091	512122	512152	512183	512214	512244	1	3.
59	9. 512275	512306	512336	512367	512397	512428	512458	512489	512520	512550	512581	512611	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 71 degrees, or Sine of 161 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 19 degrees, or Co-sine of 109 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.512642	512673	512703	512734	512764	512795	512825	512856	512886	512917	512948	512978	59	1″ = 6
1	9.513009	513039	513070	513100	513131	513161	513192	513222	513253	513283	513314	513345	58	2. 12
2	9.513375	513406	513436	513467	513497	513528	513558	513589	513619	513650	513680	513711	57	3. 18
3	9.513741	513772	513802	513833	513863	513893	513924	513954	513985	514015	514046	514076	56	4. 24
4	9.514107	514137	514168	514198	514229	514259	514289	514320	514350	514381	514411	514442	55	1 = 6
5	9.514472	514503	514533	514563	514594	514624	514655	514685	514715	514746	514776	514807	54	2. 12
6	9.514837	514868	514898	514928	514959	514989	515019	515050	515080	515111	515141	515171	53	3. 18
7	9.515202	515232	515262	515293	515323	515354	515384	515414	515445	515475	515505	515536	52	4. 24
8	9.515566	515596	515627	515657	515687	515718	515748	515778	515809	515839	515869	515900	51	1 = 6
9	9.515930	515960	515991	516021	516051	516082	516112	516142	516172	516203	516233	516263	50	2. 12
10	9.516294	516324	516354	516385	516415	516445	516475	516506	516536	516566	516596	516627	49	3. 18
11	9.516657	516687	516717	516748	516778	516808	516838	516869	516899	516929	516959	516990	48	4. 24
12	9.517020	517050	517080	517111	517141	517171	517201	517231	517262	517292	517322	517352	47	1 = 6
13	9.517382	517413	517443	517473	517503	517533	517564	517594	517624	517654	517684	517715	46	2. 12
14	9.517745	517775	517805	517835	517865	517896	517926	517956	517986	518016	518046	518077	45	3. 18
15	9.518107	518137	518167	518197	518227	518257	518288	518318	518348	518378	518408	518438	44	4. 24
16	9.518468	518498	518528	518559	518589	518619	518649	518679	518709	518739	518769	518799	43	1 = 6
17	9.518830	518860	518890	518920	518950	518980	519010	519040	519070	519100	519130	519160	42	2. 12
18	9.519190	519220	519251	519281	519311	519341	519371	519401	519431	519461	519491	519521	41	3. 18
19	9.519551	519581	519611	519641	519671	519701	519731	519761	519791	519821	519851	519881	40	4. 24
20	9.519911	519941	519971	520001	520031	520061	520091	520121	520151	520181	520211	520241	39	1 = 6
21	9.520271	520301	520331	520361	520391	520421	520451	520481	520511	520541	520571	520601	38	2. 12
22	9.520631	520661	520691	520721	520751	520780	520810	520840	520870	520900	520930	520960	37	3. 18
23	9.520990	521020	521050	521080	521110	521140	521169	521199	521229	521259	521289	521319	36	4. 24
24	9.521349	521379	521409	521439	521468	521498	521528	521558	521588	521618	521648	521678	35	1 = 6
25	9.521707	521737	521767	521797	521827	521857	521887	521916	521946	521976	522006	522036	34	2. 12
26	9.522066	522096	522125	522155	522185	522215	522245	522274	522304	522334	522364	522394	33	3. 18
27	9.522424	522453	522483	522513	522543	522573	522602	522632	522662	522692	522722	522751	32	4. 24
28	9.522781	522811	522841	522870	522900	522930	522960	522990	523019	523049	523079	523109	31	1 = 6
29	9.523138	523168	523198	523228	523257	523287	523317	523347	523376	523406	523436	523466	30	2. 12
30	9.523495	523525	523555	523584	523614	523644	523674	523703	523733	523763	523792	523822	29	3. 18
31	9.523852	523882	523911	523941	523971	524000	524030	524060	524089	524119	524149	524178	28	4. 24
32	9.524208	524238	524267	524297	524327	524356	524386	524416	524445	524475	524505	524534	27	1 = 6
33	9.524564	524594	524623	524653	524683	524712	524742	524772	524801	524831	524860	524890	26	2. 12
34	9.524920	524949	524979	525009	525038	525068	525097	525127	525157	525186	525216	525245	25	3. 18
35	9.525275	525305	525334	525364	525393	525423	525452	525482	525512	525541	525571	525600	24	4. 24
36	9.525630	525659	525689	525719	525748	525778	525807	525837	525866	525896	525925	525955	23	1 = 6
37	9.525984	526014	526044	526073	526103	526132	526162	526191	526221	526250	526280	526309	22	2. 12
38	9.526339	526368	526398	526427	526457	526486	526516	526545	526575	526604	526634	526663	21	3. 18
39	9.526693	526722	526752	526781	526811	526840	526870	526899	526929	526958	526987	527017	20	4. 24
40	9.527046	527076	527105	527135	527164	527194	527223	527253	527282	527311	527341	527370	19	1 = 6
41	9.527400	527429	527459	527488	527517	527547	527576	527606	527635	527664	527694	527723	18	2. 12
42	9.527753	527782	527811	527841	527870	527900	527929	527958	527988	528017	528047	528076	17	3. 18
43	9.528105	528135	528164	528193	528223	528252	528282	528311	528340	528370	528399	528428	16	4. 24
44	9.528458	528487	528516	528546	528575	528604	528634	528663	528692	528722	528751	528780	15	1 = 6
45	9.528810	528839	528868	528898	528927	528956	528986	529015	529044	529074	529103	529132	14	2. 12
46	9.529161	529191	529220	529249	529279	529308	529337	529366	529396	529425	529454	529484	13	3. 18
47	9.529513	529542	529571	529601	529630	529659	529688	529718	529747	529776	529805	529835	12	4. 23
48	9.529864	529893	529922	529952	529981	530010	530039	530069	530098	530127	530156	530185	11	1 = 6
49	9.530215	530244	530273	530302	530331	530361	530390	530419	530448	530477	530507	530536	10	2. 12
50	9.530565	530594	530623	530653	530682	530711	530740	530769	530798	530828	530857	530886	9	3. 18
51	9.530915	530944	530973	531003	531032	531061	531090	531119	531148	531177	531207	531236	8	4. 23
52	9.531265	531294	531323	531352	531381	531411	531440	531469	531498	531527	531556	531585	7	1 = 6
53	9.531614	531643	531673	531702	531731	531760	531789	531818	531847	531876	531905	531934	6	2. 12
54	9.531964	531993	532022	532051	532080	532109	532138	532167	532196	532225	532254	532283	5	3. 17
55	9.532312	532341	532370	532399	532429	532458	532487	532516	532545	532574	532603	532632	4	4. 23
56	9.532661	532690	532719	532748	532777	532806	532835	532864	532893	532922	532951	532980	3	1 = 6
57	9.533009	533038	533067	533096	533125	533154	533183	533212	533241	533270	533299	533328	2	2. 12
58	9.533357	533386	533415	533444	533473	533502	533531	533560	533589	533618	533646	533675	1	3. 17
59	9.533704	533733	533762	533791	533820	533849	533878	533907	533936	533965	533994	534023	0	4. 23
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 70 degrees, or Sine of 160 degrees.													

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LOGARITHMIC SINES.

Sine of 20 degrees, or Co-sine of 110 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts
0	9. 534052	534081	534110	534138	534167	534196	534225	534254	534283	534312	534341	534370	59	1″ = 6
1	9. 534399	534428	534456	534485	534514	534543	534572	534601	534630	534659	534688	534716	58	2. 12
2	9. 534745	534774	534803	534832	534861	534890	534918	534947	534976	535005	535034	535063	57	3. 17
3	9. 535092	535120	535149	535178	535207	535236	535265	535293	535322	535351	535380	535409	56	4. 23
4	9. 535438	535466	535495	535524	535553	535582	535610	535639	535668	535697	535726	535754	55	1 = 6
5	9. 535783	535812	535841	535870	535898	535927	535956	535985	536014	536042	536071	536100	54	2. 12
6	9. 536129	536157	536186	536215	536244	536272	536301	536330	536359	536387	536416	536445	53	3. 17
7	9. 536474	536502	536531	536560	536589	536617	536646	536675	536704	536732	536761	536790	52	4. 23
8	9. 536818	536847	536876	536905	536933	536962	536991	537019	537048	537077	537106	537134	51	1 = 6
9	9. 537163	537192	537220	537249	537278	537306	537335	537364	537392	537421	537450	537478	50	2. 11
10	9. 537507	537536	537564	537593	537622	537650	537679	537708	537736	537765	537794	537822	49	3. 17
11	9. 537851	537879	537908	537937	537965	537994	538023	538051	538080	538109	538137	538166	48	4. 23
12	9. 538194	538223	538252	538280	538309	538337	538366	538395	538423	538452	538480	538509	47	1 = 6
13	9. 538538	538566	538595	538623	538652	538680	538709	538738	538766	538795	538823	538852	46	2. 11
14	9. 538880	538909	538938	538966	538995	539023	539052	539080	539109	539137	539166	539195	45	3. 17
15	9. 539223	539252	539280	539309	539337	539366	539394	539423	539451	539480	539508	539537	44	4. 23
16	9. 539565	539594	539622	539651	539679	539708	539736	539765	539793	539822	539850	539879	43	1 = 6
17	9. 539907	539936	539964	539993	540021	540050	540078	540107	540135	540164	540192	540221	42	2. 11
18	9. 540249	540277	540306	540334	540363	540391	540420	540448	540477	540505	540533	540562	41	3. 17
19	9. 540590	540619	540647	540676	540704	540732	540761	540789	540818	540846	540875	540903	40	4. 23
20	9. 540931	540960	540988	541017	541045	541073	541102	541130	541159	541187	541215	541244	39	1 = 6
21	9. 541272	541301	541329	541357	541386	541414	541442	541471	541499	541528	541556	541584	38	2. 11
22	9. 541613	541641	541669	541698	541726	541754	541783	541811	541839	541868	541896	541924	37	3. 17
23	9. 541953	541981	542009	542038	542066	542094	542123	542151	542179	542208	542236	542264	36	4. 23
24	9. 542293	542321	542349	542378	542406	542434	542462	542491	542519	542547	542576	542604	35	1 = 6
25	9. 542632	542660	542689	542717	542745	542774	542802	542830	542858	542887	542915	542943	34	2. 11
26	9. 542971	543000	543028	543056	543084	543113	543141	543169	543197	543226	543254	543282	33	3. 17
27	9. 543310	543339	543367	543395	543423	543451	543480	543508	543536	543564	543593	543621	32	4. 23
28	9. 543649	543677	543705	543734	543762	543790	543818	543846	543875	543903	543931	543959	31	1 = 6
29	9. 543987	544015	544044	544072	544100	544128	544156	544185	544213	544241	544269	544297	30	2. 11
30	9. 544325	544354	544382	544410	544438	544466	544494	544522	544551	544579	544607	544635	29	3. 17
31	9. 544663	544691	544719	544747	544776	544804	544832	544860	544888	544916	544944	544972	28	4. 23
32	9. 545001	545029	545057	545085	545113	545141	545169	545197	545225	545253	545281	545310	27	1 = 6
33	9. 545338	545366	545394	545422	545450	545478	545506	545534	545562	545590	545618	545646	26	2. 11
34	9. 545675	545703	545731	545759	545787	545815	545843	545871	545899	545927	545955	545983	25	3. 17
35	9. 546011	546039	546067	546095	546123	546151	546179	546207	546235	546263	546291	546319	24	4. 22
36	9. 546347	546375	546403	546431	546459	546487	546515	546543	546571	546599	546627	546655	23	1 = 6
37	9. 546683	546711	546739	546767	546795	546823	546851	546879	546907	546935	546963	546991	22	2. 11
38	9. 547019	547047	547075	547103	547131	547159	547187	547215	547243	547270	547298	547326	21	3. 17
39	9. 547354	547382	547410	547438	547466	547494	547522	547550	547578	547606	547633	547661	20	4. 22
40	9. 547689	547717	547745	547773	547801	547829	547857	547885	547913	547940	547968	547996	19	1 = 6
41	9. 548024	548052	548080	548108	548136	548163	548191	548219	548247	548275	548303	548331	18	2. 11
42	9. 548359	548386	548414	548442	548470	548498	548526	548554	548581	548609	548637	548665	17	3. 17
43	9. 548693	548721	548748	548776	548804	548832	548860	548888	548915	548943	548971	548999	16	4. 22
44	9. 549027	549054	549082	549110	549138	549166	549193	549221	549249	549277	549305	549332	15	1 = 6
45	9. 549360	549388	549416	549444	549471	549499	549527	549555	549582	549610	549638	549666	14	2. 11
46	9. 549694	549721	549749	549777	549805	549832	549860	549888	549916	549943	549971	549999	13	3. 17
47	9. 550027	550054	550082	550110	550137	550165	550193	550221	550248	550276	550304	550332	12	4. 22
48	9. 550359	550387	550415	550442	550470	550498	550525	550553	550581	550609	550636	550664	11	1 = 6
49	9. 550692	550719	550747	550775	550802	550830	550858	550885	550913	550941	550968	550996	10	2. 11
50	9. 551024	551051	551079	551107	551134	551162	551190	551217	551245	551273	551300	551328	9	3. 17
51	9. 551356	551383	551411	551439	551466	551494	551521	551549	551577	551604	551632	551660	8	4. 22
52	9. 551687	551715	551742	551770	551798	551825	551853	551880	551908	551936	551963	551991	7	1 = 6
53	9. 552018	552046	552074	552101	552129	552156	552184	552212	552239	552267	552294	552322	6	2. 11
54	9. 552349	552377	552405	552432	552460	552487	552515	552542	552570	552597	552625	552653	5	3. 17
55	9. 552680	552708	552735	552763	552790	552818	552845	552873	552900	552928	552955	552983	4	4. 22
56	9. 553011	553038	553066	553093	553121	553148	553176	553203	553231	553258	553286	553313	3	1 = 6
57	9. 553341	553368	553396	553423	553451	553478	553506	553533	553561	553588	553615	553643	2	2. 11
58	9. 553670	553698	553725	553753	553780	553808	553835	553863	553890	553918	553945	553973	1	3. 17
59	9. 554000	554027	554055	554082	554110	554137	554165	554192	554219	554247	554274	554302	0	4. 22
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts

Co-sine of 69 degrees, or Sine of 159 degrees.

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LOGARITHMIC SINES

Minutes	Sine of 21 degrees, or Co-sine of 111 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.554329	554357	554384	554411	554439	554466	554494	554521	554549	554576	554603	554631	59	1″ = 5
1	9.554658	554686	554713	554740	554768	554795	554823	554850	554877	554905	554932	554959	58	2. 11
2	9.554987	555014	555042	555069	555096	555124	555151	555178	555206	555233	555261	555288	57	3. 16
3	9.555315	555343	555370	555397	555425	555452	555479	555507	555534	555561	555589	555616	56	4. 22
4	9.555643	555671	555698	555725	555753	555780	555807	555835	555862	555889	555917	555944	55	1 = 5
5	9.555971	555998	556026	556053	556080	556108	556135	556162	556190	556217	556244	556271	54	2. 11
6	9.556299	556326	556353	556381	556408	556435	556462	556490	556517	556544	556571	556599	53	3. 16
7	9.556626	556653	556680	556708	556735	556762	556789	556817	556844	556871	556898	556926	52	4. 22
8	9.556953	556980	557007	557035	557062	557089	557116	557144	557171	557198	557225	557252	51	1 = 5
9	9.557280	557307	557334	557361	557388	557416	557443	557470	557497	557524	557552	557579	50	2. 11
10	9.557606	557633	557660	557688	557715	557742	557769	557796	557823	557851	557878	557905	49	3. 16
11	9.557932	557959	557986	558014	558041	558068	558095	558122	558149	558177	558204	558231	48	4. 22
12	9.558258	558285	558312	558339	558367	558394	558421	558448	558475	558502	558529	558556	47	1 = 5
13	9.558584	558611	558638	558665	558692	558719	558746	558773	558800	558828	558855	558882	46	2. 11
14	9.558909	558936	558963	558990	559017	559044	559071	559098	559126	559153	559180	559207	45	3. 16
15	9.559234	559261	559288	559315	559342	559369	559396	559423	559450	559477	559504	559531	44	4. 22
16	9.559559	559586	559613	559640	559667	559694	559721	559748	559775	559802	559829	559856	43	1 = 5
17	9.559883	559910	559937	559964	559991	560018	560045	560072	560099	560126	560153	560180	42	2. 11
18	9.560207	560234	560261	560288	560315	560342	560369	560396	560423	560450	560477	560504	41	3. 16
19	9.560531	560558	560585	560612	560639	560666	560693	560720	560747	560774	560801	560828	40	4. 22
20	9.560855	560882	560909	560935	560962	560989	561016	561043	561070	561097	561124	561151	39	1 = 5
21	9.561178	561205	561232	561259	561286	561313	561340	561366	561393	561420	561447	561474	38	2. 11
22	9.561501	561528	561555	561582	561609	561636	561662	561689	561716	561743	561770	561797	37	3. 16
23	9.561824	561851	561878	561904	561931	561958	561985	562012	562039	562066	562093	562119	36	4. 22
24	9.562146	562173	562200	562227	562254	562281	562307	562334	562361	562388	562415	562442	35	1 = 5
25	9.562469	562495	562522	562549	562576	562603	562630	562656	562683	562710	562737	562764	34	2. 11
26	9.562790	562817	562844	562871	562898	562925	562951	562978	563005	563032	563059	563085	33	3. 16
27	9.563112	563139	563166	563192	563219	563246	563273	563300	563326	563353	563380	563407	32	4. 21
28	9.563434	563460	563487	563514	563541	563567	563594	563621	563648	563674	563701	563728	31	1 = 5
29	9.563755	563781	563808	563835	563862	563888	563915	563942	563969	563995	564022	564049	30	2. 11
30	9.564075	564102	564129	564156	564182	564209	564236	564263	564289	564316	564343	564369	29	3. 16
31	9.564396	564423	564449	564476	564503	564530	564556	564583	564610	564636	564663	564690	28	4. 21
32	9.564716	564743	564770	564796	564823	564850	564876	564903	564930	564956	564983	565010	27	1 = 5
33	9.565036	565063	565090	565116	565143	565170	565196	565223	565250	565276	565303	565330	26	2. 11
34	9.565356	565383	565409	565436	565463	565489	565516	565543	565569	565596	565622	565649	25	3. 16
35	9.565676	565702	565729	565755	565782	565809	565835	565862	565888	565915	565942	565968	24	4. 21
36	9.565995	566021	566048	566075	566101	566128	566154	566181	566207	566234	566261	566287	23	1 = 5
37	9.566314	566340	566367	566393	566420	566447	566473	566500	566526	566553	566579	566606	22	2. 11
38	9.566632	566659	566686	566712	566739	566765	566792	566818	566845	566871	566898	566924	21	3. 16
39	9.566951	566977	567004	567030	567057	567083	567110	567136	567163	567189	567216	567242	20	4. 21
40	9.567269	567295	567322	567348	567375	567401	567428	567454	567481	567507	567534	567560	19	1 = 5
41	9.567587	567613	567640	567666	567693	567719	567746	567772	567799	567825	567852	567878	18	2. 11
42	9.567904	567931	567957	567984	568010	568037	568063	568090	568116	568142	568169	568195	17	3. 16
43	9.568222	568248	568275	568301	568327	568354	568380	568407	568433	568460	568486	568512	16	4. 21
44	9.568539	568565	568592	568618	568644	568671	568697	568724	568750	568776	568803	568829	15	1 = 5
45	9.568856	568882	568908	568935	568961	568987	569014	569040	569067	569093	569119	569146	14	2. 11
46	9.569172	569198	569225	569251	569278	569304	569330	569357	569383	569409	569436	569462	13	3. 16
47	9.569488	569515	569541	569567	569594	569620	569646	569673	569699	569725	569752	569778	12	4. 21
48	9.569804	569831	569857	569883	569910	569936	569962	569989	570015	570041	570067	570094	11	1 = 5
49	9.570120	570146	570173	570199	570225	570252	570278	570304	570330	570357	570383	570409	10	2. 11
50	9.570436	570462	570488	570514	570541	570567	570593	570619	570646	570672	570698	570724	9	3. 16
51	9.570751	570777	570803	570829	570856	570882	570908	570934	570961	570987	571013	571039	8	4. 21
52	9.571066	571092	571118	571144	571171	571197	571223	571249	571275	571302	571328	571354	7	1 = 5
53	9.571380	571406	571433	571459	571485	571511	571537	571564	571590	571616	571642	571668	6	2. 10
54	9.571695	571721	571747	571773	571799	571826	571852	571878	571904	571930	571956	571983	5	3. 16
55	9.572009	572035	572061	572087	572113	572140	572166	572192	572218	572244	572270	572297	4	4. 21
56	9.572323	572349	572375	572401	572427	572453	572479	572506	572532	572558	572584	572610	3	1 = 5
57	9.572636	572662	572688	572715	572741	572767	572793	572819	572845	572871	572897	572923	2	2. 10
58	9.572950	572976	573002	573028	573054	573080	573106	573132	573158	573184	573210	573237	1	3. 16
59	9.573263	573289	573315	573341	573367	573393	573419	573445	573471	573497	573523	573549	0	4. 21
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 68 degrees, or Sine of 158 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 12 degrees, or Co-sine of 102 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.317879	317928	317978	318028	318077	318127	318176	318226	318275	318324	318374	318423	59	1″=
1	9.318473	318522	318572	318621	318671	318720	318770	318819	318868	318918	318967	319017	58	2.
2	9.319066	319115	319165	319214	319263	319313	319362	319412	319461	319510	319560	319609	57	3.
3	9.319658	319707	319757	319806	319855	319905	319954	320003	320053	320102	320151	320200	56	4.
4	9.320250	320299	320348	320397	320446	320496	320545	320594	320643	320693	320742	320791	55	1 =
5	9.320840	320889	320938	320988	321037	321086	321135	321184	321233	321282	321332	321381	54	2.
6	9.321430	321479	321528	321577	321626	321675	321724	321773	321822	321872	321921	321970	53	3.
7	9.322019	322068	322117	322166	322215	322264	322313	322362	322411	322460	322509	322558	52	4.
8	9.322607	322656	322705	322754	322803	322851	322900	322949	322998	323047	323096	323145	51	1 =
9	9.323194	323243	323292	323341	323389	323438	323487	323536	323585	323634	323683	323731	50	2.
10	9.323780	323829	323878	323927	323976	324024	324073	324122	324171	324219	324268	324317	49	3.
11	9.324366	324415	324463	324512	324561	324610	324658	324707	324756	324804	324853	324902	48	4.
12	9.324951	324999	325048	325097	325145	325194	325243	325291	325340	325389	325437	325486	47	1 =
13	9.325534	325583	325632	325680	325729	325777	325826	325875	325923	325972	326020	326069	46	2.
14	9.326117	326166	326215	326263	326312	326360	326409	326457	326506	326554	326603	326651	45	3.
15	9.326700	326748	326797	326845	326894	326942	326991	327039	327087	327136	327184	327233	44	4.
16	9.327281	327330	327378	327426	327475	327523	327572	327620	327668	327717	327765	327813	43	1 =
17	9.327862	327910	327958	328007	328055	328103	328152	328200	328248	328297	328345	328393	42	2.
18	9.328442	328490	328538	328586	328635	328683	328731	328779	328828	328876	328924	328972	41	3.
19	9.329021	329069	329117	329165	329213	329262	329310	329358	329406	329454	329502	329551	40	4.
20	9.329599	329647	329695	329743	329791	329839	329888	329936	329984	330032	330080	330128	39	1 =
21	9.330176	330224	330272	330320	330368	330417	330465	330513	330561	330609	330657	330705	38	2.
22	9.330753	330801	330849	330897	330945	330993	331041	331089	331137	331185	331233	331281	37	3.
23	9.331329	331377	331424	331472	331520	331568	331616	331664	331712	331760	331808	331856	36	4.
24	9.331904	331951	331999	332047	332095	332143	332191	332239	332286	332334	332382	332430	35	1 =
25	9.332478	332526	332573	332621	332669	332717	332765	332812	332860	332908	332956	333003	34	2.
26	9.333051	333099	333147	333194	333242	333290	333338	333385	333433	333481	333528	333576	33	3.
27	9.333624	333671	333719	333767	333814	333862	333910	333957	334005	334053	334100	334148	32	4.
28	9.334196	334243	334291	334338	334386	334434	334481	334529	334576	334624	334671	334719	31	1 =
29	9.334767	334814	334862	334909	334957	335004	335052	335099	335147	335194	335242	335289	30	2.
30	9.335337	335384	335432	335479	335527	335574	335622	335669	335717	335764	335811	335859	29	3.
31	9.335906	335954	336001	336048	336096	336143	336191	336238	336285	336333	336380	336428	28	4.
32	9.336475	336522	336570	336617	336664	336712	336759	336806	336854	336901	336948	336996	27	1 =
33	9.337043	337090	337137	337185	337232	337279	337326	337374	337421	337468	337515	337563	26	2.
34	9.337610	337657	337704	337752	337799	337846	337893	337940	337988	338035	338082	338129	25	3.
35	9.338176	338223	338271	338318	338365	338412	338459	338506	338553	338600	338648	338695	24	4.
36	9.338742	338789	338836	338883	338930	338977	339024	339071	339118	339165	339213	339260	23	1 =
37	9.339307	339354	339401	339448	339495	339542	339589	339636	339683	339730	339777	339824	22	2.
38	9.339871	339918	339965	340012	340058	340105	340152	340199	340246	340293	340340	340387	21	3.
39	9.340434	340481	340528	340575	340621	340668	340715	340762	340809	340856	340903	340950	20	4.
40	9.340996	341043	341090	341137	341184	341230	341277	341324	341371	341418	341464	341511	19	1 =
41	9.341558	341605	341652	341698	341745	341792	341839	341885	341932	341979	342026	342072	18	2.
42	9.342119	342166	342212	342259	342306	342353	342399	342446	342493	342539	342586	342633	17	3.
43	9.342679	342726	342773	342819	342866	342912	342959	343006	343052	343099	343145	343192	16	4.
44	9.343239	343285	343332	343378	343425	343472	343518	343565	343611	343658	343704	343751	15	1 =
45	9.343797	343844	343890	343937	343983	344030	344076	344123	344169	344216	344262	344309	14	2.
46	9.344355	344402	344448	344495	344541	344588	344634	344680	344727	344773	344820	344866	13	3.
47	9.344912	344959	345005	345052	345098	345144	345191	345237	345283	345330	345376	345423	12	4.
48	9.345469	345515	345562	345608	345654	345700	345747	345793	345839	345886	345932	345978	11	1 =
49	9.346025	346071	346117	346163	346210	346256	346302	346348	346395	346441	346487	346533	10	2.
50	9.346579	346626	346672	346718	346764	346810	346857	346903	346949	346995	347041	437087	9	3.
51	9.347134	347180	347226	347272	347318	347364	347410	347457	347503	347549	347595	347641	8	4.
52	9.347687	347733	347779	347825	347871	347917	347964	348010	348056	348102	348148	348194	7	1 =
53	9.348240	348286	348332	348378	348424	348470	348516	348562	348608	348654	348700	348746	6	2.
54	9.348792	348838	348884	348930	348976	349022	349067	349113	349159	349205	349251	349297	5	3.
55	9.349343	349389	349435	349481	349527	349572	349618	349664	349710	349756	349802	349848	4	4.
56	9.349893	349939	349985	350031	350077	350123	350168	350214	350260	350306	350352	350397	3	1 =
57	9.350443	350489	350535	350581	350626	350672	350718	350764	350809	350855	350901	350947	2	2.
58	9.350992	351038	351084	351129	351175	351221	351266	351312	351358	351404	351449	351495	1	3.
59	9.351541	351586	351632	351677	351723	351769	351814	351860	351906	351951	351997	352042	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-sine of 77 degrees, or Sine of 167 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 13 degrees, or Co-sine of 103 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.352088	352134	352179	352225	352270	352316	352362	352407	352453	352498	352544	352589	59	1″ = 9
1	9.352635	352680	352726	352772	352817	352863	352908	352954	352999	353045	353090	353136	58	2. 18
2	9.353181	353227	353272	353317	353363	353408	353454	353499	353545	353590	353636	353681	57	3. 27
3	9.353726	353772	353817	353863	353908	353953	353999	354044	354090	354135	354180	354226	56	4. 36
4	9.354271	354316	354362	354407	354452	354498	354543	354588	354634	354679	354724	354770	55	1 = 9
5	9.354815	354860	354906	354951	354996	355041	355087	355132	355177	355223	355268	355313	54	2. 18
6	9.355358	355404	355449	355494	355539	355584	355630	355675	355720	355765	355810	355856	53	3. 27
7	9.355901	355946	355991	356036	356081	356127	356172	356217	356262	356307	356352	356397	52	4. 36
8	9.356443	356488	356533	356578	356623	356668	356713	356758	356803	356848	356894	356939	51	1 = 9
9	9.356984	357029	357074	357119	357164	357209	357254	357299	357344	357389	357434	357479	50	2. 18
10	9.357524	357569	357614	357659	357704	357749	357794	357839	357884	357929	357974	358019	49	3. 27
11	9.358064	358109	358154	358199	358243	358288	358333	358378	358423	358468	358513	358558	48	4. 36
12	9.358603	358648	358692	358737	358782	358827	358872	358917	358962	359006	359051	359096	47	1 = 9
13	9.359141	359186	359231	359275	359320	359365	359410	359455	359499	359544	359589	359634	46	2. 18
14	9.359679	359723	359768	359813	359858	359902	359947	359992	360037	360081	360126	360171	45	3. 27
15	9.360215	360260	360305	360350	360394	360439	360484	360528	360573	360618	360662	360707	44	4. 36
16	9.360752	360796	360841	360885	360930	360975	361019	361064	361109	361153	361198	361242	43	1 = 9
17	9.361287	361332	361376	361421	361465	361510	361554	361599	361644	361688	361733	361777	42	2. 18
18	9.361822	361866	361911	361955	362000	362044	362089	362133	362178	362222	362267	362311	41	3. 27
19	9.362356	362400	362445	362489	362534	362578	362623	362667	362712	362756	362800	362845	40	4. 36
20	9.362889	362934	362978	363022	363067	363111	363156	363200	363244	363289	363333	363378	39	1 = 9
21	9.363422	363466	363511	363555	363599	363644	363688	363732	363777	363821	363865	363910	38	2. 18
22	9.363954	363998	364043	364087	364131	364175	364220	364264	364308	364352	364397	364441	37	3. 27
23	9.364485	364529	364574	364618	364662	364706	364751	364795	364839	364883	364927	364972	36	4. 35
24	9.365016	365060	365104	365148	365193	365237	365281	365325	365369	365413	365458	365502	35	1 = 9
25	9.365546	365590	365634	365678	365722	365766	365811	365855	365899	365943	365987	366031	34	2. 18
26	9.366075	366119	366163	366207	366251	366295	366339	366383	366428	366472	366516	366560	33	3. 26
27	9.366604	366648	366692	366736	366780	366824	366868	366912	366956	367000	367044	367088	32	4. 35
28	9.367132	367175	367219	367263	367307	367351	367395	367439	367483	367527	367571	367615	31	1 = 9
29	9.367659	367703	367747	367790	367834	367878	367922	367966	368010	368054	368097	368141	30	2. 18
30	9.368185	368229	368273	368317	368361	368404	368448	368492	368536	368580	368624	368667	29	3. 26
31	9.368711	368755	368799	368843	368886	368930	368974	369018	369061	369105	369149	369193	28	4. 35
32	9.369236	369280	369324	369368	369411	369455	369499	369542	369586	369630	369674	369717	27	1 = 9
33	9.369761	369805	369848	369892	369936	369979	370023	370067	370110	370154	370197	370241	26	2. 17
34	9.370285	370328	370372	370416	370459	370503	370546	370590	370634	370677	370721	370764	25	3. 26
35	9.370808	370852	370895	370939	370982	371026	371069	371113	371156	371200	371243	371287	24	4. 35
36	9.371330	371374	371417	371461	371504	371548	371591	371635	371678	371722	371765	371809	23	1 = 9
37	9.371852	371896	371939	371983	372026	372070	372113	372156	372200	372243	372287	372330	22	2. 17
38	9.372374	372417	372460	372504	372547	372590	372634	372677	372721	372764	372807	372851	21	3. 26
39	9.372894	372937	372981	373024	373067	373111	373154	373197	373241	373284	373327	373371	20	4. 35
40	9.373414	373457	373501	373544	373587	373630	373674	373717	373760	373803	373847	373890	19	1 = 9
41	9.373933	373976	374020	374063	374106	374149	374193	374236	374279	374322	374365	374409	18	2. 17
42	9.374452	374495	374538	374581	374624	374668	374711	374754	374797	374840	374883	374926	17	3. 26
43	9.374970	375013	375056	375099	375142	375185	375228	375271	375315	375358	375401	375444	16	4. 35
44	9.375487	375530	375573	375616	375659	375702	375745	375788	375831	375874	375917	375960	15	1 = 9
45	9.376003	376046	376089	376133	376176	376219	376262	376305	376347	376390	376433	376476	14	2. 17
46	9.376519	376562	376605	376648	376691	376734	376777	376820	376863	376906	376949	376992	13	3. 26
47	9.377035	377078	377121	377163	377206	377249	377292	377335	377378	377421	377464	377506	12	4. 34
48	9.377549	377592	377635	377678	377721	377764	377806	377849	377892	377935	377978	378021	11	1 = 9
49	9.378063	378106	378149	378192	378235	378277	378320	378363	378406	378448	378491	378534	10	2. 17
50	9.378577	378619	378662	378705	378748	378790	378833	378876	378919	378961	379004	379047	9	3. 26
51	9.379089	379132	379175	379218	379260	379303	379346	379388	379431	379474	379516	379559	8	4. 34
52	9.379602	379644	379687	379729	379772	379815	379857	379900	379943	379985	380028	380070	7	1 = 9
53	9.380113	380156	380198	380241	380283	380326	380368	380411	380454	380496	380539	380581	6	2. 17
54	9.380624	380666	380709	380751	380794	380836	380879	380921	380964	381006	381049	381091	5	3. 26
55	9.381134	381176	381219	381261	381304	381346	381389	381431	381474	381516	381559	381601	4	4. 34
56	9.381643	381686	381728	381771	381813	381856	381898	381940	381983	382025	382068	382110	3	1 = 8
57	9.382152	382195	382237	382279	382322	382364	382407	382449	382491	382534	382576	382618	2	2. 17
58	9.382661	382703	382745	382788	382830	382872	382914	382957	382999	383041	383084	383126	1	3. 25
59	9.383168	383211	383253	383295	383337	383380	383422	383464	383506	383549	383591	383633	0	4. 34
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 76 degrees, or Sine of 166 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 14 degrees, or Co-sine of 104 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.383675	383717	383760	383802	383844	383886	383928	383971	384013	384055	384097	384139	59	1″ =
1	9.384182	384224	384266	384308	384350	384392	384435	384477	384519	384561	384603	384645	58	2.
2	9.384687	384729	384772	384814	384856	384898	384940	384982	385024	385066	385108	385150	57	3.
3	9.385192	385235	385277	385319	385361	385403	385445	385487	385529	385571	385613	385655	56	4.
4	9.385697	385739	385781	385823	385865	385907	385949	385991	386033	386075	386117	386159	55	1 =
5	9.386201	386243	386285	386327	386369	386411	386453	386494	386536	386578	386620	386662	54	2.
6	9.386704	386746	386788	386830	386872	386914	386955	386997	387039	387081	387123	387165	53	3.
7	9.387207	387249	387290	387332	387374	387416	387458	387500	387541	387583	387625	387667	52	4.
8	9.387709	387751	387792	387834	387876	387918	387960	388001	388043	388085	388127	388168	51	1 =
9	9.388210	388252	388294	388335	388377	388419	388461	388502	388544	388586	388628	388669	50	2.
10	9.388711	388753	388794	388836	388878	388919	388961	389003	389044	389086	389128	389169	49	3.
11	9.389211	389253	389294	389336	389378	389419	389461	389503	389544	389586	389627	389669	48	4.
12	9.389711	389752	389794	389835	389877	389919	389960	390002	390043	390085	390127	390168	47	1 =
13	9.390210	390251	390293	390334	390376	390417	390459	390500	390542	390583	390625	390666	46	2.
14	9.390708	390749	390791	390832	390874	390915	390957	390998	391040	391081	391123	391164	45	3.
15	9.391206	391247	391289	391330	391371	391413	391454	391496	391537	391579	391620	391661	44	4.
16	9.391703	391744	391786	391827	391868	391910	391951	391993	392034	392075	392117	392158	43	1 =
17	9.392199	392241	392282	392323	392365	392406	392447	392489	392530	392571	392613	392654	42	2.
18	9.392695	392737	392778	392819	392860	392902	392943	392984	393026	393067	393108	393149	41	3.
19	9.393191	393232	393273	393314	393356	393397	393438	393479	393520	393562	393603	393644	40	4.
20	9.393685	393726	393768	393809	393850	393891	393932	393974	394015	394056	394097	394138	39	1 =
21	9.394179	394221	394262	394303	394344	394385	394426	394467	394508	394550	394591	394632	38	2.
22	9.394673	394714	394755	394796	394837	394878	394919	394961	395002	395043	395084	395125	37	3.
23	9.395166	395207	395248	395289	395330	395371	395412	395453	395494	395535	395576	395617	36	4.
24	9.395658	395699	395740	395781	395822	395863	395904	395945	395986	396027	396068	396109	35	1 =
25	9.396150	396191	396232	396273	396314	396355	396396	396436	396477	396518	396559	396600	34	2.
26	9.396641	396682	396723	396764	396805	396846	396886	396927	396968	397009	397050	397091	33	3.
27	9.397132	397172	397213	397254	397295	397336	397377	397417	397458	397499	397540	397581	32	4.
28	9.397622	397662	397703	397744	397785	397826	397866	397907	397948	397989	398029	398070	31	1 =
29	9.398111	398152	398192	398233	398274	398315	398355	398396	398437	398478	398518	398559	30	2.
30	9.398600	398640	398681	398722	398762	398803	398844	398885	398925	398966	399007	399047	29	3.
31	9.399088	399129	399169	399210	399250	399291	399332	399372	399413	399454	399494	399535	28	4.
32	9.399575	399616	399657	399697	399738	399778	399819	399860	399900	399941	399981	400022	27	1 =
33	9.400063	400103	400144	400184	400225	400265	400306	400346	400387	400427	400468	400508	26	2.
34	9.400549	400589	400630	400670	400711	400751	400792	400832	400873	400913	400954	400994	25	3.
35	9.401035	401075	401116	401156	401197	401237	401278	401318	401358	401399	401439	401480	24	4.
36	9.401520	401561	401601	401641	401682	401722	401763	401803	401843	401884	401924	401964	23	1 =
37	9.402005	402045	402086	402126	402166	402207	402247	402287	402328	402368	402408	402449	22	2.
38	9.402489	402529	402570	402610	402650	402690	402731	402771	402811	402852	402892	402932	21	3.
39	9.402972	403013	403053	403093	403134	403174	403214	403254	403295	403335	403375	403415	20	4.
40	9.403455	403496	403536	403576	403616	403657	403697	403737	403777	403817	403858	403898	19	1 =
41	9.403938	403978	404018	404058	404099	404139	404179	404219	404259	404299	404339	404380	18	2.
42	9.404420	404460	404500	404540	404580	404620	404660	404701	404741	404781	404821	404861	17	3.
43	9.404901	404941	404981	405021	405061	405101	405141	405181	405221	405262	405302	405342	16	4.
44	9.405382	405422	405462	405502	405542	405582	405622	405662	405702	405742	405782	405822	15	1 =
45	9.405862	405902	405942	405982	406022	406062	406102	406142	406182	406221	406261	406301	14	2.
46	9.406341	406381	406421	406461	406501	406541	406581	406621	406661	406701	406741	406780	13	3.
47	9.406820	406860	406900	406940	406980	407020	407060	407099	407139	407179	407219	407259	12	4.
48	9.407299	407339	407378	407418	407458	407498	407538	407578	407617	407657	407697	407737	11	1 =
49	9.407777	407816	407856	407896	407936	407976	408015	408055	408095	408135	408174	408214	10	2.
50	9.408254	408294	408333	408373	408413	408453	408492	408532	408572	408612	408651	408691	9	3.
51	9.408731	408770	408810	408850	408889	408929	408969	409008	409048	409088	409128	409167	8	4.
52	9.409207	409246	409286	409326	409365	409405	409445	409484	409524	409564	409603	409643	7	1 =
53	9.409682	409722	409762	409801	409841	409880	409920	409960	409999	410039	410078	410118	6	2.
54	9.410158	410197	410237	410276	410316	410355	410395	410434	410474	410513	410553	410593	5	3.
55	9.410632	410672	410711	410751	410790	410830	410869	410909	410948	410988	411027	411067	4	4.
56	9.411106	411145	411185	411224	411264	411303	411343	411382	411422	411461	411501	411540	3	1 =
57	9.411579	411619	411658	411698	411737	411776	411816	411855	411895	411934	411973	412013	2	2.
58	9.412052	412092	412131	412170	412210	412249	412288	412328	412367	412407	412446	412485	1	3.
59	9.412525	412564	412603	412643	412682	412721	412760	412800	412839	412878	412918	412957	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 75 degrees, or Sine of 165 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 15 degrees, or Co-sine of 105 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.412996	413036	413075	413114	413153	413193	413232	413271	413310	413350	413389	413428	59	1″ = 8
1	9.413467	413507	413546	413585	413624	413664	413703	413742	413781	413821	413860	413899	58	2. 16
2	9.413938	413977	414017	414056	414095	414134	414173	414212	414252	414291	414330	414369	57	3. 24
3	9.414408	414447	414487	414526	414565	414604	414643	414682	414721	414760	414800	414839	56	4. 31
4	9.414878	414917	414956	414995	415034	415073	415112	415151	415191	415230	415269	415308	55	1 = 8
5	9.415347	415386	415425	415464	415503	415542	415581	415620	415659	415698	415737	415776	54	2. 16
6	9.415815	415854	415893	415932	415971	416010	416049	416088	416127	416166	416205	416244	53	3. 23
7	9.416283	416322	416361	416400	416439	416478	416517	416556	416595	416634	416673	416712	52	4. 31
8	9.416751	416790	416828	416867	416906	416945	416984	417023	417062	417101	417140	417179	51	1 = 8
9	9.417217	417256	417295	417334	417373	417412	417451	417490	417528	417567	417606	417645	50	2. 16
10	9.417684	417723	417761	417800	417839	417878	417917	417956	417994	418033	418072	418111	49	3. 23
11	9.418150	418188	418227	418266	418305	418343	418382	418421	418460	418499	418537	418576	48	4. 31
12	9.418615	418654	418692	418731	418770	418809	418847	418886	418925	418963	419002	419041	47	1 = 8
13	9.419080	419118	419157	419196	419234	419273	419312	419350	419389	419428	419466	419505	46	2. 15
14	9.419544	419582	419621	419660	419698	419737	419776	419814	419853	419891	419930	419969	45	3. 23
15	9.420007	420046	420085	420123	420162	420200	420239	420278	420316	420355	420393	420432	44	4. 31
16	9.420470	420509	420548	420586	420625	420663	420702	420740	420779	420817	420856	420895	43	1 = 8
17	9.420933	420972	421010	421049	421087	421126	421164	421203	421241	421280	421318	421357	42	2. 15
18	9.421395	421434	421472	421511	421549	421587	421626	421664	421703	421741	421780	421818	41	3. 23
19	9.421857	421895	421933	421972	422010	422049	422087	422126	422164	422202	422241	422279	40	4. 31
20	9.422318	422356	422394	422433	422471	422510	422548	422586	422625	422663	422701	422740	39	1 = 8
21	9.422778	422816	422855	422893	422931	422970	423008	423046	423085	423123	423161	423200	38	2. 15
22	9.423238	423276	423315	423353	423391	423430	423468	423506	423544	423583	423621	423659	37	3. 23
23	9.423697	423736	423774	423812	423850	423889	423927	423965	424003	424042	424080	424118	36	4. 31
24	9.424156	424195	424233	424271	424309	424347	424386	424424	424462	424500	424538	424577	35	1 = 8
25	9.424615	424653	424691	424729	424767	424806	424844	424882	424920	424958	424996	425034	34	2. 15
26	9.425073	425111	425149	425187	425225	425263	425301	425339	425378	425416	425454	425492	33	3. 23
27	9.425530	425568	425606	425644	425682	425720	425758	425796	425835	425873	425911	425949	32	4. 31
28	9.425987	426025	426063	426101	426139	426177	426215	426253	426291	426329	426367	426405	31	1 = 8
29	9.426443	426481	426519	426557	426595	426633	426671	426709	426747	426785	426823	426861	30	2. 15
30	9.426899	426937	426975	427013	427051	427089	427127	427165	427202	427240	427278	427316	29	3. 23
31	9.427354	427392	427430	427468	427506	427544	427582	427619	427657	427695	427733	427771	28	4. 30
32	9.427809	427847	427885	427923	427960	427998	428036	428074	428112	428150	428187	428225	27	1 = 8
33	9.428263	428301	428339	428377	428414	428452	428490	428528	428566	428604	428641	428679	26	2. 15
34	9.428717	428755	428792	428830	428868	428906	428944	428981	429019	429057	429095	429132	25	3. 23
35	9.429170	429208	429246	429283	429321	429359	429397	429434	429472	429510	429547	429585	24	4. 30
36	9.429623	429661	429698	429736	429774	429811	429849	429887	429924	429962	430000	430037	23	1 = 8
37	9.430075	430113	430150	430188	430226	430263	430301	430339	430376	430414	430452	430489	22	2. 15
38	9.430527	430564	430602	430640	430677	430715	430752	430790	430828	430865	430903	430940	21	3. 23
39	9.430978	431016	431053	431091	431128	431166	431203	431241	431279	431316	431354	431391	20	4. 30
40	9.431429	431466	431504	431541	431579	431616	431654	431691	431729	431766	431804	431841	19	1 = 8
41	9.431879	431916	431954	431991	432029	432066	432104	432141	432179	432216	432254	432291	18	2. 15
42	9.432329	432366	432403	432441	432478	432516	432553	432591	432628	432665	432703	432740	17	3. 23
43	9.432778	432815	432853	432890	432927	432965	433002	433040	433077	433114	433152	433189	16	4. 30
44	9.433226	433264	433301	433339	433376	433413	433451	433488	433525	433563	433600	433637	15	1 = 7
45	9.433675	433712	433749	433787	433824	433861	433899	433936	433973	434010	434048	434085	14	2. 15
46	9.434122	434160	434197	434234	434271	434309	434346	434383	434420	434458	434495	434532	13	3. 22
47	9.434569	434607	434644	434681	434718	434756	434793	434830	434867	434905	434942	434979	12	4. 30
48	9.435016	435053	435091	435128	435165	435202	435239	435277	435314	435351	435388	435425	11	1 = 7
49	9.435462	435500	435537	435574	435611	435648	435685	435722	435760	435797	435834	435871	10	2. 15
50	9.435908	435945	435982	436019	436057	436094	436131	436168	436205	436242	436279	436316	9	3. 22
51	9.436353	436390	436427	436465	436502	436539	436576	436613	436650	436687	436724	436761	8	4. 30
52	9.436798	436835	436872	436909	436946	436983	437020	437057	437094	437131	437168	437205	7	1 = 7
53	9.437242	437279	437316	437353	437390	437427	437464	437501	437538	437575	437612	437649	6	2. 15
54	9.437686	437723	437760	437797	437834	437871	437908	437945	437982	438018	438055	438092	5	3. 22
55	9.438129	438166	438203	438240	438277	438314	438351	438388	438424	438461	438498	438535	4	4. 30
56	9.438572	438609	438646	438683	438719	438756	438793	438830	438867	438904	438941	438977	3	1 = 7
57	9.439014	439051	439088	439125	439162	439198	439235	439272	439309	439346	439382	439419	2	2. 15
58	9.439456	439493	439530	439566	439603	439640	439677	439713	439750	439787	439824	439861	1	3. 22
59	9.439897	439934	439971	440008	440044	440081	440118	440155	440191	440228	440265	440301	0	4. 29
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 74 degrees, or Sine of 164 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 16 degrees, or Co-sine of 106 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.440338	440375	440412	440448	440485	440522	440558	440595	440632	440668	440705	440742	59	1″ =
1	9.440778	440815	440852	440888	440925	440962	440998	441035	441072	441108	441145	441182	58	2.
2	9.441218	441255	441292	441328	441365	441401	441438	441475	441511	441548	441584	441621	57	3.
3	9.441658	441694	441731	441767	441804	441841	441877	441914	441950	441987	442023	442060	56	4.
4	9.442097	442133	442170	442206	442243	442279	442316	442352	442389	442425	442462	442498	55	1 =
5	9.442535	442571	442608	442644	442681	442717	442754	442790	442827	442863	442900	442936	54	2.
6	9.442973	443009	443046	443082	443119	443155	443192	443228	443265	443301	443337	443374	53	3.
7	9.443410	443447	443483	443520	443556	443592	443629	443665	443702	443738	443774	443811	52	4.
8	9.443847	443884	443920	443956	443993	444029	444066	444102	444138	444175	444211	444247	51	1 =
9	9.444284	444320	444356	444393	444429	444466	444502	444538	444575	444611	444647	444683	50	2.
10	9.444720	444756	444792	444829	444865	444901	444938	444974	445010	445046	445083	445119	49	3.
11	9.445155	445192	445228	445264	445300	445337	445373	445409	445445	445482	445518	445554	48	4.
12	9.445590	445627	445663	445699	445735	445772	445808	445844	445880	445916	445953	445989	47	1 =
13	9.446025	446061	446097	446134	446170	446206	446242	446278	446314	446351	446387	446423	46	2.
14	9.446459	446495	446531	446568	446604	446640	446676	446712	446748	446784	446821	446857	45	3.
15	9.446893	446929	446965	447001	447037	447073	447109	447146	447182	447218	447254	447290	44	4.
16	9.447326	447362	447398	447434	447470	447506	447542	447578	447615	447651	447687	447723	43	1 =
17	9.447759	447795	447831	447867	447903	447939	447975	448011	448047	448083	448119	448155	42	2.
18	9.448191	448227	448263	448299	448335	448371	448407	448443	448479	448515	448551	448587	41	3.
19	9.448623	448659	448695	448731	448767	448803	448838	448874	448910	448946	448982	449018	40	4.
20	9.449054	449090	449126	449162	449198	449234	449270	449305	449341	449377	449413	449449	39	1 =
21	9.449485	449521	449557	449593	449628	449664	449700	449736	449772	449808	449844	449879	38	2.
22	9.449915	449951	449987	450023	450059	450094	450130	450166	450202	450238	450274	450309	37	3.
23	9.450345	450381	450417	450453	450488	450524	450560	450596	450632	450667	450703	450739	36	4.
24	9.450775	450810	450846	450882	450918	450954	450989	451025	451061	451096	451132	451168	35	1 =
25	9.451204	451239	451275	451311	451347	451382	451418	451454	451489	451525	451561	451597	34	2.
26	9.451632	451668	451704	451739	451775	451811	451846	451882	451918	451953	451989	452025	33	3.
27	9.452060	452096	452132	452167	452203	452239	452274	452310	452345	452381	452417	452452	32	4.
28	9.452488	452524	452559	452595	452630	452666	452702	452737	452773	452808	452844	452880	31	1 =
29	9.452915	452951	452986	453022	453057	453093	453129	453164	453200	453235	453271	453306	30	2.
30	9.453342	453377	453413	453448	453484	453520	453555	453591	453626	453662	453697	453733	29	3.
31	9.453768	453804	453839	453875	453910	453946	453981	454017	454052	454088	454123	454158	28	4.
32	9.454194	454229	454265	454300	454336	454371	454407	454442	454478	454513	454548	454584	27	1 =
33	9.454619	454655	454690	454726	454761	454796	454832	454867	454903	454938	454973	455009	26	2.
34	9.455044	455080	455115	455150	455186	455221	455256	455292	455327	455363	455398	455433	25	3.
35	9.455469	455504	455539	455575	455610	455645	455681	455716	455751	455787	455822	455857	24	4.
36	9.455893	455928	455963	455999	456034	456069	456104	456140	456175	456210	456246	456281	23	1 =
37	9.456316	456351	456387	456422	456457	456492	456528	456563	456598	456634	456669	456704	22	2.
38	9.456739	456774	456810	456845	456880	456915	456951	456986	457021	457056	457091	457127	21	3.
39	9.457162	457197	457232	457267	457303	457338	457373	457408	457443	457479	457514	457549	20	4.
40	9.457584	457619	457654	457690	457725	457760	457795	457830	457865	457900	457936	457971	19	1 =
41	9.458006	458041	458076	458111	458146	458181	458217	458252	458287	458322	458357	458392	18	2.
42	9.458427	458462	458497	458532	458567	458603	458638	458673	458708	458743	458778	458813	17	3.
43	9.458848	458883	458918	458953	458988	459023	459058	459093	459128	459163	459198	459233	16	4.
44	9.459268	459303	459338	459373	459408	459443	459478	459513	459548	459583	459618	459653	15	1 =
45	9.459688	459723	459758	459793	459828	459863	459898	459933	459968	460003	460038	460073	14	2.
46	9.460108	460143	460178	460213	460248	460283	460318	460352	460387	460422	460457	460492	13	3.
47	9.460527	460562	460597	460632	460667	460702	460736	460771	460806	460841	460876	460911	12	4.
48	9.460946	460981	461015	461050	461085	461120	461155	461190	461225	461259	461294	461329	11	1 =
49	9.461364	461399	461434	461468	461503	461538	461573	461608	461642	461677	461712	461747	10	2.
50	9.461782	461816	461851	461886	461921	461956	461990	462025	462060	462095	462129	462164	9	3.
51	9.462199	462234	462268	462303	462338	462373	462407	462442	462477	462512	462546	462581	8	4.
52	9.462616	462651	462685	462720	462755	462789	462824	462859	462893	462928	462963	462998	7	1 =
53	9.463032	463067	463102	463136	463171	463206	463240	463275	463310	463344	463379	463414	6	2.
54	9.463448	463483	463518	463552	463587	463622	463656	463691	463725	463760	463795	463829	5	3.
55	9.463864	463899	463933	463968	464002	464037	464072	464106	464141	464175	464210	464245	4	4.
56	9.464279	464314	464348	464383	464417	464452	464487	464521	464556	464590	464625	464659	3	1 =
57	9.464694	464728	464763	464797	464832	464866	464901	464936	464970	465005	465039	465074	2	2.
58	9.465108	465143	465177	465212	465246	465281	465315	465350	465384	465419	465453	465487	1	3.
59	9.465522	465556	465591	465625	465660	465694	465729	465763	465798	465832	465867	465901	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 73 degrees, or Sine of 163 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 17 degrees, or Co-sine of 107 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.465935	465970	466004	466039	466073	466108	466142	466176	466211	466245	466280	466314	59	1″ = 7
1	9.466348	466383	466417	466452	466486	466520	466555	466589	466623	466658	466692	466727	58	2. 14
2	9.466761	466795	466830	466864	466898	466933	466967	467001	467036	467070	467104	467139	57	3. 21
3	9.467173	467207	467242	467276	467310	467345	467379	467413	467448	467482	467516	467551	56	4. 28
4	9.467585	467619	467653	467688	467722	467756	467790	467825	467859	467893	467928	467962	55	1 = 7
5	9.467996	468030	468065	468099	468133	468167	468202	468236	468270	468304	468338	468373	54	2. 14
6	9.468407	468441	468475	468510	468544	468578	468612	468646	468681	468715	468749	468783	53	3. 21
7	9.468817	468852	468886	468920	468954	468988	469022	469057	469091	469125	469159	469193	52	4. 27
8	9.469227	469262	469296	469330	469364	469398	469432	469466	469500	469535	469569	469603	51	1 = 7
9	9.469637	469671	469705	469739	469773	469808	469842	469876	469910	469944	469978	470012	50	2. 14
10	9.470046	470080	470114	470148	470182	470216	470251	470285	470319	470353	470387	470421	49	3. 20
11	9.470455	470489	470523	470557	470591	470625	470659	470693	470727	470761	470795	470829	48	4. 27
12	9.470863	470897	470931	470965	470999	471033	471067	471101	471135	471169	471203	471237	47	1 = 7
13	9.471271	471305	471339	471373	471407	471441	471475	471509	471543	471577	471611	471645	46	2. 14
14	9.471679	471713	471746	471780	471814	471848	471882	471916	471950	471984	472018	472052	45	3. 20
15	9.472086	472120	472153	472187	472221	472255	472289	472323	472357	472391	472425	472458	44	4. 27
16	9.472492	472526	472560	472594	472628	472662	472695	472729	472763	472797	472831	472865	43	1 = 7
17	9.472899	472932	472966	473000	473034	473068	473101	473135	473169	473203	473237	473271	42	2. 14
18	9.473304	473338	473372	473406	473439	473473	473507	473541	473575	473608	473642	473676	41	3. 20
19	9.473710	473743	473777	473811	473845	473879	473912	473946	473980	474013	474047	474081	40	4. 27
20	9.474115	474148	474182	474216	474250	474283	474317	474351	474384	474418	474452	474486	39	1 = 7
21	9.474519	474553	474587	474620	474654	474688	474721	474755	474789	474822	474856	474890	38	2. 13
22	9.474923	474957	474991	475024	475058	475092	475125	475159	475193	475226	475260	475294	37	3. 20
23	9.475327	475361	475394	475428	475462	475495	475529	475562	475596	475630	475663	475697	36	4. 27
24	9.475730	475764	475798	475831	475865	475898	475932	475966	475999	476033	476066	476100	35	1 = 7
25	9.476133	476167	476201	476234	476268	476301	476335	476368	476402	476435	476469	476502	34	2. 13
26	9.476536	476569	476603	476636	476670	476704	476737	476771	476804	476838	476871	476905	33	3. 20
27	9.476938	476971	477005	477038	477072	477105	477139	477172	477206	477239	477273	477306	32	4. 27
28	9.477340	477373	477407	477440	477474	477507	477540	477574	477607	477641	477674	477708	31	1 = 7
29	9.477741	477774	477808	477841	477875	477908	477941	477975	478008	478042	478075	478108	30	2. 13
30	9.478142	478175	478209	478242	478275	478309	478342	478376	478409	478442	478476	478509	29	3. 20
31	9.478542	478576	478609	478642	478676	478709	478742	478776	478809	478842	478876	478909	28	4. 27
32	9.478942	478976	479009	479042	479076	479109	479142	479176	479209	479242	479275	479309	27	1 = 7
33	9.479342	479375	479409	479442	479475	479508	479542	479575	479608	479642	479675	479708	26	2. 13
34	9.479741	479775	479808	479841	479874	479908	479941	479974	480007	480040	480074	480107	25	3. 20
35	9.480140	480173	480207	480240	480273	480306	480339	480373	480406	480439	480472	480505	24	4. 27
36	9.480539	480572	480605	480638	480671	480704	480738	480771	480804	480837	480870	480903	23	1 = 7
37	9.480937	480970	481003	481036	481069	481102	481136	481169	481202	481235	481268	481301	22	2. 13
38	9.481334	481367	481401	481434	481467	481500	481533	481566	481599	481632	481665	481698	21	3. 20
39	9.481732	481765	481798	481831	481864	481897	481930	481963	481996	482029	482062	482095	20	4. 27
40	9.482128	482161	482194	482228	482261	482294	482327	482360	482393	482426	482459	482492	19	1 = 7
41	9.482525	482558	482591	482624	482657	482690	482723	482756	482789	482822	482855	482888	18	2. 13
42	9.482921	482954	482987	483020	483053	483086	483119	483152	483185	483218	483251	483284	17	3. 20
43	9.483317	483349	483382	483415	483448	483481	483514	483547	483580	483613	483646	483679	16	4. 26
44	9.483712	483745	483778	483811	483843	483876	483909	483942	483975	484008	484041	484074	15	1 = 7
45	9.484107	484140	484172	484205	484238	484271	484304	484337	484370	484402	484435	484468	14	2. 13
46	9.484501	484534	484567	484600	484632	484665	484698	484731	484764	484797	484829	484862	13	3. 20
47	9.484895	484928	484961	484994	485026	485059	485092	485125	485158	485190	485223	485256	12	4. 26
48	9.485289	485322	485354	485387	485420	485453	485486	485518	485551	485584	485617	485649	11	1 = 7
49	9.485682	485715	485748	485780	485813	485846	485879	485911	485944	485977	486010	486042	10	2. 13
50	9.486075	486108	486140	486173	486206	486239	486271	486304	486337	486369	486402	486435	9	3. 20
51	9.486467	486500	486533	486566	486598	486631	486664	486696	486729	486762	486794	486827	8	4. 26
52	9.486860	486892	486925	486958	486990	487023	487055	487088	487121	487153	487186	487219	7	1 = 7
53	9.487251	487284	487317	487349	487382	487414	487447	487480	487512	487545	487577	487610	6	2. 13
54	9.487643	487675	487708	487740	487773	487806	487838	487871	487903	487936	487968	488001	5	3. 20
55	9.488034	488066	488099	488131	488164	488196	488229	488261	488294	488326	488359	488392	4	4. 26
56	9.488424	488457	488489	488522	488554	488587	488619	488652	488684	488717	488749	488782	3	1 = 7
57	9.488814	488847	488879	488912	488944	488977	489009	489042	489074	489107	489139	489172	2	2. 13
58	9.489204	489236	489269	489301	489334	489366	489399	489431	489464	489496	489529	489561	1	3. 20
59	9.489593	489626	489658	489691	489723	489756	489788	489820	489853	489885	489918	489950	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 72 degrees, or Sine of 162 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 18 degrees, or Co-sine of 108 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 489982	490015	490047	490080	490112	490144	490177	490209	490242	490274	490306	490339	59	1″ = 6
1	9. 490371	490403	490436	490468	490500	490533	490565	490598	490630	490662	490695	490727	58	2. 13
2	9. 490759	490792	490824	490856	490889	490921	490953	490986	491018	491050	491082	491115	57	3. 19
3	9. 491147	491179	491212	491244	491276	491309	491341	491373	491405	491438	491470	491502	56	4. 26
4	9. 491535	491567	491599	491631	491664	491696	491728	491760	491793	491825	491857	491889	55	1 = 6
5	9. 491922	491954	491986	492018	492051	492083	492115	492147	492179	492212	492244	492276	54	2. 13
6	9. 492308	492341	492373	492405	492437	492469	492502	492534	492566	492598	492630	492662	53	3. 19
7	9. 492695	492727	492759	492791	492823	492856	492888	492920	492952	492984	493016	493048	52	4. 26
8	9. 493081	493113	493145	493177	493209	493241	493273	493306	493338	493370	493402	493434	51	1 = 6
9	9. 493466	493498	493530	493563	493595	493627	493659	493691	493723	493755	493787	493819	50	2. 13
10	9. 493851	493883	493916	493948	493980	494012	494044	494076	494108	494140	494172	494204	49	3. 19
11	9. 494236	494268	494300	494332	494364	494396	494428	494460	494492	494525	494557	494589	48	4. 26
12	9. 494621	494653	494685	494717	494749	494781	494813	494845	494877	494909	494941	494973	47	1 = 6
13	9. 495005	495037	495069	495101	495133	495165	495197	495228	495260	495292	495324	495356	46	2. 13
14	9. 495388	495420	495452	495484	495516	495548	495580	495612	495644	495676	495708	495740	45	3. 19
15	9. 495772	495804	495835	495867	495899	495931	495963	495995	496027	496059	496091	496123	44	4. 26
16	9. 496155	496186	496218	496250	496282	496314	496346	496378	496410	496441	496473	496505	43	1 = 6
17	9. 496537	496569	496601	496633	496665	496696	496728	496760	496792	496824	496856	496887	42	2. 13
18	9. 496919	496951	496983	497015	497047	497078	497110	497142	497174	497206	497237	497269	41	3. 19
19	9. 497301	497333	497365	497396	497428	497460	497492	497524	497555	497587	497619	497651	40	4. 26
20	9. 497682	497714	497746	497778	497810	497841	497873	497905	497937	497968	498000	498032	39	1 = 6
21	9. 498064	498095	498127	498159	498190	498222	498254	498286	498317	498349	498381	498413	38	2. 13
22	9. 498444	498476	498508	498539	498571	498603	498634	498666	498698	498730	498761	498793	37	3. 19
23	9. 498825	498856	498888	498920	498951	498983	499015	499046	499078	499110	499141	499173	36	4. 26
24	9. 499205	499236	499268	499299	499331	499363	499394	499426	499458	499489	499521	499552	35	1 = 6
25	9. 499584	499616	499647	499679	499711	499742	499774	499805	499837	499869	499900	499932	34	2. 13
26	9. 499963	499995	500026	500058	500090	500121	500153	500184	500216	500247	500279	500311	33	3. 19
27	9. 500342	500374	500405	500437	500468	500500	500531	500563	500595	500626	500658	500689	32	4. 26
28	9. 500721	500752	500784	500815	500847	500878	500910	500941	500973	501004	501036	501067	31	1 = 6
29	9. 501099	501130	501162	501193	501225	501256	501288	501319	501351	501382	501414	501445	30	2. 13
30	9. 501476	501508	501539	501571	501602	501634	501665	501697	501728	501760	501791	501822	29	3. 19
31	9. 501854	501885	501917	501948	501980	502011	502042	502074	502105	502137	502168	502199	28	4. 26
32	9. 502231	502262	502294	502325	502356	502388	502419	502451	502482	502513	502545	502576	27	1 = 6
33	9. 502608	502639	502670	502702	502733	502764	502796	502827	502858	502890	502921	502952	26	2. 13
34	9. 502984	503015	503047	503078	503109	503141	503172	503203	503234	503266	503297	503328	25	3. 19
35	9. 503360	503391	503422	503454	503485	503516	503548	503579	503610	503641	503673	503704	24	4. 26
36	9. 503735	503767	503798	503829	503860	503892	503923	503954	503986	504017	504048	504079	23	1 = 6
37	9. 504111	504142	504173	504204	504236	504267	504298	504329	504360	504392	504423	504454	22	2. 13
38	9. 504485	504517	504548	504579	504610	504641	504673	504704	504735	504766	504797	504829	21	3. 19
39	9. 504860	504891	504922	504953	504985	505016	505047	505078	505109	505140	505172	505203	20	4. 26
40	9. 505234	505265	505296	505327	505359	505390	505421	505452	505483	505514	505545	505577	19	1 = 6
41	9. 505608	505639	505670	505701	505732	505763	505795	505826	505857	505888	505919	505950	18	2. 13
42	9. 505981	506012	506043	506074	506106	506137	506168	506199	506230	506261	506292	506323	17	3. 19
43	9. 506354	506385	506416	506447	506478	506510	506541	506572	506603	506634	506665	506696	16	4. 26
44	9. 506727	506758	506789	506820	506851	506882	506913	506944	506975	507006	507037	507068	15	1 = 6
45	9. 507099	507130	507161	507192	507223	507254	507285	507316	507347	507378	507409	507440	14	2. 13
46	9. 507471	507502	507533	507564	507595	507626	507657	507688	507719	507750	507781	507812	13	3. 19
47	9. 507843	507874	507905	507936	507967	507998	508029	508059	508090	508121	508152	508183	12	4. 26
48	9. 508214	508245	508276	508307	508338	508369	508400	508431	508461	508492	508523	508554	11	1 = 6
49	9. 508585	508616	508647	508678	508709	508739	508770	508801	508832	508863	508894	508925	10	2. 13
50	9. 508956	508986	509017	509048	509079	509110	509141	509172	509202	509233	509264	509295	9	3. 19
51	9. 509326	509357	509387	509418	509449	509480	509511	509542	509572	509603	509634	509665	8	4. 26
52	9. 509696	509726	509757	509788	509819	509850	509880	509911	509942	509973	510004	510034	7	1 = 6
53	9. 510065	510096	510127	510158	510188	510219	510250	510281	510311	510342	510373	510404	6	2. 13
54	9. 510434	510465	510496	510527	510557	510588	510619	510650	510680	510711	510742	510772	5	3. 19
55	9. 510803	510834	510865	510895	510926	510957	510987	511018	511049	511080	511110	511141	4	4. 26
56	9. 511172	511202	511233	511264	511294	511325	511356	511386	511417	511448	511478	511509	3	1 = 6
57	9. 511540	511570	511601	511632	511662	511693	511724	511754	511785	511816	511846	511877	2	2. 13
58	9. 511907	511938	511969	511999	512030	512061	512091	512122	512152	512183	512214	512244	1	3. 19
59	9. 512275	512306	512336	512367	512397	512428	512458	512489	512520	512550	512581	512611	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 71 degrees, or Sine of 161 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 19 degrees, or Co-sine of 109 degrees.												Minutes	Propor parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.512642	512673	512703	512734	512764	512795	512825	512856	512886	512917	512948	512978	59	1″ = 6
1	9.513009	513039	513070	513100	513131	513161	513192	513222	513253	513283	513314	513345	58	2. 12
2	9.513375	513406	513436	513467	513497	513528	513558	513589	513619	513650	513680	513711	57	3. 18
3	9.513741	513772	513802	513833	513863	513893	513924	513954	513985	514015	514046	514076	56	4. 24
4	9.514107	514137	514168	514198	514229	514259	514289	514320	514350	514381	514411	514442	55	1 = 6
5	9.514472	514503	514533	514563	514594	514624	514655	514685	514715	514746	514776	514807	54	2. 12
6	9.514837	514868	514898	514928	514959	514989	515019	515050	515080	515111	515141	515171	53	3. 18
7	9.515202	515232	515262	515293	515323	515354	515384	515414	515445	515475	515505	515536	52	4. 24
8	9.515566	515596	515627	515657	515687	515718	515748	515778	515809	515839	515869	515900	51	1 = 6
9	9.515930	515960	515991	516021	516051	516082	516112	516142	516172	516203	516233	516263	50	2. 12
10	9.516294	516324	516354	516385	516415	516445	516475	516506	516536	516566	516596	516627	49	3. 18
11	9.516657	516687	516717	516748	516778	516808	516838	516869	516899	516929	516959	516990	48	4. 24
12	9.517020	517050	517080	517111	517141	517171	517201	517231	517262	517292	517322	517352	47	1 = 6
13	9.517382	517413	517443	517473	517503	517533	517564	517594	517624	517654	517684	517715	46	2. 12
14	9.517745	517775	517805	517835	517865	517896	517926	517956	517986	518016	518046	518077	45	3. 18
15	9.518107	518137	518167	518197	518227	518257	518288	518318	518348	518378	518408	518438	44	4. 24
16	9.518468	518498	518528	518559	518589	518619	518649	518679	518709	518739	518769	518799	43	1 = 6
17	9.518830	518860	518890	518920	518950	518980	519010	519040	519070	519100	519130	519160	42	2. 12
18	9.519190	519220	519251	519281	519311	519341	519371	519401	519431	519461	519491	519521	41	3. 18
19	9.519551	519581	519611	519641	519671	519701	519731	519761	519791	519821	519851	519881	40	4. 24
20	9.519911	519941	519971	520001	520031	520061	520091	520121	520151	520181	520211	520241	39	1 = 6
21	9.520271	520301	520331	520361	520391	520421	520451	520481	520511	520541	520571	520601	38	2. 12
22	9.520631	520661	520691	520721	520751	520780	520810	520840	520870	520900	520930	520960	37	3. 18
23	9.520990	521020	521050	521080	521110	521140	521169	521199	521229	521259	521289	521319	36	4. 24
24	9.521349	521379	521409	521439	521468	521498	521528	521558	521588	521618	521648	521678	35	1 = 6
25	9.521707	521737	521767	521797	521827	521857	521887	521916	521946	521976	522006	522036	34	2. 12
26	9.522066	522096	522125	522155	522185	522215	522245	522274	522304	522334	522364	522394	33	3. 18
27	9.522424	522453	522483	522513	522543	522573	522602	522632	522662	522692	522722	522751	32	4. 24
28	9.522781	522811	522841	522870	522900	522930	522960	522990	523019	523049	523079	523109	31	1 = 6
29	9.523138	523168	523198	523228	523257	523287	523317	523347	523376	523406	523436	523466	30	2. 12
30	9.523495	523525	523555	523584	523614	523644	523674	523703	523733	523763	523792	523822	29	3. 18
31	9.523852	523882	523911	523941	523971	524000	524030	524060	524089	524119	524149	524178	28	4. 24
32	9.524208	524238	524267	524297	524327	524356	524386	524416	524445	524475	524505	524534	27	1 = 6
33	9.524564	524594	524623	524653	524683	524712	524742	524772	524801	524831	524860	524890	26	2. 12
34	9.524920	524949	524979	525009	525038	525068	525097	525127	525157	525186	525216	525245	25	3. 18
35	9.525275	525305	525334	525364	525393	525423	525452	525482	525512	525541	525571	525600	24	4. 24
36	9.525630	525659	525689	525719	525748	525778	525807	525837	525866	525896	525925	525955	23	1 = 6
37	9.525984	526014	526044	526073	526103	526132	526162	526191	526221	526250	526280	526309	22	2. 12
38	9.526339	526368	526398	526427	526457	526486	526516	526545	526575	526604	526634	526663	21	3. 18
39	9.526693	526722	526752	526781	526811	526840	526870	526899	526929	526958	526987	527017	20	4. 24
40	9.527046	527076	527105	527135	527164	527194	527223	527253	527282	527311	527341	527370	19	1 = 6
41	9.527400	527429	527459	527488	527517	527547	527576	527606	527635	527664	527694	527723	18	2. 12
42	9.527753	527782	527811	527841	527870	527900	527929	527958	527988	528017	528047	528076	17	3. 18
43	9.528105	528135	528164	528193	528223	528252	528282	528311	528340	528370	528399	528428	16	4. 24
44	9.528458	528487	528516	528546	528575	528604	528634	528663	528692	528722	528751	528780	15	1 = 6
45	9.528810	528839	528868	528898	528927	528956	528986	529015	529044	529074	529103	529132	14	2. 12
46	9.529161	529191	529220	529249	529279	529308	529337	529366	529396	529425	529454	529484	13	3. 18
47	9.529513	529542	529571	529601	529630	529659	529688	529718	529747	529776	529805	529835	12	4. 23
48	9.529864	529893	529922	529952	529981	530010	530039	530069	530098	530127	530156	530185	11	1 = 6
49	9.530215	530244	530273	530302	530331	530361	530390	530419	530448	530477	530507	530536	10	2. 12
50	9.530565	530594	530623	530653	530682	530711	530740	530769	530798	530828	530857	530886	9	3. 18
51	9.530915	530944	530973	531003	531032	531061	531090	531119	531148	531177	531207	531236	8	4. 23
52	9.531265	531294	531323	531352	531381	531411	531440	531469	531498	531527	531556	531585	7	1 = 6
53	9.531614	531643	531673	531702	531731	531760	531789	531818	531847	531876	531905	531934	6	2. 12
54	9.531964	531993	532022	532051	532080	532109	532138	532167	532196	532225	532254	532283	5	3. 17
55	9.532312	532341	532370	532399	532429	532458	532487	532516	532545	532574	532603	532632	4	4. 23
56	9.532661	532690	532719	532748	532777	532806	532835	532864	532893	532922	532951	532980	3	1 = 6
57	9.533009	533038	533067	533096	533125	533154	533183	533212	533241	533270	533299	533328	2	2. 12
58	9.533357	533386	533415	533444	533473	533502	533531	533560	533589	533618	533646	533675	1	3. 17
59	9.533704	533733	533762	533791	533820	533849	533878	533907	533936	533965	533994	534023	0	4. 23
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 70 degrees, or Sine of 160 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 20 degrees, or Co-sine of 110 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 534052	534081	534110	534138	534167	534196	534225	534254	534283	534312	534341	534370	59	1″ = 6
1	9. 534399	534428	534456	534485	534514	534543	534572	534601	534630	534659	534688	534716	58	2. 12
2	9. 534745	534774	534803	534832	534861	534890	534918	534947	534976	535005	535034	535063	57	3. 17
3	9. 535092	535120	535149	535178	535207	535236	535265	535293	535322	535351	535380	535409	56	4. 23
4	9. 535438	535466	535495	535524	535553	535582	535610	535639	535668	535697	535726	535754	55	1 = 6
5	9. 535783	535812	535841	535870	535898	535927	535956	535985	536014	536042	536071	536100	54	2. 12
6	9. 536129	536157	536186	536215	536244	536272	536301	536330	536359	536387	536416	536445	53	3. 17
7	9. 536474	536502	536531	536560	536589	536617	536646	536675	536704	536732	536761	536790	52	4. 23
8	9. 536818	536847	536876	536905	536933	536962	536991	537019	537048	537077	537106	537134	51	1 = 6
9	9. 537163	537192	537220	537249	537278	537306	537335	537364	537392	537421	537450	537478	50	2. 11
10	9. 537507	537536	537564	537593	537622	537650	537679	537708	537736	537765	537794	537822	49	3. 17
11	9. 537851	537879	537908	537937	537965	537994	538023	538051	538080	538109	538137	538166	48	4. 23
12	9. 538194	538223	538252	538280	538309	538337	538366	538395	538423	538452	538480	538509	47	1 = 6
13	9. 538538	538566	538595	538623	538652	538680	538709	538738	538766	538795	538823	538852	46	2. 11
14	9. 538880	538909	538938	538966	538995	539023	539052	539080	539109	539137	539166	539195	45	3. 17
15	9. 539223	539252	539280	539309	539337	539366	539394	539423	539451	539480	539508	539537	44	4. 23
16	9. 539565	539594	539622	539651	539679	539708	539736	539765	539793	539822	539850	539879	43	1 = 6
17	9. 539907	539936	539964	539993	540021	540050	540078	540107	540135	540164	540192	540221	42	2. 11
18	9. 540249	540277	540306	540334	540363	540391	540420	540448	540477	540505	540533	540562	41	3. 17
19	9. 540590	540619	540647	540676	540704	540732	540761	540789	540818	540846	540875	540903	40	4. 23
20	9. 540931	540960	540988	541017	541045	541073	541102	541130	541159	541187	541215	541244	39	1 = 6
21	9. 541272	541301	541329	541357	541386	541414	541442	541471	541499	541528	541556	541584	38	2. 11
22	9. 541613	541641	541669	541698	541726	541754	541783	541811	541839	541868	541896	541924	37	3. 17
23	9. 541953	541981	542009	542038	542066	542094	542123	542151	542179	542208	542236	542264	36	4. 23
24	9. 542293	542321	542349	542378	542406	542434	542462	542491	542519	542547	542576	542604	35	1 = 6
25	9. 542632	542660	542689	542717	542745	542774	542802	542830	542858	542887	542915	542943	34	2. 11
26	9. 542971	543000	543028	543056	543084	543113	543141	543169	543197	543226	543254	543282	33	3. 17
27	9. 543310	543339	543367	543395	543423	543451	543480	543508	543536	543564	543593	543621	32	4. 23
28	9. 543649	543677	543705	543734	543762	543790	543818	543846	543875	543903	543931	543959	31	1 = 6
29	9. 543987	544015	544044	544072	544100	544128	544156	544185	544213	544241	544269	544297	30	2. 11
30	9. 544325	544354	544382	544410	544438	544466	544494	544522	544551	544579	544607	544635	29	3. 17
31	9. 544663	544691	544719	544747	544776	544804	544832	544860	544888	544916	544944	544972	28	4. 23
32	9. 545001	545029	545057	545085	545113	545141	545169	545197	545225	545253	545281	545310	27	1 = 6
33	9. 545338	545366	545394	545422	545450	545478	545506	545534	545562	545590	545618	545646	26	2. 11
34	9. 545675	545703	545731	545759	545787	545815	545843	545871	545899	545927	545955	545983	25	3. 17
35	9. 546011	546039	546067	546095	546123	546151	546179	546207	546235	546263	546291	546319	24	4. 22
36	9. 546347	546375	546403	546431	546459	546487	546515	546543	546571	546599	546627	546655	23	1 = 6
37	9. 546683	546711	546739	546767	546795	546823	546851	546879	546907	546935	546963	546991	22	2. 11
38	9. 547019	547047	547075	547103	547131	547159	547187	547215	547243	547270	547298	547326	21	3. 17
39	9. 547354	547382	547410	547438	547466	547494	547522	547550	547578	547606	547633	547661	20	4. 22
40	9. 547689	547717	547745	547773	547801	547829	547857	547885	547913	547940	547968	547996	19	1 = 6
41	9. 548024	548052	548080	548108	548136	548163	548191	548219	548247	548275	548303	548331	18	2. 11
42	9. 548359	548386	548414	548442	548470	548498	548526	548554	548581	548609	548637	548665	17	3. 17
43	9. 548693	548721	548748	548776	548804	548832	548860	548888	548915	548943	548971	548999	16	4. 22
44	9. 549027	549054	549082	549110	549138	549166	549193	549221	549249	549277	549305	549332	15	1 = 6
45	9. 549360	549388	549416	549444	549471	549499	549527	549555	549582	549610	549638	549666	14	2. 11
46	9. 549694	549721	549749	549777	549805	549832	549860	549888	549916	549943	549971	549999	13	3. 17
47	9. 550027	550054	550082	550110	550137	550165	550193	550221	550248	550276	550304	550332	12	4. 22
48	9. 550359	550387	550415	550442	550470	550498	550525	550553	550581	550609	550636	550664	11	1 = 6
49	9. 550692	550719	550747	550775	550802	550830	550858	550885	550913	550941	550968	550996	10	2. 11
50	9. 551024	551051	551079	551107	551134	551162	551190	551217	551245	551273	551300	551328	9	3. 17
51	9. 551356	551383	551411	551439	551466	551494	551521	551549	551577	551604	551632	551660	8	4. 22
52	9. 551687	551715	551742	551770	551798	551825	551853	551880	551908	551936	551963	551991	7	1 = 6
53	9. 552018	552046	552074	552101	552129	552156	552184	552212	552239	552267	552294	552322	6	2. 11
54	9. 552349	552377	552405	552432	552460	552487	552515	552542	552570	552597	552625	552653	5	3. 17
55	9. 552680	552708	552735	552763	552790	552818	552845	552873	552900	552928	552955	552983	4	4. 22
56	9. 553011	553038	553066	553093	553121	553148	553176	553203	553231	553258	553286	553313	3	1 = 6
57	9. 553341	553368	553396	553423	553451	553478	553506	553533	553561	553588	553615	553643	2	2. 11
58	9. 553670	553698	553725	553753	553780	553808	553835	553863	553890	553918	553945	553973	1	3. 17
59	9. 554000	554027	554055	554082	554110	554137	554165	554192	554219	554247	554274	554302	0	4. 22
Minutes	60′	55″	50″	45″	40″	35″	30′	25″	20′	15″	10″	5′	Minutes	Proper parts.
	Co-sine of 69 degrees, or Sine of 159 degrees.													

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LOGARITHMIC SINES

Minutes	Sine of 21 degrees, or Co-sine of 111 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.554329	554357	554384	554411	554439	554466	554494	554521	554549	554576	554603	554631	59	1″ = 5
1	9.554658	554686	554713	554740	554768	554795	554823	554850	554877	554905	554932	554959	58	2. 11
2	9.554987	555014	555042	555069	555096	555124	555151	555178	555206	555233	555261	555288	57	3. 16
3	9.555315	555343	555370	555397	555425	555452	555479	555507	555534	555561	555589	555616	56	4. 22
4	9.555643	555671	555698	555725	555753	555780	555807	555835	555862	555889	555917	555944	55	1 = 5
5	9.555971	555998	556026	556053	556080	556108	556135	556162	556190	556217	556244	556271	54	2. 11
6	9.556299	556326	556353	556381	556408	556435	556462	556490	556517	556544	556571	556599	53	3. 16
7	9.556626	556653	556680	556708	556735	556762	556789	556817	556844	556871	556898	556926	52	4. 22
8	9.556953	556980	557007	557035	557062	557089	557116	557144	557171	557198	557225	557252	51	1 = 5
9	9.557280	557307	557334	557361	557388	557416	557443	557470	557497	557524	557552	557579	50	2. 11
10	9.557606	557633	557660	557688	557715	557742	557769	557796	557823	557851	557878	557905	49	3. 16
11	9.557932	557959	557986	558014	558041	558068	558095	558122	558149	558177	558204	558231	48	4. 22
12	9.558258	558285	558312	558339	558367	558394	558421	558448	558475	558502	558529	558556	47	1 = 5
13	9.558584	558611	558638	558665	558692	558719	558746	558773	558800	558828	558855	558882	46	2. 11
14	9.558909	558936	558963	558990	559017	559044	559071	559098	559126	559153	559180	559207	45	3. 16
15	9.559234	559261	559288	559315	559342	559369	559396	559423	559450	559477	559504	559531	44	4. 22
16	9.559559	559586	559613	559640	559667	559694	559721	559748	559775	559802	559829	559856	43	1 = 5
17	9.559883	559910	559937	559964	559991	560018	560045	560072	560099	560126	560153	560180	42	2. 11
18	9.560207	560234	560261	560288	560315	560342	560369	560396	560423	560450	560477	560504	41	3. 16
19	9.560531	560558	560585	560612	560639	560666	560693	560720	560747	560774	560801	560828	40	4. 22
20	9.560855	560882	560909	560935	560962	560989	561016	561043	561070	561097	561124	561151	39	1 = 5
21	9.561178	561205	561232	561259	561286	561313	561340	561366	561393	561420	561447	561474	38	2. 11
22	9.561501	561528	561555	561582	561609	561636	561662	561689	561716	561743	561770	561797	37	3. 16
23	9.561824	561851	561878	561904	561931	561958	561985	562012	562039	562066	562093	562119	36	4. 22
24	9.562146	562173	562200	562227	562254	562281	562307	562334	562361	562388	562415	562442	35	1 = 5
25	9.562469	562495	562522	562549	562576	562603	562630	562656	562683	562710	562737	562764	34	2. 11
26	9.562790	562817	562844	562871	562898	562925	562951	562978	563005	563032	563059	563085	33	3. 16
27	9.563112	563139	563166	563192	563219	563246	563273	563300	563326	563353	563380	563407	32	4. 21
28	9.563434	563460	563487	563514	563541	563567	563594	563621	563648	563674	563701	563728	31	1 = 5
29	9.563755	563781	563808	563835	563862	563888	563915	563942	563969	563995	564022	564049	30	2. 11
30	9.564075	564102	564129	564156	564182	564209	564236	564263	564289	564316	564343	564369	29	3. 16
31	9.564396	564423	564449	564476	564503	564530	564556	564583	564610	564636	564663	564690	28	4. 21
32	9.564716	564743	564770	564796	564823	564850	564876	564903	564930	564956	564983	565010	27	1 = 5
33	9.565036	565063	565090	565116	565143	565170	565196	565223	565250	565276	565303	565330	26	2. 11
34	9.565356	565383	565409	565436	565463	565489	565516	565543	565569	565596	565622	565649	25	3. 16
35	9.565676	565702	565729	565755	565782	565809	565835	565862	565888	565915	565942	565968	24	4. 21
36	9.565995	566021	566048	566075	566101	566128	566154	566181	566207	566234	566261	566287	23	1 = 5
37	9.566314	566340	566367	566393	566420	566447	566473	566500	566526	566553	566579	566606	22	2. 11
38	9.566632	566659	566686	566712	566739	566765	566792	566818	566845	566871	566898	566924	21	3. 16
39	9.566951	566977	567004	567030	567057	567083	567110	567136	567163	567189	567216	567242	20	4. 21
40	9.567269	567295	567322	567348	567375	567401	567428	567454	567481	567507	567534	567560	19	1 = 5
41	9.567587	567613	567640	567666	567693	567719	567746	567772	567799	567825	567852	567878	18	2. 11
42	9.567904	567931	567957	567984	568010	568037	568063	568090	568116	568142	568169	568195	17	3. 16
43	9.568222	568248	568275	568301	568327	568354	568380	568407	568433	568460	568486	568512	16	4. 21
44	9.568539	568565	568592	568618	568644	568671	568697	568724	568750	568776	568803	568829	15	1 = 5
45	9.568856	568882	568908	568935	568961	568987	569014	569040	569067	569093	569119	569146	14	2. 11
46	9.569172	569198	569225	569251	569278	569304	569330	569357	569383	569409	569436	569462	13	3. 16
47	9.569488	569515	569541	569567	569594	569620	569646	569673	569699	569725	569752	569778	12	4. 21
48	9.569804	569831	569857	569883	569910	569936	569962	569989	570015	570041	570067	570094	11	1 = 5
49	9.570120	570146	570173	570199	570225	570252	570278	570304	570330	570357	570383	570409	10	2. 11
50	9.570436	570462	570488	570514	570541	570567	570593	570619	570646	570672	570698	570724	9	3. 16
51	9.570751	570777	570803	570829	570856	570882	570908	570934	570961	570987	571013	571039	8	4. 21
52	9.571066	571092	571118	571144	571171	571197	571223	571249	571275	571302	571328	571354	7	1 = 5
53	9.571380	571406	571433	571459	571485	571511	571537	571564	571590	571616	571642	571668	6	2. 10
54	9.571695	571721	571747	571773	571799	571826	571852	571878	571904	571930	571956	571983	5	3. 16
55	9.572009	572035	572061	572087	572113	572140	572166	572192	572218	572244	572270	572297	4	4. 21
56	9.572323	572349	572375	572401	572427	572453	572479	572506	572532	572558	572584	572610	3	1 = 5
57	9.572636	572662	572688	572715	572741	572767	572793	572819	572845	572871	572897	572923	2	2. 10
58	9.572950	572976	573002	573028	573054	573080	573106	573132	573158	573184	573210	573237	1	3. 16
59	9.573263	573289	573315	573341	573367	573393	573419	573445	573471	573497	573523	573549	0	4. 21
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 68 degrees, or Sine of 158 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 22 degrees, or Co-sine of 112 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 573575	573602	573628	573654	573680	573706	573732	573758	573784	573810	573836	573862	59	1″ =
1	9. 573888	573914	573940	573966	573992	574018	574044	574070	574096	574122	574148	574174	58	2.
2	9. 574200	574226	574252	574278	574304	574330	574356	574382	574408	574434	574460	574486	57	3.
3	9. 574512	574538	574564	574590	574616	574642	574668	574694	574720	574746	574772	574798	56	4.
4	9. 574824	574850	574876	574902	574928	574954	574980	575006	575032	575058	575084	575110	55	1 =
5	9. 575136	575162	575187	575213	575239	575265	575291	575317	575343	575369	575395	575421	54	2.
6	9. 575447	575473	575499	575525	575551	575576	575602	575628	575654	575680	575706	575732	53	3.
7	9. 575758	575784	575810	575836	575861	575887	575913	575939	575965	575991	576017	576043	52	4.
8	9. 576069	576094	576120	576146	576172	576198	576224	576250	576276	576301	576327	576353	51	1 =
9	9. 576379	576405	576431	576457	576482	576508	576534	576560	576586	576612	576638	576663	50	2.
10	9. 576689	576715	576741	576767	576793	576818	576844	576870	576896	576922	576948	576973	49	3.
11	9. 576999	577025	577051	577077	577102	577128	577154	577180	577206	577231	577257	577283	48	4.
12	9. 577309	577335	577360	577386	577412	577438	577464	577489	577515	577541	577567	577593	47	1 =
13	9. 577618	577644	577670	577696	577721	577747	577773	577799	577824	577850	577876	577902	46	2.
14	9. 577928	577953	577979	578005	578031	578056	578082	578108	578133	578159	578185	578211	45	3.
15	9. 578236	578262	578288	578314	578339	578365	578391	578417	578442	578468	578494	578519	44	4.
16	9. 578545	578571	578597	578622	578648	578674	578699	578725	578751	578776	578802	578828	43	1 =
17	9. 578854	578879	578905	578931	578956	578982	579008	579033	579059	579085	579110	579136	42	2.
18	9. 579162	579187	579213	579239	579264	579290	579316	579341	579367	579393	579418	579444	41	3.
19	9. 579470	579495	579521	579546	579572	579598	579623	579649	579675	579700	579726	579752	40	4.
20	9. 579777	579803	579828	579854	579880	579905	579931	579957	579982	580008	580033	580059	39	1 =
21	9. 580085	580110	580136	580161	580187	580213	580238	580264	580289	580315	580341	580366	38	2.
22	9. 580392	580417	580443	580468	580494	580520	580545	580571	580596	580622	580647	580673	37	3.
23	9. 580699	580724	580750	580775	580801	580826	580852	580878	580903	580929	580954	580980	36	4.
24	9. 581005	581031	581056	581082	581107	581133	581158	581184	581210	581235	581261	581286	35	1 =
25	9. 581312	581337	581363	581388	581414	581439	581465	581490	581516	581541	581567	581592	34	2.
26	9. 581618	581643	581669	581694	581720	581745	581771	581796	581822	581847	581873	581898	33	3.
27	9. 581924	581949	581975	582000	582026	582051	582076	582102	582127	582153	582178	582204	32	4.
28	9. 582229	582255	582280	582306	582331	582356	582382	582407	582433	582458	582484	582509	31	1 =
29	9. 582535	582560	582585	582611	582636	582662	582687	582713	582738	582763	582789	582814	30	2.
30	9. 582840	582865	582891	582916	582941	582967	582992	583018	583043	583068	583094	583119	29	3.
31	9. 583145	583170	583195	583221	583246	583272	583297	583322	583348	583373	583398	583424	28	4.
32	9. 583449	583475	583500	583525	583551	583576	583601	583627	583652	583677	583703	583728	27	1 =
33	9. 583754	583779	583804	583830	583855	583880	583906	583931	583956	583982	584007	584032	26	2.
34	9. 584058	584083	584108	584134	584159	584184	584210	584235	584260	584286	584311	584336	25	3.
35	9. 584362	584387	584412	584437	584463	584488	584513	584539	584564	584589	584615	584640	24	4.
36	9. 584665	584690	584716	584741	584766	584792	584817	584842	584867	584893	584918	584943	23	1 =
37	9. 584969	584994	585019	585044	585070	585095	585120	585145	585171	585196	585221	585246	22	2.
38	9. 585272	585297	585322	585347	585373	585398	585423	585448	585474	585499	585524	585549	21	3.
39	9. 585575	585600	585625	585650	585675	585701	585726	585751	585776	585801	585827	585852	20	4.
40	9. 585877	585902	585928	585953	585978	586003	586028	586054	586079	586104	586129	586154	19	1 =
41	9. 586180	586205	586230	586255	586280	586305	586331	586356	586381	586406	586431	586456	18	2.
42	9. 586482	586507	586532	586557	586582	586607	586633	586658	586683	586708	586733	586758	17	3.
43	9. 586784	586809	586834	586859	586884	586909	586934	586959	586985	587010	587035	587060	16	4.
44	9. 587085	587110	587135	587161	587186	587211	587236	587261	587286	587311	587336	587361	15	1 =
45	9. 587387	587412	587437	587462	587487	587512	587537	587562	587587	587612	587638	587663	14	2.
46	9. 587688	587713	587738	587763	587788	587813	587838	587863	587888	587913	587938	587964	13	3.
47	9. 587989	588014	588039	588064	588089	588114	588139	588164	588189	588214	588239	588264	12	4.
48	9. 588289	588314	588339	588364	588389	588414	588439	588464	588490	588515	588540	588565	11	1 =
49	9. 588590	588615	588640	588665	588690	588715	588740	588765	588790	588815	588840	588865	10	2.
50	9. 588890	588915	588940	588965	588990	589015	589040	589065	589090	589115	589140	589165	9	3.
51	9. 589190	589215	589240	589265	589290	589315	589340	589365	589390	589414	589439	589464	8	4.
52	9. 589489	589514	589539	589564	589589	589614	589639	589664	589689	589714	589739	589764	7	1 =
53	9. 589789	589814	589839	589864	589889	589914	589938	589963	589988	590013	590038	590063	6	2.
54	9. 590088	590113	590138	590163	590188	590213	590238	590262	590287	590312	590337	590362	5	3.
55	9. 590387	590412	590437	590462	590487	590511	590536	590561	590586	590611	590636	590661	4	4.
56	9. 590686	590711	590735	590760	590785	590810	590835	590860	590885	590910	590934	590959	3	1 =
57	9. 590984	591009	591034	591059	591084	591108	591133	591158	591183	591208	591233	591258	2	2.
58	9. 591282	591307	591332	591357	591382	591407	591431	591456	591481	591506	591531	591556	1	3.
59	9. 591580	591605	591630	591655	591680	591704	591729	591754	591779	591804	591828	591853	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-sine of 67 degrees, or Sine of 157 degrees.													

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LOGARITHMIC SINES.

Sine of 23 degrees, or Co-sine of 113 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.591878	591903	591928	591952	591977	592002	592027	592052	592076	592101	592126	592151	59	1″ = 5
1	9.592176	592200	592225	592250	592275	592299	592324	592349	592374	592399	592423	592448	58	2. 10
2	9.592473	592498	592522	592547	592572	592597	592621	592646	592671	592696	592720	592745	57	3. 15
3	9.592770	592795	592819	592844	592869	592894	592918	592943	592968	592992	593017	593042	56	4. 20
4	9.593067	593091	593116	593141	593165	593190	593215	593240	593264	593289	593314	593338	55	1 = 5
5	9.593363	593388	593413	593437	593462	593487	593511	593536	593561	593585	593610	593635	54	2. 10
6	9.593659	593684	593709	593733	593758	593783	593808	593832	593857	593882	593906	593931	53	3. 15
7	9.593956	593980	594005	594029	594054	594079	594103	594128	594153	594177	594202	594227	52	4. 20
8	9.594251	594276	594301	594325	594350	594375	594399	594424	594448	594473	594498	594522	51	1 = 5
9	9.594547	594572	594596	594621	594645	594670	594695	594719	594744	594768	594793	594818	50	2. 10
10	9.594842	594867	594891	594916	594941	594965	594990	595014	595039	595064	595088	595113	49	3. 15
11	9.595137	595162	595187	595211	595236	595260	595285	595309	595334	595359	595383	595408	48	4. 20
12	9.595432	595457	595481	595506	595530	595555	595580	595604	595629	595653	595678	595702	47	1 = 5
13	9.595727	595751	595776	595800	595825	595850	595874	595899	595923	595948	595972	595997	46	2. 10
14	9.596021	596046	596070	596095	596119	596144	596168	596193	596217	596242	596266	596291	45	3. 15
15	9.596315	596340	596364	596389	596413	596438	596462	596487	596511	596536	596560	596585	44	4. 20
16	9.596609	596634	596658	596683	596707	596732	596756	596781	596805	596830	596854	596879	43	1 = 5
17	9.596903	596928	596952	596976	597001	597025	597050	597074	597099	597123	597148	597172	42	2. 10
18	9.597197	597221	597245	597270	597294	597319	597343	597368	597392	597416	597441	597465	41	3. 15
19	9.597490	597514	597539	597563	597587	597612	597636	597661	597685	597709	597734	597758	40	4. 20
20	9.597783	597807	597832	597856	597880	597905	597929	597954	597978	598002	598027	598051	39	1 = 5
21	9.598075	598100	598124	598149	598173	598197	598222	598246	598270	598295	598319	598344	38	2. 10
22	9.598368	598392	598417	598441	598465	598490	598514	598539	598563	598587	598612	598636	37	3. 15
23	9.598660	598685	598709	598733	598758	598782	598806	598831	598855	598879	598904	598928	36	4. 20
24	9.598952	598977	599001	599025	599050	599074	599098	599123	599147	599171	599196	599220	35	1 = 5
25	9.599244	599268	599293	599317	599341	599366	599390	599414	599439	599463	599487	599511	34	2. 10
26	9.599536	599560	599584	599609	599633	599657	599681	599706	599730	599754	599779	599803	33	3. 15
27	9.599827	599851	599876	599900	599924	599948	599973	599997	600021	600045	600070	600094	32	4. 19
28	9.600118	600142	600167	600191	600215	600239	600264	600288	600312	600336	600361	600385	31	1 = 5
29	9.600409	600433	600458	600482	600506	600530	600554	600579	600603	600627	600651	600676	30	2. 10
30	9.600700	600724	600748	600772	600797	600821	600845	600869	600893	600918	600942	600966	29	3. 15
31	9.600990	601014	601039	601063	601087	601111	601135	601159	601184	601208	601232	601256	28	4. 19
32	9.601280	601305	601329	601353	601377	601401	601425	601450	601474	601498	601522	601546	27	1 = 5
33	9.601570	601594	601619	601643	601667	601691	601715	601739	601764	601788	601812	601836	26	2. 10
34	9.601860	601884	601908	601932	601957	601981	602005	602029	602053	602077	602101	602125	25	3. 14
35	9.602150	602174	602198	602222	602246	602270	602294	602318	602342	602367	602391	602415	24	4. 19
36	9.602439	602463	602487	602511	602535	602559	602583	602607	602632	602656	602680	602704	23	1 = 5
37	9.602728	602752	602776	602800	602824	602848	602872	602896	602920	602945	602969	602993	22	2. 10
38	9.603017	603041	603065	603089	603113	603137	603161	603185	603209	603233	603257	603281	21	3. 14
39	9.603305	603329	603353	603377	603401	603425	603449	603474	603498	603522	603546	603570	20	4. 19
40	9.603594	603618	603642	603666	603690	603714	603738	603762	603786	603810	603834	603858	19	1 = 5
41	9.603882	603906	603930	603954	603978	604002	604026	604050	604074	604098	604122	604146	18	2. 10
42	9.604170	604194	604218	604242	604266	604290	604314	604338	604361	604385	604409	604433	17	3. 14
43	9.604457	604481	604505	604529	604553	604577	604601	604625	604649	604673	604697	604721	16	4. 19
44	9.604745	604769	604793	604817	604841	604865	604888	604912	604936	604960	604984	605008	15	1 = 5
45	9.605032	605056	605080	605104	605128	605152	605176	605199	605223	605247	605271	605295	14	2. 10
46	9.605319	605343	605367	605391	605415	605439	605462	605486	605510	605534	605558	605582	13	3. 14
47	9.605606	605630	605654	605677	605701	605725	605749	605773	605797	605821	605845	605868	12	4. 19
48	9.605892	605916	605940	605964	605988	606012	606036	606059	606083	606107	606131	606155	11	1 = 5
49	9.606179	606203	606226	606250	606274	606298	606322	606346	606369	606393	606417	606441	10	2. 10
50	9.606465	606489	606512	606536	606560	606584	606608	606632	606655	606679	606703	606727	9	3. 14
51	9.606751	606774	606798	606822	606846	606870	606893	606917	606941	606965	606989	607012	8	4. 19
52	9.607036	607060	607084	607108	607131	607155	607179	607203	607227	607250	607274	607298	7	1 = 5
53	9.607322	607345	607369	607393	607417	607441	607464	607488	607512	607536	607559	607583	6	2. 10
54	9.607607	607631	607654	607678	607702	607726	607749	607773	607797	607821	607844	607868	5	3. 14
55	9.607892	607916	607939	607963	607987	608011	608034	608058	608082	608105	608129	608153	4	4. 19
56	9.608177	608200	608224	608248	608271	608295	608319	608343	608366	608390	608414	608437	3	1 = 5
57	9.608461	608485	608509	608532	608556	608580	608603	608627	608651	608674	608698	608722	2	2. 9
58	9.608745	608769	608793	608816	608840	608864	608887	608911	608935	608958	608982	609006	1	3. 14
59	9.609029	609053	609077	609100	609124	609148	609171	609195	609219	609242	609266	609290	0	4. 19
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 66 degrees, or Sine of 156 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 24 degrees, or Co-sine of 114 degrees.												Minutes	Proper parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	609455	609479	609502	609526	609550	59	1″ =
1	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	609739	609762	609786	609810	609833	58	2.
2	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	610022	610046	610069	610093	610116	57	3.
3	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	610305	610329	610352	610376	610399	56	4.
4	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	610588	610612	610635	610659	610682	55	1 =
5	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	610871	610894	610918	610941	610965	54	2.
6	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	611153	611177	611200	611224	611247	53	3.
7	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	611435	611459	611482	611506	611529	52	4.
8	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	611717	611741	611764	611788	611811	51	1 =
9	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	611999	612022	612046	612069	612093	50	2.
10	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	612280	612304	612327	612351	612374	49	3.
11	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	612562	612585	612609	612632	612656	48	4.
12	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	612843	612866	612890	612913	612937	47	1 =
13	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	613124	613147	613171	613194	613217	46	2.
14	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	613404	613428	613451	613475	613498	45	3.
15	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	613685	613708	613732	613755	613778	44	4.
16	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	613965	613988	614012	614035	614058	43	1 =
17	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	614245	614268	614292	614315	614338	42	2.
18	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	614525	614548	614572	614595	614618	41	3.
19	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	614804	614828	614851	614874	614898	40	4.
20	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	615084	615107	615130	615154	615177	39	1 =
21	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	615363	615386	615409	615433	615456	38	2.
22	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	615642	615665	615688	615712	615735	37	3.
23	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	615921	615944	615967	615990	616013	36	4.
24	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	616199	616222	616246	616269	616292	35	1 =
25	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	616477	616501	616524	616547	616570	34	2.
26	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	616755	616779	616802	616825	616848	33	3.
27	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	617033	617056	617080	617103	617126	32	4.
28	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	617311	617334	617357	617380	617403	31	1 =
29	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	617588	617611	617635	617658	617681	30	2.
30	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	617866	617889	617912	617935	617958	29	3.
31	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	618143	618166	618189	618212	618235	28	4.
32	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	618419	618442	618465	618489	618512	27	1 =
33	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	618696	618719	618742	618765	618788	26	2.
34	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	618972	618995	619018	619041	619064	25	3.
35	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	619248	619271	619294	619317	619340	24	4.
36	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	619524	619547	619570	619593	619616	23	1 =
37	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	619800	619823	619846	619869	619892	22	2.
38	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	620076	620099	620121	620144	620167	21	3.
39	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	620351	620374	620397	620420	620443	20	4.
40	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	620626	620649	620672	620695	620718	19	1 =
41	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	620901	620924	620947	620970	620992	18	2.
42	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	621176	621198	621221	621244	621267	17	3.
43	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	621450	621473	621496	621519	621541	16	4.
44	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	621724	621747	621770	621793	621816	15	1 =
45	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	621998	622021	622044	622067	622090	14	2.
46	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	622272	622295	622318	622340	622363	13	3.
47	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	622546	622568	622591	622614	622637	12	4.
48	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	622819	622842	622865	622887	622910	11	1 =
49	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	623092	623115	623138	623161	623183	10	2.
50	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	623365	623388	623411	623433	623456	9	3.
51	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	623638	623661	623683	623706	623729	8	4.
52	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	623911	623933	623956	623979	624001	7	1 =
53	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	624183	624206	624228	624251	624274	6	2.
54	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	624455	624478	624500	624523	624546	5	3.
55	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	624727	624750	624772	624795	624818	4	4.
56	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	624999	625021	625044	625067	625089	3	1 =
57	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	625270	625293	625316	625338	625361	2	2.
58	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	625542	625564	625587	625610	625632	1	3.
59	9. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	625813	625835	625858	625881	625903	0	4.
	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proper parts.

Co-sine of 65 degrees, or Sine of 155 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 25 degrees, or Co-sine of 115 degrees. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Propor. parts.
0	9.625948	625971	625993	626016	626039	626061	626084	626106	626129	626151	626174	626197	59	1″ = 5
1	9.626219	626242	626264	626287	626309	626332	626354	626377	626400	626422	626445	626467	58	2. 9
2	9.626490	626512	626535	626557	626580	626602	626625	626647	626670	626693	626715	626738	57	3. 14
3	9.626760	626783	626805	626828	626850	626873	626895	626918	626940	626963	626985	627008	56	4. 18
4	9.627030	627053	627075	627098	627120	627143	627165	627188	627210	627233	627255	627278	55	1 = 5
5	9.627300	627322	627345	627368	627390	627413	627435	627458	627480	627503	627525	627548	54	2. 9
6	9.627570	627593	627615	627638	627660	627682	627705	627727	627750	627772	627795	627817	53	3. 14
7	9.627840	627862	627885	627907	627930	627952	627974	627997	628019	628042	628064	628087	52	4. 18
8	9.628109	628132	628154	628176	628199	628221	628244	628266	628289	628311	628333	628356	51	1 = 4
9	9.628378	628401	628423	628446	628468	628490	628513	628535	628558	628580	628602	628625	50	2. 9
10	9.628647	628670	628692	628714	628737	628759	628782	628804	628826	628849	628871	628894	49	3. 13
11	9.628916	628938	628961	628983	629006	629028	629050	629073	629095	629117	629140	629162	48	4. 18
12	9.629185	629207	629229	629252	629274	629296	629319	629341	629364	629386	629408	629431	47	1 = 4
13	9.629453	629475	629498	629520	629542	629565	629587	629609	629632	629654	629676	629699	46	2. 9
14	9.629721	629743	629766	629788	629810	629833	629855	629877	629900	629922	629944	629967	45	3. 13
15	9.629989	630011	630034	630056	630078	630101	630123	630145	630168	630190	630212	630235	44	4. 18
16	9.630257	630279	630301	630324	630346	630368	630391	630413	630435	630458	630480	630502	43	1 = 4
17	9.630524	630547	630569	630591	630614	630636	630658	630680	630703	630725	630747	630769	42	2. 9
18	9.630792	630814	630836	630859	630881	630903	630925	630948	630970	630992	631014	631037	41	3. 13
19	9.631059	631081	631103	631126	631148	631170	631192	631215	631237	631259	631281	631304	40	4. 18
20	9.631326	631348	631370	631393	631415	631437	631459	631481	631504	631526	631548	631570	39	1 = 4
21	9.631593	631615	631637	631659	631681	631704	631726	631748	631770	631793	631815	631837	38	2. 9
22	9.631859	631881	631904	631926	631948	631970	631992	632015	632037	632059	632081	632103	37	3. 13
23	9.632126	632148	632170	632192	632214	632236	632259	632281	632303	632325	632347	632369	36	4. 18
24	9.632392	632414	632436	632458	632480	632503	632525	632547	632569	632591	632613	632635	35	1 = 4
25	9.632658	632680	632702	632724	632746	632768	632791	632813	632835	632857	632879	632901	34	2. 9
26	9.632923	632946	632968	632990	633012	633034	633056	633078	633100	633123	633145	633167	33	3. 13
27	9.633189	633211	633233	633255	633277	633300	633322	633344	633366	633388	633410	633432	32	4. 18
28	9.633454	633476	633498	633521	633543	633565	633587	633609	633631	633653	633675	633697	31	1 = 4
29	9.633719	633742	633764	633786	633808	633830	633852	633874	633896	633918	633940	633962	30	2. 9
30	9.633984	634006	634029	634051	634073	634095	634117	634139	634161	634183	634205	634227	29	3. 13
31	9.634249	634271	634293	634315	634337	634359	634381	634404	634426	634448	634470	634492	28	4. 18
32	9.634514	634536	634558	634580	634602	634624	634646	634668	634690	634712	634734	634756	27	1 = 4
33	9.634778	634800	634822	634844	634866	634888	634910	634932	634954	634976	634998	635020	26	2. 9
34	9.635042	635064	635086	635108	635130	635152	635174	635196	635218	635240	635262	635284	25	3. 13
35	9.635306	635328	635350	635372	635394	635416	635438	635460	635482	635504	635526	635548	24	4. 18
36	9.635570	635592	635614	635636	635658	635680	635702	635724	635746	635768	635790	635812	23	1 = 4
37	9.635834	635856	635877	635899	635921	635943	635965	635987	636009	636031	636053	636075	22	2. 9
38	9.636097	636119	636141	636163	636185	636207	636229	636250	636272	636294	636316	636338	21	3. 13
39	9.636360	636382	636404	636426	636448	636470	636492	636514	636535	636557	636579	636601	20	4. 18
40	9.636623	636645	636667	636689	636711	636733	636755	636776	636798	636820	636842	636864	19	1 = 4
41	9.636886	636908	636930	636952	636973	636995	637017	637039	637061	637083	637105	637127	18	2. 9
42	9.637148	637170	637192	637214	637236	637258	637280	637302	637323	637345	637367	637389	17	3. 13
43	9.637411	637433	637455	637476	637498	637520	637542	637564	637586	637608	637629	637651	16	4. 17
44	9.637673	637695	637717	637739	637760	637782	637804	637826	637848	637870	637891	637913	15	1 = 4
45	9.637935	637957	637979	638001	638022	638044	638066	638088	638110	638131	638153	638175	14	2. 9
46	9.638197	638219	638241	638262	638284	638306	638328	638350	638371	638393	638415	638437	13	3. 13
47	9.638459	638480	638502	638524	638546	638567	638589	638611	638633	638655	638676	638698	12	4. 17
48	9.638720	638742	638764	638785	638807	638829	638851	638872	638894	638916	638938	638959	11	1 = 4
49	9.638981	639003	639025	639046	639068	639090	639112	639133	639155	639177	639199	639220	10	2. 9
50	9.639242	639264	639286	639307	639329	639351	639373	639394	639416	639438	639460	639481	9	3. 13
51	9.639503	639525	639547	639568	639590	639612	639633	639655	639677	639699	639720	639742	8	4. 17
52	9.639764	639785	639807	639829	639851	639872	639894	639916	639937	639959	639981	640002	7	1 = 4
53	9.640024	640046	640068	640089	640111	640133	640154	640176	640198	640219	640241	640263	6	2. 9
54	9.640284	640306	640328	640349	640371	640393	640415	640436	640458	640480	640501	640523	5	3. 13
55	9.640545	640566	640588	640610	640631	640653	640674	640696	640718	640739	640761	640783	4	4. 17
56	9.640804	640826	640848	640869	640891	640913	640934	640956	640978	640999	641021	641042	3	1 = 4
57	9.641064	641086	641107	641129	641151	641172	641194	641215	641237	641259	641280	641302	2	2. 9
58	9.641324	641345	641367	641388	641410	641432	641453	641475	641496	641518	641540	641561	1	3. 13
59	9.641583	641604	641626	641648	641669	641691	641712	641734	641756	641777	641799	641820	0	4. 17
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-sine of 64 degrees, or Sine of 154 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 18 degrees, or Co-sine of 108 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 489982	490015	490047	490080	490112	490144	490177	490209	490242	490274	490306	490339	59	1″ = 6
1	9. 490371	490403	490436	490468	490500	490533	490565	490598	490630	490662	490695	490727	58	2. 13
2	9. 490759	490792	490824	490856	490889	490921	490953	490986	491018	491050	491082	491115	57	3. 19
3	9. 491147	491179	491212	491244	491276	491309	491341	491373	491405	491438	491470	491502	56	4. 26
4	9. 491535	491567	491599	491631	491664	491696	491728	491760	491793	491825	491857	491889	55	1 = 6
5	9. 491922	491954	491986	492018	492051	492083	492115	492147	492179	492212	492244	492276	54	2. 13
6	9. 492308	492341	492373	492405	492437	492469	492502	492534	492566	492598	492630	492662	53	3. 19
7	9. 492695	492727	492759	492791	492823	492856	492888	492920	492952	492984	493016	493048	52	4. 26
8	9. 493081	493113	493145	493177	493209	493241	493273	493306	493338	493370	493402	493434	51	1 = 6
9	9. 493466	493498	493530	493563	493595	493627	493659	493691	493723	493755	493787	493819	50	2. 13
10	9. 493851	493883	493916	493948	493980	494012	494044	494076	494108	494140	494172	494204	49	3. 19
11	9. 494236	494268	494300	494332	494364	494396	494428	494460	494492	494525	494557	494589	48	4. 26
12	9. 494621	494653	494685	494717	494749	494781	494813	494845	494877	494909	494941	494973	47	1 = 6
13	9. 495005	495037	495069	495101	495133	495165	495197	495228	495260	495292	495324	495356	46	2. 13
14	9. 495388	495420	495452	495484	495516	495548	495580	495612	495644	495676	495708	495740	45	3. 19
15	9. 495772	495804	495835	495867	495899	495931	495963	495995	496027	496059	496091	496123	44	4. 26
16	9. 496155	496186	496218	496250	496282	496314	496346	496378	496410	496441	496473	496505	43	1 = 6
17	9. 496537	496569	496601	496633	496665	496696	496728	496760	496792	496824	496856	496887	42	2. 13
18	9. 496919	496951	496983	497015	497047	497078	497110	497142	497174	497206	497237	497269	41	3. 19
19	9. 497301	497333	497365	497396	497428	497460	497492	497524	497555	497587	497619	497651	40	4. 25
20	9. 497682	497714	497746	497778	497810	497841	497873	497905	497937	497968	498000	498032	39	1 = 6
21	9. 498064	498095	498127	498159	498190	498222	498254	498286	498317	498349	498381	498413	38	2. 13
22	9. 498444	498476	498508	498539	498571	498603	498634	498666	498698	498730	498761	498793	37	3. 19
23	9. 498825	498856	498888	498920	498951	498983	499015	499046	499078	499110	499141	499173	36	4. 25
24	9. 499205	499236	499268	499299	499331	499363	499394	499426	499458	499489	499521	499552	35	1 = 6
25	9. 499584	499616	499647	499679	499711	499742	499774	499805	499837	499869	499900	499932	34	2. 13
26	9. 499963	499995	500026	500058	500090	500121	500153	500184	500216	500247	500279	500311	33	3. 19
27	9. 500342	500374	500405	500437	500468	500500	500531	500563	500595	500626	500658	500689	32	4. 25
28	9. 500721	500752	500784	500815	500847	500878	500910	500941	500973	501004	501036	501067	31	1 = 6
29	9. 501099	501130	501162	501193	501225	501256	501288	501319	501351	501382	501414	501445	30	2. 13
30	9. 501476	501508	501539	501571	501602	501634	501665	501697	501728	501760	501791	501822	29	3. 19
31	9. 501854	501885	501917	501948	501980	502011	502042	502074	502105	502137	502168	502199	28	4. 25
32	9. 502231	502262	502294	502325	502356	502388	502419	502451	502482	502513	502545	502576	27	1 = 6
33	9. 502608	502639	502670	502702	502733	502764	502796	502827	502858	502890	502921	502952	26	2. 13
34	9. 502984	503015	503047	503078	503109	503141	503172	503203	503234	503266	503297	503328	25	3. 19
35	9. 503360	503391	503422	503454	503485	503516	503548	503579	503610	503641	503673	503704	24	4. 25
36	9. 503735	503767	503798	503829	503860	503892	503923	503954	503986	504017	504048	504079	23	1 = 6
37	9. 504111	504142	504173	504204	504236	504267	504298	504329	504360	504392	504423	504454	22	2. 13
38	9. 504485	504517	504548	504579	504610	504641	504673	504704	504735	504766	504797	504829	21	3. 19
39	9. 504860	504891	504922	504953	504985	505016	505047	505078	505109	505140	505172	505203	20	4. 25
40	9. 505234	505265	505296	505327	505359	505390	505421	505452	505483	505514	505545	505577	19	1 = 6
41	9. 505608	505639	505670	505701	505732	505763	505795	505826	505857	505888	505919	505950	18	2. 13
42	9. 505981	506012	506043	506074	506106	506137	506168	506199	506230	506261	506292	506323	17	3. 19
43	9. 506354	506385	506416	506447	506478	506510	506541	506572	506603	506634	506665	506696	16	4. 25
44	9. 506727	506758	506789	506820	506851	506882	506913	506944	506975	507006	507037	507068	15	1 = 6
45	9. 507099	507130	507161	507192	507223	507254	507285	507316	507347	507378	507409	507440	14	2. 13
46	9. 507471	507502	507533	507564	507595	507626	507657	507688	507719	507750	507781	507812	13	3. 19
47	9. 507843	507874	507905	507936	507967	507998	508029	508059	508090	508121	508152	508183	12	4. 25
48	9. 508214	508245	508276	508307	508338	508369	508400	508431	508461	508492	508523	508554	11	1 = 6
49	9. 508585	508616	508647	508678	508709	508739	508770	508801	508832	508863	508894	508925	10	2. 13
50	9. 508956	508986	509017	509048	509079	509110	509141	509172	509202	509233	509264	509295	9	3. 19
51	9. 509326	509357	509387	509418	509449	509480	509511	509542	509572	509603	509634	509665	8	4. 25
52	9. 509696	509726	509757	509788	509819	509850	509880	509911	509942	509973	510004	510034	7	1 = 6
53	9. 510065	510096	510127	510158	510188	510219	510250	510281	510311	510342	510373	510404	6	2. 13
54	9. 510434	510465	510496	510527	510557	510588	510619	510650	510680	510711	510742	510772	5	3. 19
55	9. 510803	510834	510865	510895	510926	510957	510987	511018	511049	511080	511110	511141	4	4. 25
56	9. 511172	511202	511233	511264	511294	511325	511356	511386	511417	511448	511478	511509	3	1 = 6
57	9. 511540	511570	511601	511632	511662	511693	511724	511754	511785	511816	511846	511877	2	2. 13
58	9. 511907	511938	511969	511999	512030	512061	512091	512122	512152	512183	512214	512244	1	3. 19
59	9. 512275	512306	512336	512367	512397	512428	512458	512489	512520	512550	512581	512611	0	4. 25
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 71 degrees, or Sine of 161 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 19 degrees, or Co-sine of 109 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.512642	512673	512703	512734	512764	512795	512825	512856	512886	512917	512948	512978	59	1″ = 6
1	9.513009	513039	513070	513100	513131	513161	513192	513222	513253	513283	513314	513345	58	2. 12
2	9.513375	513406	513436	513467	513497	513528	513558	513589	513619	513650	513680	513711	57	3. 18
3	9.513741	513772	513802	513833	513863	513893	513924	513954	513985	514015	514046	514076	56	4. 24
4	9.514107	514137	514168	514198	514229	514259	514289	514320	514350	514381	514411	514442	55	1 = 6
5	9.514472	514503	514533	514563	514594	514624	514655	514685	514715	514746	514776	514807	54	2. 12
6	9.514837	514868	514898	514928	514959	514989	515019	515050	515080	515111	515141	515171	53	3. 18
7	9.515202	515232	515262	515293	515323	515354	515384	515414	515445	515475	515505	515536	52	4. 24
8	9.515566	515596	515627	515657	515687	515718	515748	515778	515809	515839	515869	515900	51	1 = 6
9	9.515930	515960	515991	516021	516051	516082	516112	516142	516172	516203	516233	516263	50	2. 12
10	9.516294	516324	516354	516385	516415	516445	516475	516506	516536	516566	516596	516627	49	3. 18
11	9.516657	516687	516717	516748	516778	516808	516838	516869	516899	516929	516959	516990	48	4. 24
12	9.517020	517050	517080	517111	517141	517171	517201	517231	517262	517292	517322	517352	47	1 = 6
13	9.517382	517413	517443	517473	517503	517533	517564	517594	517624	517654	517684	517715	46	2. 12
14	9.517745	517775	517805	517835	517865	517896	517926	517956	517986	518016	518046	518077	45	3. 18
15	9.518107	518137	518167	518197	518227	518257	518288	518318	518348	518378	518408	518438	44	4. 24
16	9.518468	518498	518528	518559	518589	518619	518649	518679	518709	518739	518769	518799	43	1 = 6
17	9.518830	518860	518890	518920	518950	518980	519010	519040	519070	519100	519130	519160	42	2. 12
18	9.519190	519220	519251	519281	519311	519341	519371	519401	519431	519461	519491	519521	41	3. 18
19	9.519551	519581	519611	519641	519671	519701	519731	519761	519791	519821	519851	519881	40	4. 24
20	9.519911	519941	519971	520001	520031	520061	520091	520121	520151	520181	520211	520241	39	1 = 6
21	9.520271	520301	520331	520361	520391	520421	520451	520481	520511	520541	520571	520601	38	2. 12
22	9.520631	520661	520691	520721	520751	520780	520810	520840	520870	520900	520930	520960	37	3. 18
23	9.520990	521020	521050	521080	521110	521140	521169	521199	521229	521259	521289	521319	36	4. 24
24	9.521349	521379	521409	521439	521468	521498	521528	521558	521588	521618	521648	521678	35	1 = 6
25	9.521707	521737	521767	521797	521827	521857	521887	521916	521946	521976	522006	522036	34	2. 12
26	9.522066	522096	522125	522155	522185	522215	522245	522274	522304	522334	522364	522394	33	3. 18
27	9.522424	522453	522483	522513	522543	522573	522602	522632	522662	522692	522722	522751	32	4. 24
28	9.522781	522811	522841	522870	522900	522930	522960	522990	523019	523049	523079	523109	31	1 = 6
29	9.523138	523168	523198	523228	523257	523287	523317	523347	523376	523406	523436	523466	30	2. 12
30	9.523495	523525	523555	523584	523614	523644	523674	523703	523733	523763	523792	523822	29	3. 18
31	9.523852	523882	523911	523941	523971	524000	524030	524060	524089	524119	524149	524178	28	4. 24
32	9.524208	524238	524267	524297	524327	524356	524386	524416	524445	524475	524505	524534	27	1 = 6
33	9.524564	524594	524623	524653	524683	524712	524742	524772	524801	524831	524860	524890	26	2. 12
34	9.524920	524949	524979	525009	525038	525068	525097	525127	525157	525186	525216	525245	25	3. 18
35	9.525275	525305	525334	525364	525393	525423	525452	525482	525512	525541	525571	525600	24	4. 24
36	9.525630	525659	525689	525719	525748	525778	525807	525837	525866	525896	525925	525955	23	1 = 6
37	9.525984	526014	526044	526073	526103	526132	526162	526191	526221	526250	526280	526309	22	2. 12
38	9.526339	526368	526398	526427	526457	526486	526516	526545	526575	526604	526634	526663	21	3. 18
39	9.526693	526722	526752	526781	526811	526840	526870	526899	526929	526958	526987	527017	20	4. 24
40	9.527046	527076	527105	527135	527164	527194	527223	527253	527282	527311	527341	527370	19	1 = 6
41	9.527400	527429	527459	527488	527517	527547	527576	527606	527635	527664	527694	527723	18	2. 12
42	9.527753	527782	527811	527841	527870	527900	527929	527958	527988	528017	528047	528076	17	3. 18
43	9.528105	528135	528164	528193	528223	528252	528282	528311	528340	528370	528399	528428	16	4. 24
44	9.528458	528487	528516	528546	528575	528604	528634	528663	528692	528722	528751	528780	15	1 = 6
45	9.528810	528839	528868	528898	528927	528956	528986	529015	529044	529074	529103	529132	14	2. 12
46	9.529161	529191	529220	529249	529279	529308	529337	529366	529396	529425	529454	529484	13	3. 18
47	9.529513	529542	529571	529601	529630	529659	529688	529718	529747	529776	529805	529835	12	4. 23
48	9.529864	529893	529922	529952	529981	530010	530039	530069	530098	530127	530156	530185	11	1 = 6
49	9.530215	530244	530273	530302	530331	530361	530390	530419	530448	530477	530507	530536	10	2. 12
50	9.530565	530594	530623	530653	530682	530711	530740	530769	530798	530828	530857	530886	9	3. 18
51	9.530915	530944	530973	531003	531032	531061	531090	531119	531148	531177	531207	531236	8	4. 23
52	9.531265	531294	531323	531352	531381	531411	531440	531469	531498	531527	531556	531585	7	1 = 6
53	9.531614	531643	531673	531702	531731	531760	531789	531818	531847	531876	531905	531934	6	2. 12
54	9.531964	531993	532022	532051	532080	532109	532138	532167	532196	532225	532254	532283	5	3. 17
55	9.532312	532341	532370	532399	532429	532458	532487	532516	532545	532574	532603	532632	4	4. 23
56	9.532661	532690	532719	532748	532777	532806	532835	532864	532893	532922	532951	532980	3	1 = 6
57	9.533009	533038	533067	533096	533125	533154	533183	533212	533241	533270	533299	533328	2	2. 12
58	9.533357	533386	533415	533444	533473	533502	533531	533560	533589	533618	533646	533675	1	3. 17
59	9.533704	533733	533762	533791	533820	533849	533878	533907	533936	533965	533994	534023	0	4. 23
Minutes	60′	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 70 degrees, or Sine of 160 degrees.

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LOGARITHMIC SINES.

Sine of 20 degrees, or Co-sine of 110 degrees.												Minutes	Propor. parts.
0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
9. 534052	534081	534110	534138	534167	534196	534225	534254	534283	534312	534341	534370	59	1″ = 6
9. 534399	534428	534456	534485	534514	534543	534572	534601	534630	534659	534688	534716	58	2. 12
9. 534745	534774	534803	534832	534861	534890	534918	534947	534976	535005	535034	535063	57	3. 17
9. 535092	535120	535149	535178	535207	535236	535265	535293	535322	535351	535380	535409	56	4. 23
9. 535438	535466	535495	535524	535553	535582	535610	535639	535668	535697	535726	535754	55	1 = 6
9. 535783	535812	535841	535870	535898	535927	535956	535985	536014	536042	536071	536100	54	2. 12
9. 536129	536157	536186	536215	536244	536272	536301	536330	536359	536387	536416	536445	53	3. 17
9. 536474	536502	536531	536560	536589	536617	536646	536675	536704	536732	536761	536790	52	4. 23
9. 536818	536847	536876	536905	536933	536962	536991	537019	537048	537077	537106	537134	51	1 = 6
9. 537163	537192	537220	537249	537278	537306	537335	537364	537392	537421	537450	537478	50	2. 11
9. 537507	537536	537564	537593	537622	537650	537679	537708	537736	537765	537794	537822	49	3. 17
9. 537851	537879	537908	537937	537965	537994	538023	538051	538080	538109	538137	538166	48	4. 23
9. 538194	538223	538252	538280	538309	538337	538366	538395	538423	538452	538480	538509	47	1 = 6
9. 538538	538566	538595	538623	538652	538680	538709	538738	538766	538795	538823	538852	46	2. 11
9. 538880	538909	538938	538966	538995	539023	539052	539080	539109	539137	539166	539195	45	3. 17
9. 539223	539252	539280	539309	539337	539366	539394	539423	539451	539480	539508	539537	44	4. 23
9. 539565	539594	539622	539651	539679	539708	539736	539765	539793	539822	539850	539879	43	1 = 6
9. 539907	539936	539964	539993	540021	540050	540078	540107	540135	540164	540192	540221	42	2. 11
9. 540249	540277	540306	540334	540363	540391	540420	540448	540477	540505	540533	540562	41	3. 17
9. 540590	540619	540647	540676	540704	540732	540761	540789	540818	540846	540875	540903	40	4. 23
9. 540931	540960	540988	541017	541045	541073	541102	541130	541159	541187	541215	541244	39	1 = 6
9. 541272	541301	541329	541357	541386	541414	541442	541471	541499	541528	541556	541584	38	2. 11
9. 541613	541641	541669	541698	541726	541754	541783	541811	541839	541868	541896	541924	37	3. 17
9. 541953	541981	542009	542038	542066	542094	542123	542151	542179	542208	542236	542264	36	4. 23
9. 542293	542321	542349	542378	542406	542434	542462	542491	542519	542547	542576	542604	35	1 = 6
9. 542632	542660	542689	542717	542745	542774	542802	542830	542858	542887	542915	542943	34	2. 11
9. 542971	543000	543028	543056	543084	543113	543141	543169	543197	543226	543254	543282	33	3. 17
9. 543310	543339	543367	543395	543423	543451	543480	543508	543536	543564	543593	543621	32	4. 23
9. 543649	543677	543705	543734	543762	543790	543818	543846	543875	543903	543931	543959	31	1 = 6
9. 543987	544015	544044	544072	544100	544128	544156	544185	544213	544241	544269	544297	30	2. 11
9. 544325	544354	544382	544410	544438	544466	544494	544522	544551	544579	544607	544635	29	3. 17
9. 544663	544691	544719	544747	544776	544804	544832	544860	544888	544916	544944	544972	28	4. 23
9. 545001	545029	545057	545085	545113	545141	545169	545197	545225	545253	545281	545310	27	1 = 6
9. 545338	545366	545394	545422	545450	545478	545506	545534	545562	545590	545618	545646	26	2. 11
9. 545675	545703	545731	545759	545787	545815	545843	545871	545899	545927	545955	545983	25	3. 17
9. 546011	546039	546067	546095	546123	546151	546179	546207	546235	546263	546291	546319	24	4. 22
9. 546347	546375	546403	546431	546459	546487	546515	546543	546571	546599	546627	546655	23	1 = 6
9. 546683	546711	546739	546767	546795	546823	546851	546879	546907	546935	546963	546991	22	2. 11
9. 547019	547047	547075	547103	547131	547159	547187	547215	547243	547270	547298	547326	21	3. 17
9. 547354	547382	547410	547438	547466	547494	547522	547550	547578	547606	547633	547661	20	4. 22
9. 547689	547717	547745	547773	547801	547829	547857	547885	547913	547940	547968	547996	19	1 = 6
9. 548024	548052	548080	548108	548136	548163	548191	548219	548247	548275	548303	548331	18	2. 11
9. 548359	548386	548414	548442	548470	548498	548526	548554	548581	548609	548637	548665	17	3. 17
9. 548693	548721	548748	548776	548804	548832	548860	548888	548915	548943	548971	548999	16	4. 22
9. 549027	549054	549082	549110	549138	549166	549193	549221	549249	549277	549305	549332	15	1 = 6
9. 549360	549388	549416	549444	549471	549499	549527	549555	549582	549610	549638	549666	14	2. 11
9. 549694	549721	549749	549777	549805	549832	549860	549888	549916	549943	549971	549999	13	3. 17
9. 550027	550054	550082	550110	550137	550165	550193	550221	550248	550276	550304	550332	12	4. 22
9. 550359	550387	550415	550442	550470	550498	550525	550553	550581	550609	550636	550664	11	1 = 6
9. 550692	550719	550747	550775	550802	550830	550858	550885	550913	550941	550968	550996	10	2. 11
9. 551024	551051	551079	551107	551134	551162	551190	551217	551245	551273	551300	551328	9	3. 17
9. 551356	551383	551411	551439	551466	551494	551521	551549	551577	551604	551632	551660	8	4. 22
9. 551687	551715	551742	551770	551798	551825	551853	551880	551908	551936	551963	551991	7	1 = 6
9. 552018	552046	552074	552101	552129	552156	552184	552212	552239	552267	552294	552322	6	2. 11
9. 552349	552377	552405	552432	552460	552487	552515	552542	552570	552597	552625	552653	5	3. 17
9. 552680	552708	552735	552763	552790	552818	552845	552873	552900	552928	552955	552983	4	4. 22
9. 553011	553038	553066	553093	553121	553148	553176	553203	553231	553258	553286	553313	3	1 = 6
9. 553341	553368	553396	553423	553451	553478	553506	553533	553561	553588	553615	553643	2	2. 11
9. 553670	553698	553725	553753	553780	553808	553835	553863	553890	553918	553945	553973	1	3. 17
9. 554000	554027	554055	554082	554110	554137	554165	554192	554219	554247	554274	554302	0	4. 22
60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
Co-sine of 69 degrees, or Sine of 159 degrees.													

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LOGARITHMIC SINES

Minutes	Sine of 21 degrees, or Co-sine of 111 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.554329	554357	554384	554411	554439	554466	554494	554521	554549	554576	554603	554631	59	1″ = 5
1	9.554658	554686	554713	554740	554768	554795	554823	554850	554877	554905	554932	554959	58	2. 11
2	9.554987	555014	555042	555069	555096	555124	555151	555178	555206	555233	555261	555288	57	3. 16
3	9.555315	555343	555370	555397	555425	555452	555479	555507	555534	555561	555589	555616	56	4. 22
4	9.555643	555671	555698	555725	555753	555780	555807	555835	555862	555889	555917	555944	55	1 = 5
5	9.555971	555998	556026	556053	556080	556108	556135	556162	556190	556217	556244	556271	54	2. 11
6	9.556299	556326	556353	556381	556408	556435	556462	556490	556517	556544	556571	556599	53	3. 16
7	9.556626	556653	556680	556708	556735	556762	556789	556817	556844	556871	556898	556926	52	4. 22
8	9.556953	556980	557007	557035	557062	557089	557116	557144	557171	557198	557225	557252	51	1 = 5
9	9.557280	557307	557334	557361	557388	557416	557443	557470	557497	557524	557552	557579	50	2. 11
10	9.557606	557633	557660	557688	557715	557742	557769	557796	557823	557851	557878	557905	49	3. 16
11	9.557932	557959	557986	558014	558041	558068	558095	558122	558149	558177	558204	558231	48	4. 22
12	9.558258	558285	558312	558339	558367	558394	558421	558448	558475	558502	558529	558556	47	1 = 5
13	9.558584	558611	558638	558665	558692	558719	558746	558773	558800	558828	558855	558882	46	2. 11
14	9.558909	558936	558963	558990	559017	559044	559071	559098	559126	559153	559180	559207	45	3. 16
15	9.559234	559261	559288	559315	559342	559369	559396	559423	559450	559477	559504	559531	44	4. 22
16	9.559559	559586	559613	559640	559667	559694	559721	559748	559775	559802	559829	559856	43	1 = 5
17	9.559883	559910	559937	559964	559991	560018	560045	560072	560099	560126	560153	560180	42	2. 11
18	9.560207	560234	560261	560288	560315	560342	560369	560396	560423	560450	560477	560504	41	3. 16
19	9.560531	560558	560585	560612	560639	560666	560693	560720	560747	560774	560801	560828	40	4. 22
20	9.560855	560882	560909	560935	560962	560989	561016	561043	561070	561097	561124	561151	39	1 = 5
21	9.561178	561205	561232	561259	561286	561313	561340	561366	561393	561420	561447	561474	38	2. 11
22	9.561501	561528	561555	561582	561609	561636	561662	561689	561716	561743	561770	561797	37	3. 16
23	9.561824	561851	561878	561904	561931	561958	561985	562012	562039	562066	562093	562119	36	4. 22
24	9.562146	562173	562200	562227	562254	562281	562307	562334	562361	562388	562415	562442	35	1 = 5
25	9.562469	562495	562522	562549	562576	562603	562630	562656	562683	562710	562737	562764	34	2. 11
26	9.562790	562817	562844	562871	562898	562925	562951	562978	563005	563032	563059	563085	33	3. 16
27	9.563112	563139	563166	563192	563219	563246	563273	563300	563326	563353	563380	563407	32	4. 21
28	9.563434	563460	563487	563514	563541	563567	563594	563621	563648	563674	563701	563728	31	1 = 5
29	9.563755	563781	563808	563835	563862	563888	563915	563942	563969	563995	564022	564049	30	2. 11
30	9.564075	564102	564129	564156	564182	564209	564236	564263	564289	564316	564343	564369	29	3. 16
31	9.564396	564423	564449	564476	564503	564530	564556	564583	564610	564636	564663	564690	28	4. 21
32	9.564716	564743	564770	564796	564823	564850	564876	564903	564930	564956	564983	565010	27	1 = 5
33	9.565036	565063	565090	565116	565143	565170	565196	565223	565250	565276	565303	565330	26	2. 11
34	9.565356	565383	565409	565436	565463	565489	565516	565543	565569	565596	565622	565649	25	3. 16
35	9.565676	565702	565729	565755	565782	565809	565835	565862	565888	565915	565942	565968	24	4. 21
36	9.565995	566021	566048	566075	566101	566128	566154	566181	566207	566234	566261	566287	23	1 = 5
37	9.566314	566340	566367	566393	566420	566447	566473	566500	566526	566553	566579	566606	22	2. 11
38	9.566632	566659	566686	566712	566739	566765	566792	566818	566845	566871	566898	566924	21	3. 16
39	9.566951	566977	567004	567030	567057	567083	567110	567136	567163	567189	567216	567242	20	4. 21
40	9.567269	567295	567322	567348	567375	567401	567428	567454	567481	567507	567534	567560	19	1 = 5
41	9.567587	567613	567640	567666	567693	567719	567746	567772	567799	567825	567852	567878	18	2. 11
42	9.567904	567931	567957	567984	568010	568037	568063	568090	568116	568142	568169	568195	17	3. 16
43	9.568222	568248	568275	568301	568327	568354	568380	568407	568433	568460	568486	568512	16	4. 21
44	9.568539	568565	568592	568618	568644	568671	568697	568724	568750	568776	568803	568829	15	1 = 5
45	9.568856	568882	568908	568935	568961	568987	569014	569040	569067	569093	569119	569146	14	2. 11
46	9.569172	569198	569225	569251	569278	569304	569330	569357	569383	569409	569436	569462	13	3. 16
47	9.569488	569515	569541	569567	569594	569620	569646	569673	569699	569725	569752	569778	12	4. 21
48	9.569804	569831	569857	569883	569910	569936	569962	569989	570015	570041	570067	570094	11	1 = 5
49	9.570120	570146	570173	570199	570225	570252	570278	570304	570330	570357	570383	570409	10	2. 11
50	9.570436	570462	570488	570514	570541	570567	570593	570619	570646	570672	570698	570724	9	3. 16
51	9.570751	570777	570803	570829	570856	570882	570908	570934	570961	570987	571013	571039	8	4. 21
52	9.571066	571092	571118	571144	571171	571197	571223	571249	571275	571302	571328	571354	7	1 = 5
53	9.571380	571406	571433	571459	571485	571511	571537	571564	571590	571616	571642	571668	6	2. 10
54	9.571695	571721	571747	571773	571799	571826	571852	571878	571904	571930	571956	571983	5	3. 16
55	9.572009	572035	572061	572087	572113	572140	572166	572192	572218	572244	572270	572297	4	4. 21
56	9.572323	572349	572375	572401	572427	572453	572479	572506	572532	572558	572584	572610	3	1 = 5
57	9.572636	572662	572688	572715	572741	572767	572793	572819	572845	572871	572897	572923	2	2. 10
58	9.572950	572976	573002	573028	573054	573080	573106	573132	573158	573184	573210	573237	1	3. 16
59	9.573263	573289	573315	573341	573367	573393	573419	573445	573471	573497	573523	573549	0	4. 21
	60′	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 68 degrees, or Sine of 158 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 22 degrees, or Co-sine of 112 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 573575	573602	573628	573654	573680	573706	573732	573758	573784	573810	573836	573862	59	1″ =
1	9. 573888	573914	573940	573966	573992	574018	574044	574070	574096	574122	574148	574174	58	2.
2	9. 574200	574226	574252	574278	574304	574330	574356	574382	574408	574434	574460	574486	57	3.
3	9. 574512	574538	574564	574590	574616	574642	574668	574694	574720	574746	574772	574798	56	4.
4	9. 574824	574850	574876	574902	574928	574954	574980	575006	575032	575058	575084	575110	55	1 =
5	9. 575136	575162	575187	575213	575239	575265	575291	575317	575343	575369	575395	575421	54	2.
6	9. 575447	575473	575499	575525	575551	575576	575602	575628	575654	575680	575706	575732	53	3.
7	9. 575758	575784	575810	575836	575861	575887	575913	575939	575965	575991	576017	576043	52	4.
8	9. 576069	576094	576120	576146	576172	576198	576224	576250	576276	576301	576327	576353	51	1 =
9	9. 576379	576405	576431	576457	576482	576508	576534	576560	576586	576612	576638	576663	50	2.
10	9. 576689	576715	576741	576767	576793	576818	576844	576870	576896	576922	576948	576973	49	3.
11	9. 576999	577025	577051	577077	577102	577128	577154	577180	577206	577231	577257	577283	48	4.
12	9. 577309	577335	577360	577386	577412	577438	577464	577489	577515	577541	577567	577593	47	1 =
13	9. 577618	577644	577670	577696	577721	577747	577773	577799	577824	577850	577876	577902	46	2.
14	9. 577928	577953	577979	578005	578031	578056	578082	578108	578133	578159	578185	578211	45	3.
15	9. 578236	578262	578288	578314	578339	578365	578391	578417	578442	578468	578494	578519	44	4.
16	9. 578545	578571	578597	578622	578648	578674	578699	578725	578751	578776	578802	578828	43	1 =
17	9. 578854	578879	578905	578931	578956	578982	579008	579033	579059	579085	579110	579136	42	2.
18	9. 579162	579187	579213	579239	579264	579290	579316	579341	579367	579393	579418	579444	41	3.
19	9. 579470	579495	579521	579546	579572	579598	579623	579649	579675	579700	579726	579752	40	4.
20	9. 579777	579803	579828	579854	579880	579905	579931	579957	579982	580008	580033	580059	39	1 =
21	9. 580085	580110	580136	580161	580187	580213	580238	580264	580289	580315	580341	580366	38	2.
22	9. 580392	580417	580443	580468	580494	580520	580545	580571	580596	580622	580647	580673	37	3.
23	9. 580699	580724	580750	580775	580801	580826	580852	580878	580903	580929	580954	580980	36	4.
24	9. 581005	581031	581056	581082	581107	581133	581158	581184	581210	581235	581261	581286	35	1 =
25	9. 581312	581337	581363	581388	581414	581439	581465	581490	581516	581541	581567	581592	34	2.
26	9. 581618	581643	581669	581694	581720	581745	581771	581796	581822	581847	581873	581898	33	3.
27	9. 581924	581949	581975	582000	582026	582051	582076	582102	582127	582153	582178	582204	32	4.
28	9. 582229	582255	582280	582306	582331	582356	582382	582407	582433	582458	582484	582509	31	1 =
29	9. 582535	582560	582585	582611	582636	582662	582687	582713	582738	582763	582789	582814	30	2.
30	9. 582840	582865	582891	582916	582941	582967	582992	583018	583043	583068	583094	583119	29	3.
31	9. 583145	583170	583195	583221	583246	583272	583297	583322	583348	583373	583398	583424	28	4.
32	9. 583449	583475	583500	583525	583551	583576	583601	583627	583652	583677	583703	583728	27	1 =
33	9. 583754	583779	583804	583830	583855	583880	583906	583931	583956	583982	584007	584032	26	2.
34	9. 584058	584083	584108	584134	584159	584184	584210	584235	584260	584286	584311	584336	25	3.
35	9. 584362	584387	584412	584437	584463	584488	584513	584539	584564	584589	584615	584640	24	4.
36	9. 584665	584690	584716	584741	584766	584792	584817	584842	584867	584893	584918	584943	23	1 =
37	9. 584969	584994	585019	585044	585070	585095	585120	585145	585171	585196	585221	585246	22	2.
38	9. 585272	585297	585322	585347	585373	585398	585423	585448	585474	585499	585524	585549	21	3.
39	9. 585575	585600	585625	585650	585675	585701	585726	585751	585776	585801	585827	585852	20	4.
40	9. 585877	585902	585928	585953	585978	586003	586028	586054	586079	586104	586129	586154	19	1 =
41	9. 586180	586205	586230	586255	586280	586305	586331	586356	586381	586406	586431	586456	18	2.
42	9. 586482	586507	586532	586557	586582	586607	586633	586658	586683	586708	586733	586758	17	3.
43	9. 586784	586809	586834	586859	586884	586909	586934	586959	586985	587010	587035	587060	16	4.
44	9. 587085	587110	587135	587161	587186	587211	587236	587261	587286	587311	587336	587361	15	1 =
45	9. 587387	587412	587437	587462	587487	587512	587537	587562	587587	587612	587638	587663	14	2.
46	9. 587688	587713	587738	587763	587788	587813	587838	587863	587888	587913	587938	587964	13	3.
47	9. 587989	588014	588039	588064	588089	588114	588139	588164	588189	588214	588239	588264	12	4.
48	9. 588289	588314	588339	588364	588389	588414	588439	588464	588490	588515	588540	588565	11	1 =
49	9. 588590	588615	588640	588665	588690	588715	588740	588765	588790	588815	588840	588865	10	2.
50	9. 588890	588915	588940	588965	588990	589015	589040	589065	589090	589115	589140	589165	9	3.
51	9. 589190	589215	589240	589265	589290	589315	589340	589365	589390	589414	589439	589464	8	4.
52	9. 589489	589514	589539	589564	589589	589614	589639	589664	589689	589714	589739	589764	7	1 =
53	9. 589789	589814	589839	589864	589889	589914	589938	589963	589988	590013	590038	590063	6	2.
54	9. 590088	590113	590138	590163	590188	590213	590238	590262	590287	590312	590337	590362	5	3.
55	9. 590387	590412	590437	590462	590487	590511	590536	590561	590586	590611	590636	590661	4	4.
56	9. 590686	590711	590735	590760	590785	590810	590835	590860	590885	590910	590934	590959	3	1 =
57	9. 590984	591009	591034	591059	591084	591108	591133	591158	591183	591208	591233	591258	2	2.
58	9. 591282	591307	591332	591357	591382	591407	591431	591456	591481	591506	591531	591556	1	3.
59	9. 591580	591605	591630	591655	591680	591704	591729	591754	591779	591804	591828	591853	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-sine of 67 degrees, or Sine of 157 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 23 degrees, or Co-sine of 113 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.591878	591903	591928	591952	591977	592002	592027	592052	592076	592101	592126	592151	59	1″ = 5
1	9.592176	592200	592225	592250	592275	592299	592324	592349	592374	592399	592423	592448	58	2. 10
2	9.592473	592498	592522	592547	592572	592597	592621	592646	592671	592696	592720	592745	57	3. 15
3	9.592770	592795	592819	592844	592869	592894	592918	592943	592968	592992	593017	593042	56	4. 20
4	9.593067	593091	593116	593141	593165	593190	593215	593240	593264	593289	593314	593338	55	1 = 5
5	9.593363	593388	593413	593437	593462	593487	593511	593536	593561	593585	593610	593635	54	2. 10
6	9.593659	593684	593709	593733	593758	593783	593808	593832	593857	593882	593906	593931	53	3. 15
7	9.593956	593980	594005	594029	594054	594079	594103	594128	594153	594177	594202	594227	52	4. 20
8	9.594251	594276	594301	594325	594350	594375	594399	594424	594448	594473	594498	594522	51	1 = 5
9	9.594547	594572	594596	594621	594646	594670	594695	594719	594744	594768	594793	594818	50	2. 10
10	9.594842	594867	594891	594916	594941	594965	594990	595014	595039	595064	595088	595113	49	3. 15
11	9.595137	595162	595187	595211	595236	595260	595285	595309	595334	595359	595383	595408	48	4. 20
12	9.595432	595457	595481	595506	595530	595555	595580	595604	595629	595653	595678	595702	47	1 = 5
13	9.595727	595751	595776	595800	595825	595850	595874	595899	595923	595948	595972	595997	46	2. 10
14	9.596021	596046	596070	596095	596119	596144	596168	596193	596217	596242	596266	596291	45	3. 15
15	9.596315	596340	596364	596389	596413	596438	596462	596487	596511	596536	596560	596585	44	4. 20
16	9.596609	596634	596658	596683	596707	596732	596756	596781	596805	596830	596854	596879	43	1 = 5
17	9.596903	596928	596952	596976	597001	597025	597050	597074	597099	597123	597148	597172	42	2. 10
18	9.597197	597221	597245	597270	597294	597319	597343	597368	597392	597416	597441	597465	41	3. 15
19	9.597490	597514	597539	597563	597587	597612	597636	597661	597685	597709	597734	597758	40	4. 20
20	9.597783	597807	597832	597856	597880	597905	597929	597954	597978	598002	598027	598051	39	1 = 5
21	9.598075	598100	598124	598149	598173	598197	598222	598246	598270	598295	598319	598344	38	2. 10
22	9.598368	598392	598417	598441	598465	598490	598514	598539	598563	598587	598612	598636	37	3. 15
23	9.598660	598685	598709	598733	598758	598782	598806	598831	598855	598879	598904	598928	36	4. 20
24	9.598952	598977	599001	599025	599050	599074	599098	599123	599147	599171	599196	599220	35	1 = 5
25	9.599244	599268	599293	599317	599341	599366	599390	599414	599439	599463	599487	599511	34	2. 10
26	9.599536	599560	599584	599609	599633	599657	599681	599706	599730	599754	599779	599803	33	3. 15
27	9.599827	599851	599876	599900	599924	599948	599973	599997	600021	600045	600070	600094	32	4. 19
28	9.600118	600142	600167	600191	600215	600239	600264	600288	600312	600336	600361	600385	31	1 = 5
29	9.600409	600433	600458	600482	600506	600530	600554	600579	600603	600627	600651	600676	30	2. 10
30	9.600700	600724	600748	600772	600797	600821	600845	600869	600893	600918	600942	600966	29	3. 15
31	9.600990	601014	601039	601063	601087	601111	601135	601159	601184	601208	601232	601256	28	4. 19
32	9.601280	601305	601329	601353	601377	601401	601425	601450	601474	601498	601522	601546	27	1 = 5
33	9.601570	601594	601619	601643	601667	601691	601715	601739	601764	601788	601812	601836	26	2. 10
34	9.601860	601884	601908	601932	601957	601981	602005	602029	602053	602077	602101	602125	25	3. 14
35	9.602150	602174	602198	602222	602246	602270	602294	602318	602342	602367	602391	602415	24	4. 19
36	9.602439	602463	602487	602511	602535	602559	602583	602607	602632	602656	602680	602704	23	1 = 5
37	9.602728	602752	602776	602800	602824	602848	602872	602896	602920	602945	602969	602993	22	2. 10
38	9.603017	603041	603065	603089	603113	603137	603161	603185	603209	603233	603257	603281	21	3. 14
39	9.603305	603329	603353	603377	603401	603425	603449	603474	603498	603522	603546	603570	20	4. 19
40	9.603594	603618	603642	603666	603690	603714	603738	603762	603786	603810	603834	603858	19	1 = 5
41	9.603882	603906	603930	603954	603978	604002	604026	604050	604074	604098	604122	604146	18	2. 10
42	9.604170	604194	604218	604242	604266	604290	604314	604338	604361	604385	604409	604433	17	3. 14
43	9.604457	604481	604505	604529	604553	604577	604601	604625	604649	604673	604697	604721	16	4. 19
44	9.604745	604769	604793	604817	604841	604865	604888	604912	604936	604960	604984	605008	15	1 = 5
45	9.605032	605056	605080	605104	605128	605152	605176	605199	605223	605247	605271	605295	14	2. 10
46	9.605319	605343	605367	605391	605415	605439	605462	605486	605510	605534	605558	605582	13	3. 14
47	9.605606	605630	605654	605677	605701	605725	605749	605773	605797	605821	605845	605868	12	4. 19
48	9.605892	605916	605940	605964	605988	606012	606036	606059	606083	606107	606131	606155	11	1 = 5
49	9.606179	606203	606226	606250	606274	606298	606322	606346	606369	606393	606417	606441	10	2. 10
50	9.606465	606489	606512	606536	606560	606584	606608	606632	606655	606679	606703	606727	9	3. 14
51	9.606751	606774	606798	606822	606846	606870	606893	606917	606941	606965	606989	607012	8	4. 19
52	9.607036	607060	607084	607108	607131	607155	607179	607203	607227	607250	607274	607298	7	1 = 5
53	9.607322	607345	607369	607393	607417	607441	607464	607488	607512	607536	607559	607583	6	2. 10
54	9.607607	607631	607654	607678	607702	607726	607749	607773	607797	607821	607844	607868	5	3. 14
55	9.607892	607916	607939	607963	607987	608011	608034	608058	608082	608105	608129	608153	4	4. 19
56	9.608177	608200	608224	608248	608271	608295	608319	608343	608366	608390	608414	608437	3	1 = 5
57	9.608461	608485	608509	608532	608556	608580	608603	608627	608651	608674	608698	608722	2	2. 9
58	9.608745	608769	608793	608816	608840	608864	608887	608911	608935	608958	608982	609006	1	3. 14
59	9.609029	609053	609077	609100	609124	609148	609171	609195	609219	609242	609266	609290	0	4. 19
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 66 degrees, or Sine of 156 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 24 degrees, or Co-sine of 114 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 609313	609337	609361	609384	609408	609432	609455	609479	609502	609526	609550	609573	59	1″ =
1	9. 609597	609621	609644	609668	609691	609715	609739	609762	609786	609810	609833	609857	58	2.
2	9. 609880	609904	609928	609951	609975	609998	610022	610046	610069	610093	610116	610140	57	3.
3	9. 610164	610187	610211	610234	610258	610282	610305	610329	610352	610376	610399	610423	56	4.
4	9. 610447	610470	610494	610517	610541	610564	610588	610612	610635	610659	610682	610706	55	1 =
5	9. 610729	610753	610776	610800	610824	610847	610871	610894	610918	610941	610965	610988	54	2.
6	9. 611012	611035	611059	611082	611106	611129	611153	611177	611200	611224	611247	611271	53	3.
7	9. 611294	611318	611341	611365	611388	611412	611435	611459	611482	611506	611529	611553	52	4.
8	9. 611576	611600	611623	611647	611670	611694	611717	611741	611764	611788	611811	611835	51	1 =
9	9. 611858	611882	611905	611929	611952	611975	611999	612022	612046	612069	612093	612116	50	2.
10	9. 612140	612163	612187	612210	612234	612257	612280	612304	612327	612351	612374	612398	49	3.
11	9. 612421	612445	612468	612491	612515	612538	612562	612585	612609	612632	612656	612679	48	4.
12	9. 612702	612726	612749	612773	612796	612819	612843	612866	612890	612913	612937	612960	47	1 =
13	9. 612983	613007	613030	613054	613077	613100	613124	613147	613171	613194	613217	613241	46	2.
14	9. 613264	613288	613311	613334	613358	613381	613404	613428	613451	613475	613498	613521	45	3.
15	9. 613545	613568	613591	613615	613638	613662	613685	613708	613732	613755	613778	613802	44	4.
16	9. 613825	613848	613872	613895	613918	613942	613965	613988	614012	614035	614058	614082	43	1 =
17	9. 614105	614128	614152	614175	614198	614222	614245	614268	614292	614315	614338	614362	42	2.
18	9. 614385	614408	614432	614455	614478	614502	614525	614548	614572	614595	614618	614641	41	3.
19	9. 614665	614688	614711	614735	614758	614781	614804	614828	614851	614874	614898	614921	40	4.
20	9. 614944	614967	614991	615014	615037	615061	615084	615107	615130	615154	615177	615200	39	1 =
21	9. 615223	615247	615270	615293	615316	615340	615363	615386	615409	615433	615456	615479	38	2.
22	9. 615502	615526	615549	615572	615595	615619	615642	615665	615688	615712	615735	615758	37	3.
23	9. 615781	615805	615828	615851	615874	615897	615921	615944	615967	615990	616013	616037	36	4.
24	9. 616060	616083	616106	616130	616153	616176	616199	616222	616246	616269	616292	616315	35	1 =
25	9. 616338	616361	616385	616408	616431	616454	616477	616501	616524	616547	616570	616593	34	2.
26	9. 616616	616640	616663	616686	616709	616732	616755	616779	616802	616825	616848	616871	33	3.
27	9. 616894	616918	616941	616964	616987	617010	617033	617056	617080	617103	617126	617149	32	4.
28	9. 617172	617195	617218	617242	617265	617288	617311	617334	617357	617380	617403	617427	31	1 =
29	9. 617450	617473	617496	617519	617542	617565	617588	617611	617635	617658	617681	617704	30	2.
30	9. 617727	617750	617773	617796	617819	617842	617866	617889	617912	617935	617958	617981	29	3.
31	9. 618004	618027	618050	618073	618096	618120	618143	618166	618189	618212	618235	618258	28	4.
32	9. 618281	618304	618327	618350	618373	618396	618419	618442	618465	618489	618512	618535	27	1 =
33	9. 618558	618581	618604	618627	618650	618673	618696	618719	618742	618765	618788	618811	26	2.
34	9. 618834	618857	618880	618903	618926	618949	618972	618995	619018	619041	619064	619087	25	3.
35	9. 619110	619133	619156	619179	619202	619225	619248	619271	619294	619317	619340	619363	24	4.
36	9. 619386	619409	619432	619455	619478	619501	619524	619547	619570	619593	619616	619639	23	1 =
37	9. 619662	619685	619708	619731	619754	619777	619800	619823	619846	619869	619892	619915	22	2.
38	9. 619938	619961	619984	620007	620030	620053	620076	620099	620121	620144	620167	620190	21	3.
39	9. 620213	620236	620259	620282	620305	620328	620351	620374	620397	620420	620443	620466	20	4.
40	9. 620488	620511	620534	620557	620580	620603	620626	620649	620672	620695	620718	620741	19	1 =
41	9. 620763	620786	620809	620832	620855	620878	620901	620924	620947	620970	620992	621015	18	2.
42	9. 621038	621061	621084	621107	621130	621153	621176	621198	621221	621244	621267	621290	17	3.
43	9. 621313	621336	621358	621381	621404	621427	621450	621473	621496	621519	621541	621564	16	4.
44	9. 621587	621610	621633	621656	621679	621701	621724	621747	621770	621793	621816	621838	15	1 =
45	9. 621861	621884	621907	621930	621953	621975	621998	622021	622044	622067	622090	622112	14	2.
46	9. 622135	622158	622181	622204	622226	622249	622272	622295	622318	622340	622363	622386	13	3.
47	9. 622409	622432	622454	622477	622500	622523	622546	622568	622591	622614	622637	622660	12	4.
48	9. 622682	622705	622728	622751	622774	622796	622819	622842	622865	622887	622910	622933	11	1 =
49	9. 622956	622978	623001	623024	623047	623070	623092	623115	623138	623161	623183	623206	10	2.
50	9. 623229	623252	623274	623297	623320	623343	623365	623388	623411	623433	623456	623479	9	3.
51	9. 623502	623524	623547	623570	623593	623615	623638	623661	623683	623706	623729	623752	8	4.
52	9. 623774	623797	623820	623842	623865	623888	623911	623933	623956	623979	624001	624024	7	1 =
53	9. 624047	624070	624092	624115	624138	624160	624183	624206	624228	624251	624274	624296	6	2.
54	9. 624319	624342	624364	624387	624410	624432	624455	624478	624500	624523	624546	624568	5	3.
55	9. 624591	624614	624636	624659	624682	624704	624727	624750	624772	624795	624818	624840	4	4.
56	9. 624863	624886	624908	624931	624954	624976	624999	625021	625044	625067	625089	625112	3	1 =
57	9. 625135	625157	625180	625203	625225	625248	625270	625293	625316	625338	625361	625383	2	2.
58	9. 625406	625429	625451	625474	625496	625519	625542	625564	625587	625610	625632	625655	1	3.
59	9. 625677	625700	625722	625745	625768	625790	625813	625835	625858	625881	625903	625926	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 65 degrees, or Sine of 155 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 25 degrees, or Co-sine of 115 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.625948	625971	625993	626016	626039	626061	626084	626106	626129	626151	626174	626197	59	1″ = 5
1	9.626219	626242	626264	626287	626309	626332	626354	626377	626400	626422	626445	626467	58	2. 9
2	9.626490	626512	626535	626557	626580	626602	626625	626647	626670	626693	626715	626738	57	3. 14
3	9.626760	626783	626805	626828	626850	626873	626895	626918	626940	626963	626985	627008	56	4. 18
4	9.627030	627053	627075	627098	627120	627143	627165	627188	627210	627233	627255	627278	55	1 = 5
5	9.627300	627322	627345	627368	627390	627413	627435	627458	627480	627503	627525	627548	54	2. 9
6	9.627570	627593	627615	627638	627660	627682	627705	627727	627750	627772	627795	627817	53	3. 14
7	9.627840	627862	627885	627907	627930	627952	627974	627997	628019	628042	628064	628087	52	4. 18
8	9.628109	628132	628154	628176	628199	628221	628244	628266	628289	628311	628333	628356	51	1 = 4
9	9.628378	628401	628423	628446	628468	628490	628513	628535	628558	628580	628602	628625	50	2. 9
10	9.628647	628670	628692	628714	628737	628759	628782	628804	628826	628849	628871	628894	49	3. 13
11	9.628916	628938	628961	628983	629006	629028	629050	629073	629095	629117	629140	629162	48	4. 18
12	9.629185	629207	629229	629252	629274	629296	629319	629341	629364	629386	629408	629431	47	1 = 4
13	9.629453	629475	629498	629520	629542	629565	629587	629609	629632	629654	629676	629699	46	2. 9
14	9.629721	629743	629766	629788	629810	629833	629855	629877	629900	629922	629944	629967	45	3. 13
15	9.629989	630011	630034	630056	630078	630101	630123	630145	630168	630190	630212	630235	44	4. 18
16	9.630257	630279	630301	630324	630346	630368	630391	630413	630435	630458	630480	630502	43	1 = 4
17	9.630524	630547	630569	630591	630614	630636	630658	630680	630703	630725	630747	630769	42	2. 9
18	9.630792	630814	630836	630859	630881	630903	630925	630948	630970	630992	631014	631037	41	3. 13
19	9.631059	631081	631103	631126	631148	631170	631192	631215	631237	631259	631281	631304	40	4. 18
20	9.631326	631348	631370	631393	631415	631437	631459	631481	631504	631526	631548	631570	39	1 = 4
21	9.631593	631615	631637	631659	631681	631704	631726	631748	631770	631793	631815	631837	38	2. 9
22	9.631859	631881	631904	631926	631948	631970	631992	632015	632037	632059	632081	632103	37	3. 13
23	9.632126	632148	632170	632192	632214	632236	632259	632281	632303	632325	632347	632369	36	4. 18
24	9.632392	632414	632436	632458	632480	632503	632525	632547	632569	632591	632613	632635	35	1 = 4
25	9.632658	632680	632702	632724	632746	632768	632791	632813	632835	632857	632879	632901	34	2. 9
26	9.632923	632946	632968	632990	633012	633034	633056	633078	633100	633123	633145	633167	33	3. 13
27	9.633189	633211	633233	633255	633277	633300	633322	633344	633366	633388	633410	633432	32	4. 18
28	9.633454	633476	633498	633521	633543	633565	633587	633609	633631	633653	633675	633697	31	1 = 4
29	9.633719	633742	633764	633786	633808	633830	633852	633874	633896	633918	633940	633962	30	2. 9
30	9.633984	634006	634029	634051	634073	634095	634117	634139	634161	634183	634205	634227	29	3. 13
31	9.634249	634271	634293	634315	634337	634359	634381	634404	634426	634448	634470	634492	28	4. 18
32	9.634514	634536	634558	634580	634602	634624	634646	634668	634690	634712	634734	634756	27	1 = 4
33	9.634778	634800	634822	634844	634866	634888	634910	634932	634954	634976	634998	635020	26	2. 9
34	9.635042	635064	635086	635108	635130	635152	635174	635196	635218	635240	635262	635284	25	3. 13
35	9.635306	635328	635350	635372	635394	635416	635438	635460	635482	635504	635526	635548	24	4. 18
36	9.635570	635592	635614	635636	635658	635680	635702	635724	635746	635768	635790	635812	23	1 = 4
37	9.635834	635856	635877	635899	635921	635943	635965	635987	636009	636031	636053	636075	22	2. 9
38	9.636097	636119	636141	636163	636185	636207	636229	636250	636272	636294	636316	636338	21	3. 13
39	9.636360	636382	636404	636426	636448	636470	636492	636514	636535	636557	636579	636601	20	4. 18
40	9.636623	636645	636667	636689	636711	636733	636755	636776	636798	636820	636842	636864	19	1 = 4
41	9.636886	636908	636930	636952	636973	636995	637017	637039	637061	637083	637105	637127	18	2. 9
42	9.637148	637170	637192	637214	637236	637258	637280	637302	637323	637345	637367	637389	17	3. 13
43	9.637411	637433	637455	637476	637498	637520	637542	637564	637586	637608	637629	637651	16	4. 17
44	9.637673	637695	637717	637739	637760	637782	637804	637826	637848	637870	637891	637913	15	1 = 4
45	9.637935	637957	637979	638001	638022	638044	638066	638088	638110	638131	638153	638175	14	2. 9
46	9.638197	638219	638241	638262	638284	638306	638328	638350	638371	638393	638415	638437	13	3. 13
47	9.638459	638480	638502	638524	638546	638567	638589	638611	638633	638655	638676	638698	12	4. 17
48	9.638720	638742	638764	638785	638807	638829	638851	638872	638894	638916	638938	638959	11	1 = 4
49	9.638981	639003	639025	639046	639068	639090	639112	639133	639155	639177	639199	639220	10	2. 9
50	9.639242	639264	639286	639307	639329	639351	639373	639394	639416	639438	639460	639481	9	3. 13
51	9.639503	639525	639547	639568	639590	639612	639633	639655	639677	639699	639720	639742	8	4. 17
52	9.639764	639785	639807	639829	639851	639872	639894	639916	639937	639959	639981	640002	7	1 = 4
53	9.640024	640046	640068	640089	640111	640133	640154	640176	640198	640219	640241	640263	6	2. 9
54	9.640284	640306	640328	640349	640371	640393	640415	640436	640458	640480	640501	640523	5	3. 13
55	9.640545	640566	640588	640610	640631	640653	640674	640696	640718	640739	640761	640783	4	4. 17
56	9.640804	640826	640848	640869	640891	640913	640934	640956	640978	640999	641021	641042	3	1 = 4
57	9.641064	641086	641107	641129	641151	641172	641194	641215	641237	641259	641280	641302	2	2. 9
58	9.641324	641345	641367	641388	641410	641432	641453	641475	641496	641518	641540	641561	1	3. 13
59	9.641583	641604	641626	641648	641669	641691	641712	641734	641756	641777	641799	641820	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 64 degrees, or Sine of 154 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 26 degrees, or Co-sine of 116 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 641842	641864	641885	641907	641928	641950	641971	641993	642015	642036	642058	642079	59	1″= 4
1	9. 642101	642123	642144	642166	642187	642209	642230	642252	642273	642295	642317	642338	58	2. 9
2	9. 642360	642381	642403	642424	642446	642467	642489	642511	642532	642554	642575	642597	57	3. 13
3	9. 642618	642640	642661	642683	642704	642726	642747	642769	642790	642812	642834	642855	56	4. 17
4	9. 642877	642898	642920	642941	642963	642984	643006	643027	643049	643070	643092	643113	55	1 = 4
5	9. 643135	643156	643178	643199	643221	643242	643264	643285	643307	643328	643350	643371	54	2. 9
6	9. 643393	643414	643436	643457	643479	643500	643522	643543	643565	643586	643608	643629	53	3. 13
7	9. 643650	643672	643693	643715	643736	643758	643779	643801	643822	643844	643865	643887	52	4. 17
8	9. 643908	643930	643951	643972	643994	644015	644037	644058	644080	644101	644123	644144	51	1 = 4
9	9. 644165	644187	644208	644230	644251	644273	644294	644316	644337	644358	644380	644401	50	2. 9
10	9. 644423	644444	644466	644487	644508	644530	644551	644573	644594	644615	644637	644658	49	3. 13
11	9. 644680	644701	644723	644744	644765	644787	644808	644830	644851	644872	644894	644915	48	4. 17
12	9. 644937	644958	644979	645001	645022	645043	645065	645086	645108	645129	645150	645172	47	1 = 4
13	9. 645193	645215	645236	645257	645279	645300	645321	645343	645364	645386	645407	645428	46	2. 9
14	9. 645450	645471	645492	645514	645535	645556	645578	645599	645620	645642	645663	645685	45	3. 13
15	9. 645706	645727	645749	645770	645791	645813	645834	645855	645877	645898	645919	645941	44	4. 17
16	9. 645962	645983	646005	646026	646047	646069	646090	646111	646133	646154	646175	646197	43	1 = 4
17	9. 646218	646239	646260	646282	646303	646324	646346	646367	646388	646410	646431	646452	42	2. 9
18	9. 646474	646495	646516	646537	646559	646580	646601	646623	646644	646665	646687	646708	41	3. 13
19	9. 646729	646750	646772	646793	646814	646835	646857	646878	646899	646921	646942	646963	40	4. 17
20	9. 646984	647006	647027	647048	647069	647091	647112	647133	647155	647176	647197	647218	39	1 = 4
21	9. 647240	647261	647282	647303	647325	647346	647367	647388	647410	647431	647452	647473	38	2. 9
22	9. 647495	647516	647537	647558	647579	647601	647622	647643	647664	647686	647707	647728	37	3. 13
23	9. 647749	647771	647792	647813	647834	647855	647877	647898	647919	647940	647961	647983	36	4. 17
24	9. 648004	648025	648046	648067	648089	648110	648131	648152	648173	648195	648216	648237	35	1 = 4
25	9. 648258	648279	648301	648322	648343	648364	648385	648407	648428	648449	648470	648491	34	2. 9
26	9. 648512	648534	648555	648576	648597	648618	648640	648661	648682	648703	648724	648745	33	3. 13
27	9. 648767	648788	648809	648830	648851	648872	648893	648915	648936	648957	648978	648999	32	4. 17
28	9. 649020	649042	649063	649084	649105	649126	649147	649168	649189	649211	649232	649253	31	1 = 4
29	9. 649274	649295	649316	649337	649359	649380	649401	649422	649443	649464	649485	649506	30	2. 9
30	9. 649527	649549	649570	649591	649612	649633	649654	649675	649696	649717	649739	649760	29	3. 13
31	9. 649781	649802	649823	649844	649865	649886	649907	649928	649950	649971	649992	650013	28	4. 17
32	9. 650034	650055	650076	650097	650118	650139	650160	650181	650203	650224	650245	650266	27	1 = 4
33	9. 650287	650308	650329	650350	650371	650392	650413	650434	650455	650476	650497	650518	26	2. 9
34	9. 650540	650561	650582	650603	650624	650645	650666	650687	650708	650729	650750	650771	25	3. 13
35	9. 650792	650813	650834	650855	650876	650897	650918	650939	650960	650981	651002	651023	24	4. 17
36	9. 651044	651065	651087	651108	651129	651150	651171	651192	651213	651234	651255	651276	23	1 = 4
37	9. 651297	651318	651339	651360	651381	651402	651423	651444	651465	651486	651507	651528	22	2. 9
38	9. 651549	651570	651591	651612	651633	651654	651675	651696	651717	651738	651759	651779	21	3. 13
39	9. 651800	651821	651842	651863	651884	651905	651926	651947	651968	651989	652010	652031	20	4. 17
40	9. 652052	652073	652094	652115	652136	652157	652178	652199	652220	652241	652262	652283	19	1 = 4
41	9. 652304	652325	652345	652366	652387	652408	652429	652450	652471	652492	652513	652534	18	2. 9
42	9. 652555	652576	652597	652618	652639	652659	652680	652701	652722	652743	652764	652785	17	3. 13
43	9. 652806	652827	652848	652869	652890	652910	652931	652952	652973	652994	653015	653036	16	4. 17
44	9. 653057	653078	653099	653120	653140	653161	653182	653203	653224	653245	653266	653287	15	1 = 4
45	9. 653308	653328	653349	653370	653391	653412	653433	653454	653475	653495	653516	653537	14	2. 9
46	9. 653558	653579	653600	653621	653642	653662	653683	653704	653725	653746	653767	653788	13	3. 13
47	9. 653808	653829	653850	653871	653892	653913	653934	653954	653975	653996	654017	654038	12	4. 17
48	9. 654059	654079	654100	654121	654142	654163	654184	654205	654225	654246	654267	654288	11	1 = 4
49	9. 654309	654329	654350	654371	654392	654413	654434	654454	654475	654496	654517	654538	10	2. 9
50	9. 654558	654579	654600	654621	654642	654663	654683	654704	654725	654746	654767	654787	9	3. 13
51	9. 654808	654829	654850	654871	654891	654912	654933	654954	654974	654995	655016	655037	8	4. 17
52	9. 655058	655078	655099	655120	655141	655161	655182	655203	655224	655245	655265	655286	7	1 = 4
53	9. 655307	655328	655348	655369	655390	655411	655431	655452	655473	655494	655514	655535	6	2. 9
54	9. 655556	655577	655597	655618	655639	655660	655680	655701	655722	655743	655763	655784	5	3. 13
55	9. 655805	655826	655846	655867	655888	655909	655929	655950	655971	655991	656012	656033	4	4. 17
56	9. 656054	656074	656095	656116	656137	656157	656178	656199	656219	656240	656261	656281	3	1 = 4
57	9. 656302	656323	656344	656364	656385	656406	656426	656447	656468	656489	656509	656530	2	2. 9
58	9. 656551	656571	656592	656613	656633	656654	656675	656695	656716	656737	656757	656778	1	3. 13
59	9. 656799	656819	656840	656861	656881	656902	656923	656943	656964	656985	657005	657026	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 63 degrees, or Sine of 153 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 27 degrees, or Co-sine of 117 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.657047	657067	657088	657109	657129	657150	657171	657191	657212	657233	657253	657274	59	1″ = 4
1	9.657295	657315	657336	657357	657377	657398	657419	657439	657460	657480	657501	657522	58	2. 8
2	9.657542	657563	657584	657604	657625	657645	657666	657687	657707	657728	657749	657769	57	3. 12
3	9.657790	657810	657831	657852	657872	657893	657914	657934	657955	657975	657996	658017	56	4. 17
4	9.658037	658058	658078	658099	658120	658140	658161	658181	658202	658223	658243	658264	55	1 = 4
5	9.658284	658305	658325	658346	658367	658387	658408	658428	658449	658470	658490	658511	54	2. 8
6	9.658531	658552	658572	658593	658614	658634	658655	658675	658696	658716	658737	658757	53	3. 12
7	9.658778	658799	658819	658840	658860	658881	658901	658922	658942	658963	658984	659004	52	4. 16
8	9.659025	659045	659066	659086	659107	659127	659148	659168	659189	659209	659230	659251	51	1 = 4
9	9.659271	659292	659312	659333	659353	659374	659394	659415	659435	659456	659476	659497	50	2. 8
10	9.659517	659538	659558	659579	659599	659620	659640	659661	659681	659702	659722	659743	49	3. 12
11	9.659763	659784	659804	659825	659845	659866	659886	659907	659927	659948	659968	659989	48	4. 16
12	9.660009	660030	660050	660071	660091	660112	660132	660153	660173	660194	660214	660235	47	1 = 4
13	9.660255	660275	660296	660316	660337	660357	660378	660398	660419	660439	660460	660480	46	2. 8
14	9.660501	660521	660541	660562	660582	660603	660623	660644	660664	660685	660705	660726	45	3. 12
15	9.660746	660766	660787	660807	660828	660848	660869	660889	660909	660930	660950	660971	44	4. 16
16	9.660991	661012	661032	661052	661073	661093	661114	661134	661155	661175	661195	661216	43	1 = 4
17	9.661236	661257	661277	661297	661318	661338	661359	661379	661399	661420	661440	661461	42	2. 8
18	9.661481	661501	661522	661542	661563	661583	661603	661624	661644	661665	661685	661705	41	3. 12
19	9.661726	661746	661766	661787	661807	661828	661848	661868	661889	661909	661929	661950	40	4. 16
20	9.661970	661991	662011	662031	662052	662072	662092	662113	662133	662153	662174	662194	39	1 = 4
21	9.662215	662235	662255	662276	662296	662316	662337	662357	662377	662398	662418	662438	38	2. 8
22	9.662459	662479	662499	662520	662540	662560	662581	662601	662621	662642	662662	662682	37	3. 12
23	9.662703	662723	662743	662764	662784	662804	662825	662845	662865	662886	662906	662926	36	4. 16
24	9.662946	662967	662987	663007	663028	663048	663068	663089	663109	663129	663149	663170	35	1 = 4
25	9.663190	663210	663231	663251	663271	663292	663312	663332	663352	663373	663393	663413	34	2. 8
26	9.663434	663454	663474	663494	663515	663535	663555	663575	663596	663616	663636	663657	33	3. 12
27	9.663677	663697	663717	663738	663758	663778	663798	663819	663839	663859	663879	663900	32	4. 16
28	9.663920	663940	663960	663981	664001	664021	664041	664062	664082	664102	664122	664143	31	1 = 4
29	9.664163	664183	664203	664224	664244	664264	664284	664305	664325	664345	664365	664385	30	2. 8
30	9.664406	664426	664446	664466	664487	664507	664527	664547	664567	664588	664608	664628	29	3. 12
31	9.664648	664668	664689	664709	664729	664749	664769	664790	664810	664830	664850	664870	28	4. 16
32	9.664891	664911	664931	664951	664971	664992	665012	665032	665052	665072	665093	665113	27	1 = 4
33	9.665133	665153	665173	665193	665214	665234	665254	665274	665294	665314	665335	665355	26	2. 8
34	9.665375	665395	665415	665435	665456	665476	665496	665516	665536	665556	665577	665597	25	3. 12
35	9.665617	665637	665657	665677	665697	665718	665738	665758	665778	665798	665818	665838	24	4. 16
36	9.665859	665879	665899	665919	665939	665959	665979	666000	666020	666040	666060	666080	23	1 = 4
37	9.666100	666120	666140	666161	666181	666201	666221	666241	666261	666281	666301	666321	22	2. 8
38	9.666342	666362	666382	666402	666422	666442	666462	666482	666502	666523	666543	666563	21	3. 12
39	9.666583	666603	666623	666643	666663	666683	666703	666723	666744	666764	666784	666804	20	4. 16
40	9.666824	666844	666864	666884	666904	666924	666944	666964	666984	667005	667025	667045	19	1 = 4
41	9.667065	667085	667105	667125	667145	667165	667185	667205	667225	667245	667265	667285	18	2. 8
42	9.667305	667326	667346	667366	667386	667406	667426	667446	667466	667486	667506	667526	17	3. 12
43	9.667546	667566	667586	667606	667626	667646	667666	667686	667706	667726	667746	667766	16	4. 16
44	9.667786	667806	667826	667846	667866	667886	667906	667927	667947	667967	667987	668007	15	1 = 4
45	9.668027	668047	668067	668087	668107	668127	668147	668167	668187	668207	668227	668247	14	2. 8
46	9.668267	668287	668307	668327	668347	668367	668387	668407	668427	668447	668466	668486	13	3. 12
47	9.668506	668526	668546	668566	668586	668606	668626	668646	668666	668686	668706	668726	12	4. 16
48	9.668746	668766	668786	668806	668826	668846	668866	668886	668906	668926	668946	668966	11	1 = 4
49	9.668986	669006	669026	669046	669065	669085	669105	669125	669145	669165	669185	669205	10	2. 8
50	9.669225	669245	669265	669285	669305	669325	669345	669365	669385	669404	669424	669444	9	3. 12
51	9.669464	669484	669504	669524	669544	669564	669584	669604	669624	669643	669663	669683	8	4. 16
52	9.669703	669723	669743	669763	669783	669803	669823	669843	669862	669882	669902	669922	7	1 = 4
53	9.669942	669962	669982	670002	670022	670042	670061	670081	670101	670121	670141	670161	6	2. 8
54	9.670181	670201	670221	670240	670260	670280	670300	670320	670340	670360	670380	670399	5	3. 12
55	9.670419	670439	670459	670479	670499	670519	670538	670558	670578	670598	670618	670638	4	4. 16
56	9.670658	670677	670697	670717	670737	670757	670777	670797	670816	670836	670856	670876	3	1 = 4
57	9.670896	670916	670935	670955	670975	670995	671015	671035	671054	671074	671094	671114	2	2. 8
58	9.671134	671154	671173	671193	671213	671233	671253	671273	671292	671312	671332	671352	1	3. 12
59	9.671372	671391	671411	671431	671451	671471	671491	671510	671530	671550	671570	671590	0	4. 16
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 62 degrees, or Sine of 152 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 28 degrees, or Co-sine of 118 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.671609	671629	671649	671669	671689	671708	671728	671748	671768	671787	671807	671827	59	1″ =
1	9.671847	671867	671886	671906	671926	671946	671966	671985	672005	672025	672045	672064	58	2.
2	9.672084	672104	672124	672144	672163	672183	672203	672223	672242	672262	672282	672302	57	3.
3	9.672321	672341	672361	672381	672400	672420	672440	672460	672479	672499	672519	672539	56	4.
4	9.672558	672578	672598	672618	672637	672657	672677	672696	672716	672736	672756	672776	55	1 =
5	9.672795	672815	672835	672854	672874	672894	672914	672933	672953	672973	672992	673012	54	2.
6	9.673032	673052	673071	673091	673111	673130	673150	673170	673190	673209	673229	673249	53	3.
7	9.673268	673288	673308	673328	673347	673367	673387	673406	673426	673446	673465	673485	52	4.
8	9.673505	673524	673544	673564	673584	673603	673623	673643	673662	673682	673702	673721	51	1 =
9	9.673741	673761	673780	673800	673820	673839	673859	673879	673898	673918	673938	673957	50	2.
10	9.673977	673997	674016	674036	674056	674075	674095	674115	674134	674154	674174	674193	49	3.
11	9.674213	674232	674252	674272	674291	674311	674331	674350	674370	674390	674409	674429	48	4.
12	9.674449	674468	674488	674507	674527	674547	674566	674586	674606	674625	674645	674664	47	1 =
13	9.674684	674704	674723	674743	674763	674782	674802	674821	674841	674861	674880	674900	46	2.
14	9.674919	674939	674959	674978	674998	675017	675037	675057	675076	675096	675115	675135	45	3.
15	9.675155	675174	675194	675213	675233	675253	675272	675292	675311	675331	675350	675370	44	4.
16	9.675390	675409	675429	675448	675468	675488	675507	675527	675546	675566	675585	675605	43	1 =
17	9.675625	675644	675664	675683	675703	675722	675742	675761	675781	675801	675820	675840	42	2.
18	9.675859	675879	675898	675918	675937	675957	675976	675996	676016	676035	676055	676074	41	3.
19	9.676094	676113	676133	676152	676172	676191	676211	676230	676250	676270	676289	676309	40	4.
20	9.676328	676348	676367	676387	676406	676426	676445	676465	676484	676504	676523	676543	39	1 =
21	9.676562	676582	676601	676621	676640	676660	676679	676699	676718	676738	676757	676777	38	2.
22	9.676796	676816	676835	676855	676874	676894	676913	676933	676952	676972	676991	677011	37	3.
23	9.677030	677050	677069	677089	677108	677128	677147	677167	677186	677206	677225	677245	36	4.
24	9.677264	677283	677303	677322	677342	677361	677381	677400	677420	677439	677459	677478	35	1 =
25	9.677498	677517	677536	677556	677575	677595	677614	677634	677653	677673	677692	677712	34	2.
26	9.677731	677750	677770	677789	677809	677828	677848	677867	677886	677906	677925	677945	33	3.
27	9.677964	677984	678003	678022	678042	678061	678081	678100	678120	678139	678158	678178	32	4.
28	9.678197	678217	678236	678256	678275	678294	678314	678333	678353	678372	678391	678411	31	1 =
29	9.678430	678450	678469	678488	678508	678527	678547	678566	678585	678605	678624	678644	30	2.
30	9.678663	678682	678702	678721	678741	678760	678779	678799	678818	678837	678857	678876	29	3.
31	9.678896	678915	678934	678954	678973	678992	679012	679031	679051	679070	679089	679109	28	4.
32	9.679128	679147	679167	679186	679205	679225	679244	679263	679283	679302	679322	679341	27	1 =
33	9.679360	679380	679399	679418	679438	679457	679476	679496	679515	679534	679554	679573	26	2.
34	9.679592	679612	679631	679650	679670	679689	679708	679728	679747	679766	679786	679805	25	3.
35	9.679824	679844	679863	679882	679902	679921	679940	679960	679979	679998	680017	680037	24	4.
36	9.680056	680075	680095	680114	680133	680153	680172	680191	680211	680230	680249	680268	23	1 =
37	9.680288	680307	680326	680346	680365	680384	680403	680423	680442	680461	680481	680500	22	2.
38	9.680519	680538	680558	680577	680596	680616	680635	680654	680673	680693	680712	680731	21	3.
39	9.680750	680770	680789	680808	680828	680847	680866	680885	680905	680924	680943	680962	20	4.
40	9.680982	681001	681020	681039	681059	681078	681097	681116	681136	681155	681174	681193	19	1 =
41	9.681213	681232	681251	681270	681290	681309	681328	681347	681367	681386	681405	681424	18	2.
42	9.681443	681463	681482	681501	681520	681540	681559	681578	681597	681616	681636	681655	17	3.
43	9.681674	681693	681713	681732	681751	681770	681789	681809	681828	681847	681866	681885	16	4.
44	9.681905	681924	681943	681962	681981	682001	682020	682039	682058	682077	682097	682116	15	1 =
45	9.682135	682154	682173	682193	682212	682231	682250	682269	682288	682308	682327	682346	14	2.
46	9.682365	682384	682404	682423	682442	682461	682480	682499	682519	682538	682557	682576	13	3.
47	9.682595	682614	682634	682653	682672	682691	682710	682729	682748	682768	682787	682806	12	4.
48	9.682825	682844	682863	682883	682902	682921	682940	682959	682978	682997	683017	683036	11	1 =
49	9.683055	683074	683093	683112	683131	683150	683170	683189	683208	683227	683246	683265	10	2.
50	9.683284	683303	683323	683342	683361	683380	683399	683418	683437	683456	683476	683495	9	3.
51	9.683514	683533	683552	683571	683590	683609	683628	683648	683667	683686	683705	683724	8	4.
52	9.683743	683762	683781	683800	683819	683838	683858	683877	683896	683915	683934	683953	7	1 =
53	9.683972	683991	684010	684029	684048	684067	684087	684106	684125	684144	684163	684182	6	2.
54	9.684201	684220	684239	684258	684277	684296	684315	684334	684354	684373	684392	684411	5	3.
55	9.684430	684449	684468	684487	684506	684525	684544	684563	684582	684601	684620	684639	4	4.
56	9.684658	684677	684696	684716	684735	684754	684773	684792	684811	684830	684849	684868	3	1 =
57	9.684887	684906	684925	684944	684963	684982	685001	685020	685039	685058	685077	685096	2	2.
58	9.685115	685134	685153	685172	685191	685210	685229	685248	685267	685286	685305	685324	1	3.
59	9.685343	685362	685381	685400	685419	685438	685457	685476	685495	685514	685533	685552	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 61 degrees, or Sine of 151 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 29 degrees, or Co-sine of 119 degrees.												Minutes	Proper. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9. 685571	685590	685609	685628	685647	685666	685685	685704	685723	685742	685761	685780	59	1″ = 4
1	9. 685799	685818	685837	685856	685875	685894	685913	685932	685951	685970	685989	686008	58	2. 8
2	9. 686027	686046	686065	686084	686103	686122	686141	686160	686178	686197	686216	686235	57	3. 11
3	9. 686254	686273	686292	686311	686330	686349	686368	686387	686406	686425	686444	686463	56	4. 15
4	9. 686482	686501	686520	686538	686557	686576	686595	686614	686633	686652	686671	686690	55	1 = 4
5	9. 686709	686728	686747	686766	686785	686803	686822	686841	686860	686879	686898	686917	54	2. 8
6	9. 686936	686955	686974	686993	687012	687030	687049	687068	687087	687106	687125	687144	53	3. 11
7	9. 687163	687182	687201	687220	687238	687257	687276	687295	687314	687333	687352	687371	52	4. 15
8	9. 687390	687408	687427	687446	687465	687484	687503	687522	687541	687560	687578	687597	51	1 = 4
9	9. 687616	687635	687654	687673	687692	687710	687729	687748	687767	687786	687805	687824	50	2. 8
10	9. 687843	687861	687880	687899	687918	687937	687956	687975	687993	688012	688031	688050	49	3. 11
11	9. 688069	688088	688107	688125	688144	688163	688182	688201	688220	688238	688257	688276	48	4. 15
12	9. 688295	688314	688333	688351	688370	688389	688408	688427	688446	688464	688483	688502	47	1 = 4
13	9. 688521	688540	688559	688577	688596	688615	688634	688653	688671	688690	688709	688728	46	2. 8
14	9. 688747	688766	688784	688803	688822	688841	688860	688878	688897	688916	688935	688954	45	3. 11
15	9. 688972	688991	689010	689029	689048	689066	689085	689104	689123	689142	689160	689179	44	4. 15
16	9. 689198	689217	689235	689254	689273	689292	689311	689329	689348	689367	689386	689404	43	1 = 4
17	9. 689423	689442	689461	689480	689498	689517	689536	689555	689573	689592	689611	689630	42	2. 8
18	9. 689648	689667	689686	689705	689723	689742	689761	689780	689798	689817	689836	689855	41	3. 11
19	9. 689873	689892	689911	689930	689948	689967	689986	690005	690023	690042	690061	690080	40	4. 15
20	9. 690098	690117	690136	690155	690173	690192	690211	690229	690248	690267	690286	690304	39	1 = 4
21	9. 690323	690342	690361	690379	690398	690417	690435	690454	690473	690492	690510	690529	38	2. 7
22	9. 690548	690566	690585	690604	690623	690641	690660	690679	690697	690716	690735	690753	37	3. 11
23	9. 690772	690791	690810	690828	690847	690866	690884	690903	690922	690940	690959	690978	36	4. 15
24	9. 690996	691015	691034	691052	691071	691090	691108	691127	691146	691165	691183	691202	35	1 = 4
25	9. 691221	691239	691258	691277	691295	691314	691333	691351	691370	691389	691407	691426	34	2. 7
26	9. 691445	691463	691482	691500	691519	691538	691556	691575	691594	691612	691631	691650	33	3. 11
27	9. 691668	691687	691706	691724	691743	691762	691780	691799	691817	691836	691855	691873	32	4. 15
28	9. 691892	691911	691929	691948	691967	691985	692004	692022	692041	692060	692078	692097	31	1 = 4
29	9. 692116	692134	692153	692171	692190	692209	692227	692246	692264	692283	692302	692320	30	2. 7
30	9. 692339	692357	692376	692395	692413	692432	692450	692469	692488	692506	692525	692543	29	3. 11
31	9. 692562	692581	692599	692618	692636	692655	692674	692692	692711	692729	692748	692767	28	4. 15
32	9. 692785	692804	692822	692841	692859	692878	692897	692915	692934	692952	692971	692989	27	1 = 4
33	9. 693008	693027	693045	693064	693082	693101	693119	693138	693157	693175	693194	693212	26	2. 7
34	9. 693231	693249	693268	693286	693305	693324	693342	693361	693379	693398	693416	693435	25	3. 11
35	9. 693453	693472	693491	693509	693528	693546	693565	693583	693602	693620	693639	693657	24	4. 15
36	9. 693676	693694	693713	693731	693750	693769	693787	693806	693824	693843	693861	693880	23	1 = 4
37	9. 693898	693917	693935	693954	693972	693991	694009	694028	694046	694065	694083	694102	22	2. 7
38	9. 694120	694139	694157	694176	694194	694213	694231	694250	694268	694287	694305	694324	21	3. 11
39	9. 694342	694361	694379	694398	694416	694435	694453	694472	694490	694509	694527	694546	20	4. 15
40	9. 694564	694583	694601	694620	694638	694657	694675	694694	694712	694731	694749	694767	19	1 = 4
41	9. 694786	694804	694823	694841	694860	694878	694897	694915	694934	694952	694971	694989	18	2. 7
42	9. 695007	695026	695044	695063	695081	695100	695118	695137	695155	695174	695192	695210	17	3. 11
43	9. 695229	695247	695266	695284	695303	695321	695340	695358	695376	695395	695413	695432	16	4. 15
44	9. 695450	695469	695487	695505	695524	695542	695561	695579	695598	695616	695634	695653	15	1 = 4
45	9. 695671	695690	695708	695727	695745	695763	695782	695800	695819	695837	695855	695874	14	2. 7
46	9. 695892	695911	695929	695947	695966	695984	696003	696021	696039	696058	696076	696095	13	3. 11
47	9. 696113	696131	696150	696168	696187	696205	696223	696242	696260	696279	696297	696315	12	4. 15
48	9. 696334	696352	696370	696389	696407	696426	696444	696462	696481	696499	696517	696536	11	1 = 4
49	9. 696554	696573	696591	696609	696628	696646	696664	696683	696701	696719	696738	696756	10	2. 7
50	9. 696775	696793	696811	696830	696848	696866	696885	696903	696921	696940	696958	696976	9	3. 11
51	9. 696995	697013	697031	697050	697068	697086	697105	697123	697142	697160	697178	697197	8	4. 15
52	9. 697215	697233	697252	697270	697288	697306	697325	697343	697361	697380	697398	697416	7	1 = 4
53	9. 697435	697453	697471	697490	697508	697526	697545	697563	697581	697600	697618	697636	6	2. 7
54	9. 697655	697673	697691	697709	697728	697746	697764	697783	697801	697819	697838	697856	5	3. 11
55	9. 697874	697892	697911	697929	697947	697966	697984	698002	698020	698039	698057	698075	4	4. 15
56	9. 698094	698112	698130	698148	698167	698185	698203	698222	698240	698258	698276	698295	3	1 = 4
57	9. 698313	698331	698349	698368	698386	698404	698423	698441	698459	698477	698496	698514	2	2. 7
58	9. 698532	698550	698569	698587	698605	698623	698642	698660	698678	698696	698715	698733	1	3. 11
59	9. 698751	698769	698788	698806	698824	698842	698861	698879	698897	698915	698934	698952	0	4. 15
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proper. parts.
	Co-sine of 60 degrees, or Sine of 150 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 30 degrees, or Co-sine of 120 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 698970	698988	699007	699025	699043	699061	699079	699098	699116	699134	699152	699171	59	1″ = 4
1	9. 699189	699207	699225	699243	699262	699280	699298	699316	699335	699353	699371	699389	58	2. 7
2	9. 699407	699426	699444	699462	699480	699498	699517	699535	699553	699571	699589	699608	57	3. 11
3	9. 699626	699644	699662	699680	699699	699717	699735	699753	699771	699790	699808	699826	56	4. 15
4	9. 699844	699862	699880	699899	699917	699935	699953	699971	699990	700008	700026	700044	55	1 = 4
5	9. 700062	700080	700099	700117	700135	700153	700171	700189	700208	700226	700244	700262	54	2. 7
6	9. 700280	700298	700317	700335	700353	700371	700389	700407	700426	700444	700462	700480	53	3. 11
7	9. 700498	700516	700534	700553	700571	700589	700607	700625	700643	700661	700680	700698	52	4. 15
8	9. 700716	700734	700752	700770	700788	700807	700825	700843	700861	700879	700897	700915	51	1 = 4
9	9. 700933	700952	700970	700988	701006	701024	701042	701060	701078	701097	701115	701133	50	2. 7
10	9. 701151	701169	701187	701205	701223	701241	701260	701278	701296	701314	701332	701350	49	3. 11
11	9. 701368	701386	701404	701422	701441	701459	701477	701495	701513	701531	701549	701567	48	4. 14
12	9. 701585	701603	701621	701640	701658	701676	701694	701712	701730	701748	701766	701784	47	1 = 4
13	9. 701802	701820	701838	701856	701875	701893	701911	701929	701947	701965	701983	702001	46	2. 7
14	9. 702019	702037	702055	702073	702091	702109	702127	702146	702164	702182	702200	702218	45	3. 11
15	9. 702236	702254	702272	702290	702308	702326	702344	702362	702380	702398	702416	702434	44	4. 14
16	9. 702452	702470	702488	702506	702524	702543	702561	702579	702597	702615	702633	702651	43	1 = 4
17	9. 702669	702687	702705	702723	702741	702759	702777	702795	702813	702831	702849	702867	42	2. 7
18	9. 702885	702903	702921	702939	702957	702975	702993	703011	703029	703047	703065	703083	41	3. 11
19	9. 703101	703119	703137	703155	703173	703191	703209	703227	703245	703263	703281	703299	40	4. 14
20	9. 703317	703335	703353	703371	703389	703407	703425	703443	703461	703479	703497	703515	39	1 = 4
21	9. 703533	703551	703569	703587	703605	703623	703641	703659	703677	703695	703713	703731	38	2. 7
22	9. 703749	703767	703785	703803	703820	703838	703856	703874	703892	703910	703928	703946	37	3. 11
23	9. 703964	703982	704000	704018	704036	704054	704072	704090	704108	704126	704144	704162	36	4. 14
24	9. 704180	704197	704215	704233	704251	704269	704287	704305	704323	704341	704359	704377	35	1 = 4
25	9. 704395	704413	704431	704449	704467	704484	704502	704520	704538	704556	704574	704592	34	2. 7
26	9. 704610	704628	704646	704664	704682	704699	704717	704735	704753	704771	704789	704807	33	3. 11
27	9. 704825	704843	704861	704879	704897	704914	704932	704950	704968	704986	705004	705022	32	4. 14
28	9. 705040	705058	705075	705093	705111	705129	705147	705165	705183	705201	705219	705237	31	1 = 4
29	9. 705254	705272	705290	705308	705326	705344	705362	705380	705397	705415	705433	705451	30	2. 7
30	9. 705469	705487	705505	705523	705540	705558	705576	705594	705612	705630	705648	705665	29	3. 11
31	9. 705683	705701	705719	705737	705755	705773	705790	705808	705826	705844	705862	705880	28	4. 14
32	9. 705898	705915	705933	705951	705969	705987	706005	706022	706040	706058	706076	706094	27	1 = 4
33	9. 706112	706130	706147	706165	706183	706201	706219	706237	706254	706272	706290	706308	26	2. 7
34	9. 706326	706343	706361	706379	706397	706415	706433	706450	706468	706486	706504	706522	25	3. 11
35	9. 706539	706557	706575	706593	706611	706629	706646	706664	706682	706700	706718	706735	24	4. 14
36	9. 706753	706771	706789	706807	706824	706842	706860	706878	706896	706913	706931	706949	23	1 = 4
37	9. 706967	706985	707002	707020	707038	707056	707073	707091	707109	707127	707145	707162	22	2. 7
38	9. 707180	707198	707216	707233	707251	707269	707287	707305	707322	707340	707358	707376	21	3. 11
39	9. 707393	707411	707429	707447	707464	707482	707500	707518	707535	707553	707571	707589	20	4. 14
40	9. 707606	707624	707642	707660	707678	707695	707713	707731	707748	707766	707784	707802	19	1 = 4
41	9. 707819	707837	707855	707873	707890	707908	707926	707944	707961	707979	707997	708015	18	2. 7
42	9. 708032	708050	708068	708085	708103	708121	708139	708156	708174	708192	708210	708227	17	3. 11
43	9. 708245	708263	708280	708298	708316	708334	708351	708369	708387	708404	708422	708440	16	4. 14
44	9. 708458	708475	708493	708511	708528	708546	708564	708581	708599	708617	708635	708652	15	1 = 4
45	9. 708670	708688	708705	708723	708741	708758	708776	708794	708812	708829	708847	708865	14	2. 7
46	9. 708882	708900	708918	708935	708953	708971	708988	709006	709024	709041	709059	709077	13	3. 11
47	9. 709094	709112	709130	709147	709165	709183	709200	709218	709236	709253	709271	709289	12	4. 14
48	9. 709306	709324	709342	709359	709377	709395	709412	709430	709448	709465	709483	709501	11	1 = 4
49	9. 709518	709536	709554	709571	709589	709606	709624	709642	709659	709677	709695	709712	10	2. 7
50	9. 709730	709748	709765	709783	709800	709818	709836	709853	709871	709889	709906	709924	9	3. 11
51	9. 709942	709959	709977	709994	710012	710030	710047	710065	710082	710100	710118	710135	8	4. 14
52	9. 710153	710171	710188	710206	710223	710241	710259	710276	710294	710311	710329	710347	7	1 = 4
53	9. 710364	710382	710399	710417	710435	710452	710470	710487	710505	710523	710540	710558	6	2. 7
54	9. 710575	710593	710611	710628	710646	710663	710681	710698	710716	710734	710751	710769	5	3. 11
55	9. 710786	710804	710822	710839	710857	710874	710892	710909	710927	710945	710962	710980	4	4. 14
56	9. 710997	711015	711032	711050	711068	711085	711103	711120	711138	711155	711173	711190	3	1 = 4
57	9. 711208	711226	711243	711261	711278	711296	711313	711331	711348	711366	711384	711401	2	2. 7
58	9. 711419	711436	711454	711471	711489	711506	711524	711541	711559	711576	711594	711612	1	3. 11
59	9. 711629	711647	711664	711682	711699	711717	711734	711752	711769	711787	711804	711822	0	4. 14
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 59 degrees, or Sine of 149 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 31 degrees, or Co-sine of 121 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.711839	711857	711874	711892	711909	711927	711944	711962	711980	711997	712015	712032	59	1″ = 4
1	9.712050	712067	712085	712102	712120	712137	712155	712172	712190	712207	712225	712242	58	2. 7
2	9.712260	712277	712295	712312	712330	712347	712365	712382	712400	712417	712435	712452	57	3. 11
3	9.712470	712487	712504	712522	712539	712557	712574	712592	712609	712627	712644	712662	56	4. 14
4	9.712679	712697	712714	712732	712749	712767	712784	712802	712819	712837	712854	712871	55	1 = 3
5	9.712889	712906	712924	712941	712959	712976	712994	713011	713029	713046	713063	713081	54	2. 7
6	9.713098	713116	713133	713151	713168	713186	713203	713221	713238	713255	713273	713290	53	3. 10
7	9.713308	713325	713343	713360	713378	713395	713412	713430	713447	713465	713482	713500	52	4. 14
8	9.713517	713534	713552	713569	713587	713604	713622	713639	713656	713674	713691	713709	51	1 = 3
9	9.713726	713743	713761	713778	713796	713813	713831	713848	713865	713883	713900	713918	50	2. 7
10	9.713935	713952	713970	713987	714005	714022	714039	714057	714074	714092	714109	714126	49	3. 10
11	9.714144	714161	714179	714196	714213	714231	714248	714266	714283	714300	714318	714335	48	4. 14
12	9.714352	714370	714387	714405	714422	714439	714457	714474	714491	714509	714526	714544	47	1 = 3
13	9.714561	714578	714596	714613	714630	714648	714665	714683	714700	714717	714735	714752	46	2. 7
14	9.714769	714787	714804	714821	714839	714856	714874	714891	714908	714926	714943	714960	45	3. 10
15	9.714978	714995	715012	715030	715047	715064	715082	715099	715116	715134	715151	715168	44	4. 14
16	9.715186	715203	715220	715238	715255	715272	715290	715307	715324	715342	715359	715376	43	1 = 3
17	9.715394	715411	715428	715446	715463	715480	715498	715515	715532	715550	715567	715584	42	2. 7
18	9.715602	715619	715636	715654	715671	715688	715705	715723	715740	715757	715775	715792	41	3. 10
19	9.715809	715827	715844	715861	715878	715896	715913	715930	715948	715965	715982	716000	40	4. 14
20	9.716017	716034	716051	716069	716086	716103	716121	716138	716155	716172	716190	716207	39	1 = 3
21	9.716224	716242	716259	716276	716293	716311	716328	716345	716363	716380	716397	716414	38	2. 7
22	9.716432	716449	716466	716483	716501	716518	716535	716552	716570	716587	716604	716622	37	3. 10
23	9.716639	716656	716673	716691	716708	716725	716742	716760	716777	716794	716811	716829	36	4. 14
24	9.716846	716863	716880	716898	716915	716932	716949	716967	716984	717001	717018	717035	35	1 = 3
25	9.717053	717070	717087	717104	717122	717139	717156	717173	717191	717208	717225	717242	34	2. 7
26	9.717259	717277	717294	717311	717328	717346	717363	717380	717397	717414	717432	717449	33	3. 10
27	9.717466	717483	717501	717518	717535	717552	717569	717587	717604	717621	717638	717655	32	4. 14
28	9.717673	717690	717707	717724	717741	717759	717776	717793	717810	717827	717845	717862	31	1 = 3
29	9.717879	717896	717913	717930	717948	717965	717982	717999	718016	718034	718051	718068	30	2. 7
30	9.718085	718102	718120	718137	718154	718171	718188	718205	718223	718240	718257	718274	29	3. 10
31	9.718291	718308	718326	718343	718360	718377	718394	718411	718429	718446	718463	718480	28	4. 14
32	9.718497	718514	718532	718549	718566	718583	718600	718617	718634	718652	718669	718686	27	1 = 3
33	9.718703	718720	718737	718754	718772	718789	718806	718823	718840	718857	718874	718892	26	2. 7
34	9.718909	718926	718943	718960	718977	718994	719011	719029	719046	719063	719080	719097	25	3. 10
35	9.719114	719131	719148	719166	719183	719200	719217	719234	719251	719268	719285	719303	24	4. 14
36	9.719320	719337	719354	719371	719388	719405	719422	719439	719457	719474	719491	719508	23	1 = 3
37	9.719525	719542	719559	719576	719593	719610	719628	719645	719662	719679	719696	719713	22	2. 7
38	9.719730	719747	719764	719781	719798	719816	719833	719850	719867	719884	719901	719918	21	3. 10
39	9.719935	719952	719969	719986	720003	720020	720038	720055	720072	720089	720106	720123	20	4. 14
40	9.720140	720157	720174	720191	720208	720225	720242	720259	720276	720294	720311	720328	19	1 = 3
41	9.720345	720362	720379	720396	720413	720430	720447	720464	720481	720498	720515	720532	18	2. 7
42	9.720549	720566	720583	720600	720618	720635	720652	720669	720686	720703	720720	720737	17	3. 10
43	9.720754	720771	720788	720805	720822	720839	720856	720873	720890	720907	720924	720941	16	4. 14
44	9.720958	720975	720992	721009	721026	721043	721060	721077	721094	721111	721128	721145	15	1 = 3
45	9.721162	721179	721196	721213	721230	721247	721264	721281	721298	721315	721332	721349	14	2. 7
46	9.721366	721383	721400	721417	721434	721451	721468	721485	721502	721519	721536	721553	13	3. 10
47	9.721570	721587	721604	721621	721638	721655	721672	721689	721706	721723	721740	721757	12	4. 14
48	9.721774	721791	721808	721825	721842	721859	721876	721893	721910	721927	721944	721961	11	1 = 3
49	9.721978	721995	722012	722029	722046	722063	722080	722097	722114	722131	722148	722165	10	2. 7
50	9.722181	722198	722215	722232	722249	722266	722283	722300	722317	722334	722351	722368	9	3. 10
51	9.722385	722402	722419	722436	722453	722470	722487	722503	722520	722537	722554	722571	8	4. 14
52	9.722588	722605	722622	722639	722656	722673	722690	722707	722724	722741	722757	722774	7	1 = 3
53	9.722791	722808	722825	722842	722859	722876	722893	722910	722927	722944	722961	722977	6	2. 7
54	9.722994	723011	723028	723045	723062	723079	723096	723113	723130	723147	723163	723180	5	3. 10
55	9.723197	723214	723231	723248	723265	723282	723299	723316	723332	723349	723366	723383	4	4. 14
56	9.723400	723417	723434	723451	723468	723484	723501	723518	723535	723552	723569	723586	3	1 = 3
57	9.723603	723620	723636	723653	723670	723687	723704	723721	723738	723755	723771	723788	2	2. 7
58	9.723805	723822	723839	723856	723873	723889	723906	723923	723940	723957	723974	723991	1	3. 10
59	9.724008	724024	724041	724058	724075	724092	724109	724126	724142	724159	724176	724193	0	4. 14
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 58 degrees, or Sine of 148 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 32 degrees, or Co-sine of 122 degrees.												Minutes	Proportional parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 724210	724227	724243	724260	724277	724294	724311	724328	724345	724361	724378	724395	59	1″ =
1	9. 724412	724429	724446	724462	724479	724496	724513	724530	724547	724563	724580	724597	58	2.
2	9. 724614	724631	724647	724664	724681	724698	724715	724732	724748	724765	724782	724799	57	3.
3	9. 724816	724833	724849	724866	724883	724900	724917	724933	724950	724967	724984	725001	56	4.
4	9. 725017	725034	725051	725068	725085	725101	725118	725135	725152	725169	725185	725202	55	1 =
5	9. 725219	725236	725253	725269	725286	725303	725320	725337	725353	725370	725387	725404	54	2.
6	9. 725420	725437	725454	725471	725488	725504	725521	725538	725555	725571	725588	725605	53	3.
7	9. 725622	725639	725655	725672	725689	725706	725722	725739	725756	725773	725789	725806	52	4.
8	9. 725823	725840	725856	725873	725890	725907	725924	725940	725957	725974	725991	726007	51	1 =
9	9. 726024	726041	726058	726074	726091	726108	726125	726141	726158	726175	726191	726208	50	2.
10	9. 726225	726242	726258	726275	726292	726309	726325	726342	726359	726376	726392	726409	49	3.
11	9. 726426	726442	726459	726476	726493	726509	726526	726543	726560	726576	726593	726610	48	4.
12	9. 726626	726643	726660	726677	726693	726710	726727	726743	726760	726777	726794	726810	47	1 =
13	9. 726827	726844	726860	726877	726894	726911	726927	726944	726961	726977	726994	727011	46	2.
14	9. 727027	727044	727061	727077	727094	727111	727128	727144	727161	727178	727194	727211	45	3.
15	9. 727228	727244	727261	727278	727294	727311	727328	727344	727361	727378	727394	727411	44	4.
16	9. 727428	727445	727461	727478	727495	727511	727528	727545	727561	727578	727595	727611	43	1 =
17	9. 727628	727645	727661	727678	727695	727711	727728	727744	727761	727778	727794	727811	42	2.
18	9. 727828	727844	727861	727878	727894	727911	727928	727944	727961	727978	727994	728011	41	3.
19	9. 728028	728044	728061	728077	728094	728111	728127	728144	728161	728177	728194	728211	40	4.
20	9. 728227	728244	728260	728277	728294	728310	728327	728344	728360	728377	728393	728410	39	1 =
21	9. 728427	728443	728460	728477	728493	728510	728526	728543	728560	728576	728593	728609	38	2.
22	9. 728626	728643	728659	728676	728693	728709	728726	728742	728759	728776	728792	728809	37	3.
23	9. 728825	728842	728859	728875	728892	728908	728925	728942	728958	728975	728991	729008	36	4.
24	9. 729024	729041	729058	729074	729091	729107	729124	729141	729157	729174	729190	729207	35	1 =
25	9. 729223	729240	729257	729273	729290	729306	729323	729340	729356	729373	729389	729406	34	2.
26	9. 729422	729439	729455	729472	729489	729505	729522	729538	729555	729571	729588	729605	33	3.
27	9. 729621	729638	729654	729671	729687	729704	729720	729737	729754	729770	729787	729803	32	4.
28	9. 729820	729836	729853	729869	729886	729902	729919	729936	729952	729969	729985	730002	31	1 =
29	9. 730018	730035	730051	730068	730084	730101	730117	730134	730150	730167	730184	730200	30	2.
30	9. 730217	730233	730250	730266	730283	730299	730316	730332	730349	730365	730382	730398	29	3.
31	9. 730415	730431	730448	730464	730481	730497	730514	730530	730547	730563	730580	730596	28	4.
32	9. 730613	730629	730646	730662	730679	730695	730712	730728	730745	730761	730778	730794	27	1 =
33	9. 730811	730827	730844	730860	730877	730893	730910	730926	730943	730959	730976	730992	26	2.
34	9. 731009	731025	731042	731058	731075	731091	731108	731124	731141	731157	731174	731190	25	3.
35	9. 731206	731223	731239	731256	731272	731289	731305	731322	731338	731355	731371	731388	24	4.
36	9. 731404	731421	731437	731453	731470	731486	731503	731519	731536	731552	731569	731585	23	1 =
37	9. 731602	731618	731634	731651	731667	731684	731700	731717	731733	731750	731766	731782	22	2.
38	9. 731799	731815	731832	731848	731865	731881	731898	731914	731930	731947	731963	731980	21	3.
39	9. 731996	732013	732029	732045	732062	732078	732095	732111	732128	732144	732160	732177	20	4.
40	9. 732193	732210	732226	732242	732259	732275	732292	732308	732325	732341	732357	732374	19	1 =
41	9. 732390	732407	732423	732439	732456	732472	732489	732505	732521	732538	732554	732571	18	2.
42	9. 732587	732603	732620	732636	732653	732669	732685	732702	732718	732735	732751	732767	17	3.
43	9. 732784	732800	732817	732833	732849	732866	732882	732898	732915	732931	732948	732964	16	4.
44	9. 732980	732997	733013	733029	733046	733062	733079	733095	733111	733128	733144	733160	15	1 =
45	9. 733177	733193	733210	733226	733242	733259	733275	733291	733308	733324	733340	733357	14	2.
46	9. 733373	733390	733406	733422	733439	733455	733471	733488	733504	733520	733537	733553	13	3.
47	9. 733569	733586	733602	733618	733635	733651	733667	733684	733700	733716	733733	733749	12	4.
48	9. 733765	733782	733798	733814	733831	733847	733863	733880	733896	733912	733929	733945	11	1 =
49	9. 733961	733978	733994	734010	734027	734043	734059	734076	734092	734108	734125	734141	10	2.
50	9. 734157	734174	734190	734206	734223	734239	734255	734271	734288	734304	734320	734337	9	3.
51	9. 734353	734369	734386	734402	734418	734434	734451	734467	734483	734500	734516	734532	8	4.
52	9. 734549	734565	734581	734597	734614	734630	734646	734663	734679	734695	734711	734728	7	1 =
53	9. 734744	734760	734777	734793	734809	734825	734842	734858	734874	734891	734907	734923	6	2.
54	9. 734939	734956	734972	734988	735004	735021	735037	735053	735070	735086	735102	735118	5	3.
55	9. 735135	735151	735167	735183	735200	735216	735232	735248	735265	735281	735297	735313	4	4.
56	9. 735330	735346	735362	735378	735395	735411	735427	735443	735460	735476	735492	735508	3	1 =
57	9. 735525	735541	735557	735573	735590	735606	735622	735638	735655	735671	735687	735703	2	2.
58	9. 735720	735736	735752	735768	735784	735801	735817	735833	735849	735866	735882	735898	1	3.
59	9. 735914	735930	735947	735963	735979	735995	736012	736028	736044	736060	736076	736093	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts
	Co-sine of 57 degrees, or Sine of 147 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 33 degrees, or Co-sine of 123 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.736109	736125	736141	736157	736174	736190	736206	736222	736238	736255	736271	736287	59	1″ = 3
1	9.736303	736319	736336	736352	736368	736384	736400	736417	736433	736449	736465	736481	58	2. 6
2	9.736498	736514	736530	736546	736562	736579	736595	736611	736627	736643	736659	736676	57	3. 10
3	9.736692	736708	736724	736740	736757	736773	736789	736805	736821	736837	736854	736870	56	4. 13
4	9.736886	736902	736918	736934	736951	736967	736983	736999	737015	737031	737048	737064	55	1 = 3
5	9.737080	737096	737112	737128	737145	737161	737177	737193	737209	737225	737241	737258	54	2. 6
6	9.737274	737290	737306	737322	737338	737355	737371	737387	737403	737419	737435	737451	53	3. 10
7	9.737468	737484	737500	737516	737532	737548	737564	737580	737597	737613	737629	737645	52	4. 13
8	9.737661	737677	737693	737710	737726	737742	737758	737774	737790	737806	737822	737838	51	1 = 3
9	9.737855	737871	737887	737903	737919	737935	737951	737967	737984	738000	738016	738032	50	2. 6
10	9.738048	738064	738080	738096	738112	738128	738145	738161	738177	738193	738209	738225	49	3. 10
11	9.738241	738257	738273	738289	738306	738322	738338	738354	738370	738386	738402	738418	48	4. 13
12	9.738434	738450	738466	738483	738499	738515	738531	738547	738563	738579	738595	738611	47	1 = 3
13	9.738627	738643	738659	738676	738692	738708	738724	738740	738756	738772	738788	738804	46	2. 6
14	9.738820	738836	738852	738868	738884	738901	738917	738933	738949	738965	738981	738997	45	3. 10
15	9.739013	739029	739045	739061	739077	739093	739109	739125	739141	739157	739173	739190	44	4. 13
16	9.739206	739222	739238	739254	739270	739286	739302	739318	739334	739350	739366	739382	43	1 = 3
17	9.739398	739414	739430	739446	739462	739478	739494	739510	739526	739542	739558	739574	42	2. 6
18	9.739590	739606	739622	739639	739655	739671	739687	739703	739719	739735	739751	739767	41	3. 10
19	9.739783	739799	739815	739831	739847	739863	739879	739895	739911	739927	739943	739959	40	4. 13
20	9.739975	739991	740007	740023	740039	740055	740071	740087	740103	740119	740135	740151	39	1 = 3
21	9.740167	740183	740199	740215	740231	740247	740263	740279	740295	740311	740327	740343	38	2. 6
22	9.740359	740375	740391	740407	740423	740439	740455	740471	740487	740503	740519	740535	37	3. 10
23	9.740551	740567	740582	740598	740614	740630	740646	740662	740678	740694	740710	740726	36	4. 13
24	9.740742	740758	740774	740790	740806	740822	740838	740854	740870	740886	740902	740918	35	1 = 3
25	9.740934	740950	740966	740982	740998	741013	741029	741045	741061	741077	741093	741109	34	2. 6
26	9.741125	741141	741157	741173	741189	741205	741221	741237	741253	741269	741285	741300	33	3. 10
27	9.741316	741332	741348	741364	741380	741396	741412	741428	741444	741460	741476	741492	32	4. 13
28	9.741508	741523	741539	741555	741571	741587	741603	741619	741635	741651	741667	741683	31	1 = 3
29	9.741699	741715	741730	741746	741762	741778	741794	741810	741826	741842	741858	741874	30	2. 6
30	9.741890	741905	741921	741937	741953	741969	741985	742001	742017	742033	742049	742064	29	3. 10
31	9.742080	742096	742112	742128	742144	742160	742176	742192	742207	742223	742239	742255	28	4. 13
32	9.742271	742287	742303	742319	742335	742350	742366	742382	742398	742414	742430	742446	27	1 = 3
33	9.742462	742477	742493	742509	742525	742541	742557	742573	742589	742604	742620	742636	26	2. 6
34	9.742652	742668	742684	742700	742715	742731	742747	742763	742779	742795	742811	742827	25	3. 10
35	9.742842	742858	742874	742890	742906	742922	742937	742953	742969	742985	743001	743017	24	4. 13
36	9.743033	743048	743064	743080	743096	743112	743128	743143	743159	743175	743191	743207	23	1 = 3
37	9.743223	743238	743254	743270	743286	743302	743318	743333	743349	743365	743381	743397	22	2. 6
38	9.743413	743428	743444	743460	743476	743492	743508	743523	743539	743555	743571	743587	21	3. 10
39	9.743602	743618	743634	743650	743666	743682	743697	743713	743729	743745	743761	743776	20	4. 13
40	9.743792	743808	743824	743840	743855	743871	743887	743903	743919	743934	743950	743966	19	1 = 3
41	9.743982	743998	744013	744029	744045	744061	744077	744092	744108	744124	744140	744155	18	2. 6
42	9.744171	744187	744203	744219	744234	744250	744266	744282	744298	744313	744329	744345	17	3. 9
43	9.744361	744376	744392	744408	744424	744440	744455	744471	744487	744503	744518	744534	16	4. 13
44	9.744550	744566	744581	744597	744613	744629	744644	744660	744676	744692	744708	744723	15	1 = 3
45	9.744739	744755	744771	744786	744802	744818	744834	744849	744865	744881	744897	744912	14	2. 6
46	9.744928	744944	744960	744975	744991	745007	745022	745038	745054	745070	745085	745101	13	3. 9
47	9.745117	745133	745148	745164	745180	745196	745211	745227	745243	745259	745274	745290	12	4. 13
48	9.745306	745321	745337	745353	745369	745384	745400	745416	745431	745447	745463	745479	11	1 = 3
49	9.745494	745510	745526	745541	745557	745573	745589	745604	745620	745636	745651	745667	10	2. 6
50	9.745683	745699	745714	745730	745746	745761	745777	745793	745808	745824	745840	745856	9	3. 9
51	9.745871	745887	745903	745918	745934	745950	745965	745981	745997	746013	746028	746044	8	4. 13
52	9.746060	746075	746091	746107	746122	746138	746154	746169	746185	746201	746216	746232	7	1 = 3
53	9.746248	746263	746279	746295	746310	746326	746342	746357	746373	746389	746404	746420	6	2. 6
54	9.746436	746451	746467	746483	746498	746514	746530	746545	746561	746577	746592	746608	5	3. 9
55	9.746624	746639	746655	746671	746686	746702	746718	746733	746749	746765	746780	746796	4	4. 13
56	9.746812	746827	746843	746859	746874	746890	746905	746921	746937	746952	746968	746984	3	1 = 3
57	9.746999	747015	747031	747046	747062	747077	747093	747109	747124	747140	747156	747171	2	2. 6
58	9.747187	747203	747218	747234	747249	747265	747281	747296	747312	747327	747343	747359	1	3. 9
59	9.747374	747390	747406	747421	747437	747452	747468	747484	747499	747515	747530	747546	0	4. 13
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 56 degrees, or Sine of 146 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 34 degrees, or Co-sine of 124 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 747562	747577	747593	747609	747624	747640	747655	747671	747687	747702	747718	747733	59	1″ =
1	9. 747749	747765	747780	747796	747811	747827	747843	747858	747874	747889	747905	747920	58	2.
2	9. 747936	747952	747967	747983	747998	748014	748030	748045	748061	748076	748092	748107	57	3.
3	9. 748123	748139	748154	748170	748185	748201	748217	748232	748248	748263	748279	748294	56	4.
4	9. 748310	748326	748341	748357	748372	748388	748403	748419	748434	748450	748466	748481	55	1 =
5	9. 748497	748512	748528	748543	748559	748574	748590	748606	748621	748637	748652	748668	54	2.
6	9. 748683	748699	748714	748730	748746	748761	748777	748792	748808	748823	748839	748854	53	3.
7	9. 748870	748885	748901	748916	748932	748948	748963	748979	748994	749010	749025	749041	52	4.
8	9. 749056	749072	749087	749103	749118	749134	749149	749165	749181	749196	749212	749227	51	1 =
9	9. 749243	749258	749274	749289	749305	749320	749336	749351	749367	749382	749398	749413	50	2.
10	9. 749429	749444	749460	749475	749491	749506	749522	749537	749553	749568	749584	749599	49	3.
11	9. 749615	749630	749646	749661	749677	749692	749708	749723	749739	749754	749770	749785	48	4.
12	9. 749801	749816	749832	749847	749863	749878	749894	749909	749925	749940	749956	749971	47	1 =
13	9. 749987	750002	750018	750033	750049	750064	750079	750095	750110	750126	750141	750157	46	2.
14	9. 750172	750188	750203	750219	750234	750250	750265	750281	750296	750312	750327	750342	45	3.
15	9. 750358	750373	750389	750404	750420	750435	750451	750466	750482	750497	750513	750528	44	4.
16	9. 750543	750559	750574	750590	750605	750621	750636	750652	750667	750682	750698	750713	43	1 =
17	9. 750729	750744	750760	750775	750791	750806	750821	750837	750852	750868	750883	750899	42	2.
18	9. 750914	750929	750945	750960	750976	750991	751007	751022	751037	751053	751068	751084	41	3.
19	9. 751099	751115	751130	751145	751161	751176	751192	751207	751223	751238	751253	751269	40	4.
20	9. 751284	751300	751315	751330	751346	751361	751377	751392	751407	751423	751438	751454	39	1 =
21	9. 751469	751485	751500	751515	751531	751546	751562	751577	751592	751608	751623	751639	38	2.
22	9. 751654	751669	751685	751700	751715	751731	751746	751762	751777	751792	751808	751823	37	3.
23	9. 751839	751854	751869	751885	751900	751915	751931	751946	751962	751977	751992	752008	36	4.
24	9. 752023	752039	752054	752069	752085	752100	752115	752131	752146	752161	752177	752192	35	1 =
25	9. 752208	752223	752238	752254	752269	752284	752300	752315	752330	752346	752361	752377	34	2.
26	9. 752392	752407	752423	752438	752453	752469	752484	752499	752515	752530	752545	752561	33	3.
27	9. 752576	752591	752607	752622	752638	752653	752668	752684	752699	752714	752730	752745	32	4.
28	9. 752760	752776	752791	752806	752822	752837	752852	752868	752883	752898	752914	752929	31	1 =
29	9. 752944	752960	752975	752990	753006	753021	753036	753051	753067	753082	753097	753113	30	2.
30	9. 753128	753143	753159	753174	753189	753205	753220	753235	753251	753266	753281	753297	29	3.
31	9. 753312	753327	753342	753358	753373	753388	753404	753419	753434	753450	753465	753480	28	4.
32	9. 753495	753511	753526	753541	753557	753572	753587	753603	753618	753633	753648	753664	27	1 =
33	9. 753679	753694	753710	753725	753740	753755	753771	753786	753801	753817	753832	753847	26	2.
34	9. 753862	753878	753893	753908	753924	753939	753954	753969	753985	754000	754015	754030	25	3.
35	9. 754046	754061	754076	754092	754107	754122	754137	754153	754168	754183	754198	754214	24	4.
36	9. 754229	754244	754259	754275	754290	754305	754320	754336	754351	754366	754381	754397	23	1 =
37	9. 754412	754427	754442	754458	754473	754488	754503	754519	754534	754549	754564	754580	22	2.
38	9. 754595	754610	754625	754641	754656	754671	754686	754702	754717	754732	754747	754763	21	3.
39	9. 754778	754793	754808	754823	754839	754854	754869	754884	754900	754915	754930	754945	20	4.
40	9. 754960	754976	754991	755006	755021	755037	755052	755067	755082	755097	755113	755128	19	1 =
41	9. 755143	755158	755174	755189	755204	755219	755234	755250	755265	755280	755295	755310	18	2.
42	9. 755326	755341	755356	755371	755386	755402	755417	755432	755447	755462	755478	755493	17	3.
43	9. 755508	755523	755538	755554	755569	755584	755599	755614	755630	755645	755660	755675	16	4.
44	9. 755690	755705	755721	755736	755751	755766	755781	755797	755812	755827	755842	755857	15	1 =
45	9. 755872	755888	755903	755918	755933	755948	755963	755979	755994	756009	756024	756039	14	2.
46	9. 756054	756070	756085	756100	756115	756130	756145	756161	756176	756191	756206	756221	13	3.
47	9. 756236	756252	756267	756282	756297	756312	756327	756343	756358	756373	756388	756403	12	4.
48	9. 756418	756433	756449	756464	756479	756494	756509	756524	756539	756555	756570	756585	11	1 =
49	9. 756600	756615	756630	756645	756661	756676	756691	756706	756721	756736	756751	756766	10	2.
50	9. 756782	756797	756812	756827	756842	756857	756872	756887	756903	756918	756933	756948	9	3.
51	9. 756963	756978	756993	757008	757024	757039	757054	757069	757084	757099	757114	757129	8	4.
52	9. 757144	757160	757175	757190	757205	757220	757235	757250	757265	757280	757295	757311	7	1 =
53	9. 757326	757341	757356	757371	757386	757401	757416	757431	757446	757462	757477	757492	6	2.
54	9. 757507	757522	757537	757552	757567	757582	757597	757612	757628	757643	757658	757673	5	3.
55	9. 757688	757703	757718	757733	757748	757763	757778	757793	757808	757824	757839	757854	4	4.
56	9. 757869	757884	757899	757914	757929	757944	757959	757974	757989	758004	758019	758035	3	1 =
57	9. 758050	758065	758080	758095	758110	758125	758140	758155	758170	758185	758200	758215	2	2.
58	9. 758230	758245	758260	758275	758290	758306	758321	758336	758351	758366	758381	758396	1	3.
59	9. 758411	758426	758441	758456	758471	758486	758501	758516	758531	758546	758561	758576	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 55 degrees, or Sine of 145 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 35 degrees, or Co-sine of 125 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.758591	758606	758621	758636	758651	758667	758682	758697	758712	758727	758742	758757	59	1″ = 3
1	9.758772	758787	758802	758817	758832	758847	758862	758877	758892	758907	758922	758937	58	2. 6
2	9.758952	758967	758982	758997	759012	759027	759042	759057	759072	759087	759102	759117	57	3. 9
3	9.759132	759147	759162	759177	759192	759207	759222	759237	759252	759267	759282	759297	56	4. 12
4	9.759312	759327	759342	759357	759372	759387	759402	759417	759432	759447	759462	759477	55	1 = 3
5	9.759492	759507	759522	759537	759552	759567	759582	759597	759612	759627	759642	759657	54	2. 6
6	9.759672	759687	759702	759717	759732	759747	759762	759777	759792	759807	759822	759837	53	3. 9
7	9.759852	759867	759881	759896	759911	759926	759941	759956	759971	759986	760001	760016	52	4. 12
8	9.760031	760046	760061	760076	760091	760106	760121	760136	760151	760166	760181	760196	51	1 = 3
9	9.760211	760226	760241	760255	760270	760285	760300	760315	760330	760345	760360	760375	50	2. 6
10	9.760390	760405	760420	760435	760450	760465	760480	760495	760509	760524	760539	760554	49	3. 9
11	9.760569	760584	760599	760614	760629	760644	760659	760674	760689	760704	760719	760733	48	4. 12
12	9.760748	760763	760778	760793	760808	760823	760838	760853	760868	760883	760898	760912	47	1 = 3
13	9.760927	760942	760957	760972	760987	761002	761017	761032	761047	761062	761077	761091	46	2. 6
14	9.761106	761121	761136	761151	761166	761181	761196	761211	761226	761240	761255	761270	45	3. 9
15	9.761285	761300	761315	761330	761345	761360	761374	761389	761404	761419	761434	761449	44	4. 12
16	9.761464	761479	761494	761508	761523	761538	761553	761568	761583	761598	761613	761628	43	1 = 3
17	9.761642	761657	761672	761687	761702	761717	761732	761747	761761	761776	761791	761806	42	2. 6
18	9.761821	761836	761851	761866	761880	761895	761910	761925	761940	761955	761970	761984	41	3. 9
19	9.761999	762014	762029	762044	762059	762074	762088	762103	762118	762133	762148	762163	40	4. 12
20	9.762178	762192	762207	762222	762237	762252	762267	762281	762296	762311	762326	762341	39	1 = 3
21	9.762356	762371	762385	762400	762415	762430	762445	762460	762474	762489	762504	762519	38	2. 6
22	9.762534	762549	762563	762578	762593	762608	762623	762638	762652	762667	762682	762697	37	3. 9
23	9.762712	762726	762741	762756	762771	762786	762801	762815	762830	762845	762860	762875	36	4. 12
24	9.762889	762904	762919	762934	762949	762964	762978	762993	763008	763023	763038	763052	35	1 = 3
25	9.763067	763082	763097	763112	763126	763141	763156	763171	763186	763200	763215	763230	34	2. 6
26	9.763245	763260	763274	763289	763304	763319	763334	763348	763363	763378	763393	763407	33	3. 9
27	9.763422	763437	763452	763467	763481	763496	763511	763526	763541	763555	763570	763585	32	4. 12
28	9.763600	763614	763629	763644	763659	763674	763688	763703	763718	763733	763747	763762	31	1 = 3
29	9.763777	763792	763806	763821	763836	763851	763866	763880	763895	763910	763925	763939	30	2. 6
30	9.763954	763969	763984	763998	764013	764028	764043	764057	764072	764087	764102	764116	29	3. 9
31	9.764131	764146	764161	764175	764190	764205	764220	764234	764249	764264	764279	764293	28	4. 12
32	9.764308	764323	764338	764352	764367	764382	764397	764411	764426	764441	764455	764470	27	1 = 3
33	9.764485	764500	764514	764529	764544	764559	764573	764588	764603	764617	764632	764647	26	2. 6
34	9.764662	764676	764691	764706	764721	764735	764750	764765	764779	764794	764809	764824	25	3. 9
35	9.764838	764853	764868	764882	764897	764912	764927	764941	764956	764971	764985	765000	24	4. 12
36	9.765015	765029	765044	765059	765074	765088	765103	765118	765132	765147	765162	765176	23	1 = 3
37	9.765191	765206	765221	765235	765250	765265	765279	765294	765309	765323	765338	765353	22	2. 6
38	9.765367	765382	765397	765412	765426	765441	765456	765470	765485	765500	765514	765529	21	3. 9
39	9.765544	765558	765573	765588	765602	765617	765632	765646	765661	765676	765690	765705	20	4. 12
40	9.765720	765734	765749	765764	765778	765793	765808	765822	765837	765852	765866	765881	19	1 = 3
41	9.765896	765910	765925	765940	765954	765969	765984	765998	766013	766028	766042	766057	18	2. 6
42	9.766072	766086	766101	766116	766130	766145	766159	766174	766189	766203	766218	766233	17	3. 9
43	9.766247	766262	766277	766291	766306	766321	766335	766350	766364	766379	766394	766408	16	4. 12
44	9.766423	766438	766452	766467	766482	766496	766511	766525	766540	766555	766569	766584	15	1 = 3
45	9.766599	766613	766628	766642	766657	766672	766686	766701	766715	766730	766745	766759	14	2. 6
46	9.766774	766789	766803	766818	766832	766847	766862	766876	766891	766905	766920	766935	13	3. 9
47	9.766949	766964	766978	766993	767008	767022	767037	767051	767066	767081	767095	767110	12	4. 12
48	9.767124	767139	767154	767168	767183	767197	767212	767227	767241	767256	767270	767285	11	1 = 3
49	9.767300	767314	767329	767343	767358	767373	767387	767402	767416	767431	767445	767460	10	2. 6
50	9.767475	767489	767504	767518	767533	767547	767562	767577	767591	767606	767620	767635	9	3. 9
51	9.767649	767664	767679	767693	767708	767722	767737	767751	767766	767781	767795	767810	8	4. 12
52	9.767824	767839	767853	767868	767883	767897	767912	767926	767941	767955	767970	767984	7	1 = 3
53	9.767999	768014	768028	768043	768057	768072	768086	768101	768115	768130	768144	768159	6	2. 6
54	9.768174	768188	768203	768217	768232	768246	768261	768275	768290	768304	768319	768333	5	3. 9
55	9.768348	768363	768377	768392	768406	768421	768435	768450	768464	768479	768493	768508	4	4. 12
56	9.768522	768537	768551	768566	768580	768595	768610	768624	768639	768653	768668	768682	3	1 = 3
57	9.768697	768711	768726	768740	768755	768769	768784	768798	768813	768827	768842	768856	2	2. 6
58	9.768871	768885	768900	768914	768929	768943	768958	768972	768987	769001	769016	769030	1	3. 9
59	9.769045	769059	769074	769088	769103	769117	769132	769146	769161	769175	769190	769204	0	4. 12
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 54 degrees, or Sine of 144 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 36 degrees, or Co-sine of 126 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 769219	769233	769248	769262	769277	769291	769306	769320	769335	769349	769364	769378	59	1″ = 3
1	9. 769393	769407	769422	769436	769450	769465	769479	769494	769508	769523	769537	769552	58	2. 6
2	9. 769566	769581	769595	769610	769624	769639	769653	769668	769682	769697	769711	769725	57	3. 9
3	9. 769740	769754	769769	769783	769798	769812	769827	769841	769856	769870	769884	769899	56	4. 12
4	9. 769913	769928	769942	769957	769971	769986	770000	770015	770029	770043	770058	770072	55	1 = 3
5	9. 770087	770101	770116	770130	770145	770159	770173	770188	770202	770217	770231	770246	54	2. 6
6	9. 770260	770275	770289	770303	770318	770332	770347	770361	770376	770390	770404	770419	53	3. 9
7	9. 770433	770448	770462	770477	770491	770505	770520	770534	770549	770563	770578	770592	52	4. 12
8	9. 770606	770621	770635	770650	770664	770678	770693	770707	770722	770736	770751	770765	51	1 = 3
9	9. 770779	770794	770808	770823	770837	770851	770866	770880	770895	770909	770923	770938	50	2. 6
10	9. 770952	770967	770981	770995	771010	771024	771039	771053	771067	771082	771096	771111	49	3. 9
11	9. 771125	771139	771154	771168	771183	771197	771211	771226	771240	771255	771269	771283	48	4. 12
12	9. 771298	771312	771326	771341	771355	771370	771384	771398	771413	771427	771441	771456	47	1 = 3
13	9. 771470	771485	771499	771513	771528	771542	771556	771571	771585	771600	771614	771628	46	2. 6
14	9. 771643	771657	771671	771686	771700	771714	771729	771743	771758	771772	771786	771801	45	3. 9
15	9. 771815	771829	771844	771858	771872	771887	771901	771916	771930	771944	771959	771973	44	4. 12
16	9. 771987	772002	772016	772030	772045	772059	772073	772088	772102	772116	772131	772145	43	1 = 3
17	9. 772159	772174	772188	772202	772217	772231	772245	772260	772274	772288	772303	772317	42	2. 6
18	9. 772331	772346	772360	772374	772389	772403	772417	772432	772446	772460	772475	772489	41	3. 9
19	9. 772503	772518	772532	772546	772561	772575	772589	772604	772618	772632	772647	772661	40	4. 12
20	9. 772675	772689	772704	772718	772732	772747	772761	772775	772790	772804	772818	772833	39	1 = 3
21	9. 772847	772861	772875	772890	772904	772918	772933	772947	772961	772976	772990	773004	38	2. 6
22	9. 773019	773033	773047	773061	773076	773090	773104	773119	773133	773147	773161	773176	37	3. 9
23	9. 773190	773204	773219	773233	773247	773261	773276	773290	773304	773319	773333	773347	36	4. 11
24	9. 773361	773376	773390	773404	773419	773433	773447	773461	773476	773490	773504	773518	35	1 = 3
25	9. 773533	773547	773561	773576	773590	773604	773618	773633	773647	773661	773675	773690	34	2. 6
26	9. 773704	773718	773732	773747	773761	773775	773789	773804	773818	773832	773846	773861	33	3. 9
27	9. 773875	773889	773904	773918	773932	773946	773961	773975	773989	774003	774017	774032	32	4. 11
28	9. 774046	774060	774074	774089	774103	774117	774131	774146	774160	774174	774188	774203	31	1 = 3
29	9. 774217	774231	774245	774260	774274	774288	774302	774317	774331	774345	774359	774373	30	2. 6
30	9. 774388	774402	774416	774430	774445	774459	774473	774487	774501	774516	774530	774544	29	3. 9
31	9. 774558	774573	774587	774601	774615	774629	774644	774658	774672	774686	774700	774715	28	4. 11
32	9. 774729	774743	774757	774772	774786	774800	774814	774828	774843	774857	774871	774885	27	1 = 3
33	9. 774899	774914	774928	774942	774956	774970	774985	774999	775013	775027	775041	775056	26	2. 6
34	9. 775070	775084	775098	775112	775126	775141	775155	775169	775183	775197	775212	775226	25	3. 9
35	9. 775240	775254	775268	775283	775297	775311	775325	775339	775353	775368	775382	775396	24	4. 11
36	9. 775410	775424	775438	775453	775467	775481	775495	775509	775524	775538	775552	775566	23	1 = 3
37	9. 775580	775594	775609	775623	775637	775651	775665	775679	775694	775708	775722	775736	22	2. 6
38	9. 775750	775764	775778	775793	775807	775821	775835	775849	775863	775878	775892	775906	21	3. 9
39	9. 775920	775934	775948	775962	775977	775991	776005	776019	776033	776047	776061	776076	20	4. 11
40	9. 776090	776104	776118	776132	776146	776160	776175	776189	776203	776217	776231	776245	19	1 = 3
41	9. 776259	776274	776288	776302	776316	776330	776344	776358	776372	776387	776401	776415	18	2. 6
42	9. 776429	776443	776457	776471	776485	776500	776514	776528	776542	776556	776570	776584	17	3. 8
43	9. 776598	776612	776627	776641	776655	776669	776683	776697	776711	776725	776739	776754	16	4. 11
44	9. 776768	776782	776796	776810	776824	776838	776852	776866	776881	776895	776909	776923	15	1 = 3
45	9. 776937	776951	776965	776979	776993	777007	777021	777036	777050	777064	777078	777092	14	2. 6
46	9. 777106	777120	777134	777148	777162	777176	777191	777205	777219	777233	777247	777261	13	3. 8
47	9. 777275	777289	777303	777317	777331	777345	777360	777374	777388	777402	777416	777430	12	4. 11
48	9. 777444	777458	777472	777486	777500	777514	777528	777542	777557	777571	777585	777599	11	1 = 3
49	9. 777613	777627	777641	777655	777669	777683	777697	777711	777725	777739	777753	777767	10	2. 6
50	9. 777782	777796	777810	777824	777838	777852	777866	777880	777894	777908	777922	777936	9	3. 8
51	9. 777950	777964	777978	777992	778006	778020	778034	778048	778062	778077	778091	778105	8	4. 11
52	9. 778119	778133	778147	778161	778175	778189	778203	778217	778231	778245	778259	778273	7	1 = 3
53	9. 778287	778301	778315	778329	778343	778357	778371	778385	778399	778413	778427	778441	6	2. 6
54	9. 778455	778469	778483	778497	778511	778525	778539	778553	778568	778582	778596	778610	5	3. 8
55	9. 778624	778638	778652	778666	778680	778694	778708	778722	778736	778750	778764	778778	4	4. 11
56	9. 778792	778806	778820	778834	778848	778862	778876	778890	778904	778918	778932	778946	3	1 = 3
57	9. 778960	778974	778988	779002	779016	779030	779044	779058	779072	779086	779100	779114	2	2. 6
58	9. 779128	779142	779156	779170	779184	779198	779211	779225	779239	779253	779267	779281	1	3. 8
59	9. 779295	779309	779323	779337	779351	779365	779379	779393	779407	779421	779435	779449	0	4. 11
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 53 degrees, or Sine of 143 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 37 degrees, or Co-sine of 127 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.779463	779477	779491	779505	779519	779533	779547	779561	779575	779589	779603	779617	59	1″ = 3
1	9.779631	779645	779659	779673	779686	779700	779714	779728	779742	779756	779770	779784	58	2. 6
2	9.779798	779812	779826	779840	779854	779868	779882	779896	779910	779924	779938	779952	57	3. 8
3	9.779966	779980	779993	780007	780021	780035	780049	780063	780077	780091	780105	780119	56	4. 11
4	9.780133	780147	780161	780175	780189	780203	780216	780230	780244	780258	780272	780286	55	1 = 3
5	9.780300	780314	780328	780342	780356	780370	780384	780398	780411	780425	780439	780453	54	2. 6
6	9.780467	780481	780495	780509	780523	780537	780551	780565	780578	780592	780606	780620	53	3. 8
7	9.780634	780648	780662	780676	780690	780704	780718	780731	780745	780759	780773	780787	52	4. 11
8	9.780801	780815	780829	780843	780857	780871	780884	780898	780912	780926	780940	780954	51	1 = 3
9	9.780968	780982	780996	781009	781023	781037	781051	781065	781079	781093	781107	781121	50	2. 6
10	9.781134	781148	781162	781176	781190	781204	781218	781232	781246	781259	781273	781287	49	3. 8
11	9.781301	781315	781329	781343	781357	781370	781384	781398	781412	781426	781440	781454	48	4. 11
12	9.781468	781481	781495	781509	781523	781537	781551	781565	781578	781592	781606	781620	47	1 = 3
13	9.781634	781648	781662	781676	781689	781703	781717	781731	781745	781759	781773	781786	46	2. 6
14	9.781800	781814	781828	781842	781856	781869	781883	781897	781911	781925	781939	781953	45	3. 8
15	9.781966	781980	781994	782008	782022	782036	782049	782063	782077	782091	782105	782119	44	4. 11
16	9.782132	782146	782160	782174	782188	782202	782215	782229	782243	782257	782271	782285	43	1 = 3
17	9.782298	782312	782326	782340	782354	782368	782381	782395	782409	782423	782437	782451	42	2. 6
18	9.782464	782478	782492	782506	782520	782533	782547	782561	782575	782589	782603	782616	41	3. 8
19	9.782630	782644	782658	782672	782685	782699	782713	782727	782741	782754	782768	782782	40	4. 11
20	9.782796	782810	782823	782837	782851	782865	782879	782892	782906	782920	782934	782948	39	1 = 3
21	9.782961	782975	782989	783003	783017	783030	783044	783058	783072	783086	783099	783113	38	2. 6
22	9.783127	783141	783154	783168	783182	783196	783210	783223	783237	783251	783265	783279	37	3. 8
23	9.783292	783306	783320	783334	783347	783361	783375	783389	783402	783416	783430	783444	36	4. 11
24	9.783458	783471	783485	783499	783513	783526	783540	783554	783568	783581	783595	783609	35	1 = 3
25	9.783623	783637	783650	783664	783678	783692	783705	783719	783733	783747	783760	783774	34	2. 6
26	9.783788	783802	783815	783829	783843	783857	783870	783884	783898	783912	783925	783939	33	3. 8
27	9.783953	783967	783980	783994	784008	784022	784035	784049	784063	784076	784090	784104	32	4. 11
28	9.784118	784131	784145	784159	784173	784186	784200	784214	784228	784241	784255	784269	31	1 = 3
29	9.784282	784296	784310	784324	784337	784351	784365	784379	784392	784406	784420	784433	30	2. 6
30	9.784447	784461	784475	784488	784502	784516	784529	784543	784557	784571	784584	784598	29	3. 8
31	9.784612	784625	784639	784653	784667	784680	784694	784708	784721	784735	784749	784763	28	4. 11
32	9.784776	784790	784804	784817	784831	784845	784858	784872	784886	784900	784913	784927	27	1 = 3
33	9.784941	784954	784968	784982	784995	785009	785023	785036	785050	785064	785078	785091	26	2. 5
34	9.785105	785119	785132	785146	785160	785173	785187	785201	785214	785228	785242	785255	25	3. 8
35	9.785260	785283	785296	785310	785324	785338	785351	785365	785379	785392	785406	785420	24	4. 11
36	9.785433	785447	785461	785474	785488	785502	785515	785529	785543	785556	785570	785584	23	1 = 3
37	9.785597	785611	785625	785638	785652	785666	785679	785693	785706	785720	785734	785747	22	2. 5
38	9.785761	785775	785788	785802	785816	785829	785843	785857	785870	785884	785898	785911	21	3. 8
39	9.785925	785939	785952	785966	785979	785993	786007	786020	786034	786048	786061	786075	20	4. 11
40	9.786089	786102	786116	786130	786143	786157	786170	786184	786198	786211	786225	786239	19	1 = 3
41	9.786252	786266	786279	786293	786307	786320	786334	786348	786361	786375	786388	786402	18	2. 5
42	9.786416	786429	786443	786457	786470	786484	786497	786511	786525	786538	786552	786566	17	3. 8
43	9.786579	786593	786606	786620	786634	786647	786661	786674	786688	786702	786715	786729	16	4. 11
44	9.786742	786756	786770	786783	786797	786810	786824	786838	786851	786865	786878	786892	15	1 = 3
45	9.786906	786919	786933	786946	786960	786974	786987	787001	787014	787028	787042	787055	14	2. 5
46	9.787069	787082	787096	787110	787123	787137	787150	787164	787177	787191	787205	787218	13	3. 8
47	9.787232	787245	787259	787272	787286	787300	787313	787327	787340	787354	787368	787381	12	4. 11
48	9.787395	787408	787422	787435	787449	787463	787476	787490	787503	787517	787530	787544	11	1 = 3
49	9.787557	787571	787585	787598	787612	787625	787639	787652	787666	787680	787693	787707	10	2. 5
50	9.787720	787734	787747	787761	787774	787788	787802	787815	787829	787842	787856	787869	9	3. 8
51	9.787883	787896	787910	787923	787937	787951	787964	787978	787991	788005	788018	788032	8	4. 11
52	9.788045	788059	788072	788086	788100	788113	788127	788140	788154	788167	788181	788194	7	1 = 3
53	9.788208	788221	788235	788248	788262	788275	788289	788302	788316	788330	788343	788357	6	2. 5
54	9.788370	788384	788397	788411	788424	788438	788451	788465	788478	788492	788505	788519	5	3. 8
55	9.788532	788546	788559	788573	788586	788600	788613	788627	788640	788654	788667	788681	4	4. 11
56	9.788694	788708	788721	788735	788748	788762	788775	788789	788803	788816	788830	788843	3	1 = 3
57	9.788857	788870	788883	788897	788910	788924	788937	788951	788964	788978	788991	789005	2	2. 5
58	9.789018	789032	789045	789059	789072	789086	789099	789113	789126	789140	789153	789167	1	3. 8
59	9.789180	789194	789207	789221	789234	789248	789261	789275	789288	789302	789315	789329	0	4. 11
Minutes	60′	55′	50	45″	40	35″	30″	25″	20′	15″	10″	5′	Minutes	Propor. parts.

Co-sine of 52 degrees, or Sine of 142 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 38 degrees, or Co-sine of 128 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.789342	789356	789369	789382	789396	789409	789423	789436	789450	789463	789477	789490	59	1″ =
1	9.789504	789517	789531	789544	789558	789571	789584	789598	789611	789625	789638	789652	58	2.
2	9.789665	789679	789692	789706	789719	789733	789746	789759	789773	789786	789800	789813	57	3.
3	9.789827	789840	789854	789867	789880	789894	789907	789921	789934	789948	789961	789975	56	4.
4	9.789988	790001	790015	790028	790042	790055	790069	790082	790096	790109	790122	790136	55	1 =
5	9.790149	790163	790176	790190	790203	790216	790230	790243	790257	790270	790284	790297	54	2.
6	9.790310	790324	790337	790351	790364	790378	790391	790404	790418	790431	790445	790458	53	3.
7	9.790472	790485	790498	790512	790525	790539	790552	790565	790579	790592	790606	790619	52	4.
8	9.790633	790646	790659	790673	790686	790700	790713	790726	790740	790753	790767	790780	51	1 =
9	9.790793	790807	790820	790834	790847	790860	790874	790887	790901	790914	790927	790941	50	2.
10	9.790954	790968	790981	790994	791008	791021	791035	791048	791061	791075	791088	791101	49	3.
11	9.791115	791128	791142	791155	791168	791182	791195	791209	791222	791235	791249	791262	48	4.
12	9.791275	791289	791302	791316	791329	791342	791356	791369	791382	791396	791409	791423	47	1 =
13	9.791436	791449	791463	791476	791489	791503	791516	791529	791543	791556	791570	791583	46	2.
14	9.791596	791610	791623	791636	791650	791663	791676	791690	791703	791717	791730	791743	45	3.
15	9.791757	791770	791783	791797	791810	791823	791837	791850	791863	791877	791890	791903	44	4.
16	9.791917	791930	791944	791957	791970	791984	791997	792010	792024	792037	792050	792064	43	1 =
17	9.792077	792090	792104	792117	792130	792144	792157	792170	792184	792197	792210	792224	42	2.
18	9.792237	792250	792264	792277	792290	792304	792317	792330	792344	792357	792370	792384	41	3.
19	9.792397	792410	792423	792437	792450	792463	792477	792490	792503	792517	792530	792543	40	4.
20	9.792557	792570	792583	792597	792610	792623	792637	792650	792663	792676	792690	792703	39	1 =
21	9.792716	792730	792743	792756	792770	792783	792796	792810	792823	792836	792849	792863	38	2.
22	9.792876	792889	792903	792916	792929	792943	792956	792969	792982	792996	793009	793022	37	3.
23	9.793036	793049	793062	793075	793089	793102	793115	793128	793142	793155	793168	793182	36	4.
24	9.793195	793208	793222	793235	793248	793261	793275	793288	793301	793315	793328	793341	35	1 =
25	9.793354	793368	793381	793394	793407	793421	793434	793447	793461	793474	793487	793500	34	2.
26	9.793514	793527	793540	793553	793567	793580	793593	793606	793620	793633	793646	793659	33	3.
27	9.793673	793686	793699	793713	793726	793739	793752	793766	793779	793792	793805	793819	32	4.
28	9.793832	793845	793858	793872	793885	793898	793911	793925	793938	793951	793964	793978	31	1 =
29	9.793991	794004	794017	794030	794044	794057	794070	794083	794097	794110	794123	794136	30	2.
30	9.794150	794163	794176	794189	794203	794216	794229	794242	794255	794269	794282	794295	29	3.
31	9.794308	794322	794335	794348	794361	794375	794388	794401	794414	794427	794441	794454	28	4.
32	9.794467	794480	794494	794507	794520	794533	794546	794560	794573	794586	794599	794612	27	1 =
33	9.794626	794639	794652	794665	794678	794692	794705	794718	794731	794745	794758	794771	26	2.
34	9.794784	794797	794811	794824	794837	794850	794863	794877	794890	794903	794916	794929	25	3.
35	9.794943	794956	794969	794982	794995	795009	795022	795035	795048	795061	795074	795088	24	4.
36	9.795101	795114	795127	795140	795154	795167	795180	795193	795206	795219	795233	795246	23	1 =
37	9.795259	795272	795285	795299	795312	795325	795338	795351	795364	795378	795391	795404	22	2.
38	9.795417	795430	795443	795457	795470	795483	795496	795509	795523	795536	795549	795562	21	3.
39	9.795575	795588	795601	795615	795628	795641	795654	795667	795680	795694	795707	795720	20	4.
40	9.795733	795746	795759	795773	795786	795799	795812	795825	795838	795851	795865	795878	19	1 =
41	9.795891	795904	795917	795930	795944	795957	795970	795983	795996	796009	796022	796036	18	2.
42	9.796049	796062	796075	796088	796101	796114	796127	796141	796154	796167	796180	796193	17	3.
43	9.796206	796219	796233	796246	796259	796272	796285	796298	796311	796324	796338	796351	16	4.
44	9.796364	796377	796390	796403	796416	796429	796443	796456	796469	796482	796495	796508	15	1 =
45	9.796521	796534	796548	796561	796574	796587	796600	796613	796626	796639	796652	796666	14	2.
46	9.796679	796692	796705	796718	796731	796744	796757	796770	796783	796797	796810	796823	13	3.
47	9.796836	796849	796862	796875	796888	796901	796915	796928	796941	796954	796967	796980	12	4.
48	9.796993	797006	797019	797032	797045	797059	797072	797085	797098	797111	797124	797137	11	1 =
49	9.797150	797163	797176	797189	797202	797216	797229	797242	797255	797268	797281	797294	10	2.
50	9.797307	797320	797333	797346	797359	797373	797386	797399	797412	797425	797438	797451	9	3.
51	9.797464	797477	797490	797503	797516	797529	797542	797556	797569	797582	797595	797608	8	4.
52	9.797621	797634	797647	797660	797673	797686	797699	797712	797725	797738	797751	797764	7	1 =
53	9.797778	797791	797804	797817	797830	797843	797856	797869	797882	797895	797908	797921	6	2.
54	9.797934	797947	797960	797973	797986	797999	798012	798025	798039	798052	798065	798078	5	3.
55	9.798091	798104	798117	798130	798143	798156	798169	798182	798195	798208	798221	798234	4	4.
56	9.798247	798260	798273	798286	798299	798312	798325	798338	798351	798364	798377	798390	3	1 =
57	9.798403	798416	798429	798442	798456	798469	798482	798495	798508	798521	798534	798547	2	2.
58	9.798560	798573	798586	798599	798612	798625	798638	798651	798664	798677	798690	798703	1	3.
59	9.798716	798729	798742	798755	798768	798781	798794	798807	798820	798833	798846	798859	0	4.
Minutes	60′	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 51 degrees, or Sine of 141 degrees.													

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LOGARITHMIC SINES:

Minutes	Sine of 39 degrees, or Co-sine of 129 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50	55″		
0	9. 798872	798885	798898	798911	798924	798937	798950	798963	798976	798989	799002	799015	59	1″ = 3
1	9. 799028	799041	799054	799067	799080	799093	799106	799119	799132	799145	799158	799171	58	2. 5
2	9. 799184	799197	799210	799223	799236	799249	799262	799275	799288	799301	799313	799326	57	3. 8
3	9. 799339	799352	799365	799378	799391	799404	799417	799430	799443	799456	799469	799482	56	4. 10
4	9. 799495	799508	799521	799534	799547	799560	799573	799586	799599	799612	799625	799638	55	1 = 3
5	9. 799651	799664	799677	799690	799703	799716	799728	799741	799754	799767	799780	799793	54	2. 5
6	9. 799806	799819	799832	799845	799858	799871	799884	799897	799910	799923	799936	799949	53	3. 8
7	9. 799962	799975	799988	800000	800013	800026	800039	800052	800065	800078	800091	800104	52	4. 10
8	9. 800117	800130	800143	800156	800169	800182	800195	800207	800220	800233	800246	800259	51	1 = 3
9	9. 800272	800285	800298	800311	800324	800337	800350	800363	800376	800389	800401	800414	50	2. 5
10	9. 800427	800440	800453	800466	800479	800492	800505	800518	800531	800544	800556	800569	49	3. 8
11	9. 800582	800595	800608	800621	800634	800647	800660	800673	800686	800699	800711	800724	48	4. 10
12	9. 800737	800750	800763	800776	800789	800802	800815	800828	800841	800853	800866	800879	47	1 = 3
13	9. 800892	800905	800918	800931	800944	800957	800970	800982	800995	801008	801021	801034	46	2. 5
14	9. 801047	801060	801073	801086	801098	801111	801124	801137	801150	801163	801176	301189	45	3. 8
15	9. 801202	801214	801227	801240	801253	801266	801279	801292	801305	801317	801330	801343	44	4. 10
16	9. 801356	801369	801382	801395	801408	801420	801433	801446	801459	801472	801485	801498	43	1 = 3
17	9. 801511	801523	801536	801549	801562	801575	801588	801601	801614	801626	801639	801652	42	2. 5
18	9. 801665	801678	801691	801704	801716	801729	801742	801755	801768	801781	801794	801806	41	3. 8
19	9. 801819	801832	801845	801858	801871	801884	801896	801909	801922	801935	801948	801961	40	4. 10
20	9. 801974	801986	801999	802012	802025	802038	802051	802063	802076	802089	802102	802115	39	1 = 3
21	9. 802128	802140	802153	802166	802179	802192	802205	802217	802230	802243	802256	802269	38	2. 5
22	9. 802282	802294	802307	802320	802333	802346	802359	802371	802384	802397	802410	802423	37	3. 8
23	9. 802436	802448	802461	802474	802487	802500	802513	802525	802538	802551	802564	802577	36	4. 10
24	9. 802589	802602	802615	802628	802641	802654	802666	802679	802692	802705	802718	802730	35	1 = 3
25	9. 802743	802756	802769	802782	802794	802807	802820	802833	802846	802858	802871	802884	34	2. 5
26	9. 802897	802910	802922	802935	802948	802961	802974	802986	802999	803012	803025	803038	33	3. 8
27	9. 803050	803063	803076	803089	803102	803114	803127	803140	803153	803166	803178	803191	32	4. 10
28	9. 803204	803217	803229	803242	803255	803268	803281	803293	803306	803319	803332	803344	31	1 = 3
29	9. 803357	803370	803383	803396	803408	803421	803434	803447	803459	803472	803485	803498	30	2. 5
30	9. 803511	803523	803536	803549	803562	803574	803587	803600	803613	803625	803638	803651	29	3. 8
31	9. 803664	803677	803689	803702	803715	803728	803740	803753	803766	803779	803791	803804	28	4. 10
32	9. 803817	803830	803842	803855	803868	803881	803893	803906	803919	803932	803944	803957	27	1 = 3
33	9. 803970	803983	803995	804008	804021	804034	804046	804059	804072	804085	804097	804110	26	2. 5
34	9. 804123	804136	804148	804161	804174	804187	804199	804212	804225	804237	804250	804263	25	3. 8
35	9. 804276	804288	804301	804314	804327	804339	804352	804365	804378	804390	804403	804416	24	4. 10
36	9. 804428	804441	804454	804467	804479	804492	804505	804518	804530	804543	804556	804568	23	1 = 3
37	9. 804581	804594	804607	804619	804632	804645	804657	804670	804683	804696	804708	804721	22	2. 5
38	9. 804734	804746	804759	804772	804785	804797	804810	804823	804835	804848	804861	804873	21	3. 8
39	9. 804886	804899	804912	804924	804937	804950	804962	804975	804988	805000	805013	805026	20	4. 10
40	9. 805039	805051	805064	805077	805089	805102	805115	805127	805140	805153	805165	805178	19	1 = 3
41	9. 805191	805204	805216	805229	805242	805254	805267	805280	805292	805305	805318	805330	18	2. 5
42	9. 805343	805356	805368	805381	805394	805406	805419	805432	805445	805457	805470	805483	17	3. 8
43	9. 805495	805508	805521	805533	805546	805559	805571	805584	805597	805609	805622	805635	16	4. 10
44	9. 805647	805660	805673	805685	805698	805711	805723	805736	805749	805761	805774	805787	15	1 = 3
45	9. 805799	805812	805824	805837	805850	805862	805875	805888	805900	805913	805926	805938	14	2. 5
46	9. 805951	805964	805976	805989	806002	806014	806027	806040	806052	806065	806077	806090	13	3. 8
47	9. 806103	806115	806128	806141	806153	806166	806179	806191	806204	806217	806229	806242	12	4. 10
48	9. 806254	806267	806280	806292	806305	806318	806330	806343	806356	806368	806381	806393	11	1 = 3
49	9. 806406	806419	806431	806444	806457	806469	806482	806494	806507	806520	806532	806545	10	2. 5
50	9. 806558	806570	806583	806595	806608	806621	806633	806646	806658	806671	806684	806696	9	3. 8
51	9. 806709	806722	806734	806747	806759	806772	806785	806797	806810	806822	806835	806848	8	4. 10
52	9. 806860	806873	806885	806898	806911	806923	806936	806948	806961	806974	806986	806999	7	1 = 3
53	9. 807011	807024	807037	807049	807062	807074	807087	807100	807112	807125	807137	807150	6	2. 5
54	9. 807163	807175	807188	807200	807213	807226	807238	807251	807263	807276	807288	807301	5	3. 8
55	9. 807314	807326	807339	807351	807364	807377	807389	807402	807414	807427	807439	807452	4	4. 10
56	9. 807465	807477	807490	807502	807515	807527	807540	807553	807565	807578	807590	807603	3	1 = 3
57	9. 807615	807628	807641	807653	807666	807678	807691	807703	807716	807729	807741	807754	2	2. 5
58	9. 807766	807779	807791	807804	807816	807829	807842	807854	807867	807879	807892	807904	1	3. 8
59	9. 807917	807930	807942	807955	807967	807980	807992	808005	808017	808030	808042	808055	0	4. 10
Minutes	60′	55′	50′	45″	40′	35′	30′	25′	20′	15″	10′	5′	Minutes	Propor. parts.
	Co-sine of 50 degrees, or Sine of 140 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 40 degrees, or Co-sine of 130 degrees.												Minutes	Proportional parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55″		
0	9. 808068	808080	808093	808105	808118	808130	808143	808155	808168	808180	808193	808206	59	1″ =
1	9. 808218	808231	808243	808256	808268	808281	808293	808306	808318	808331	808343	808356	58	2.
2	9. 808368	808381	808394	808406	808419	808431	808444	808456	808469	808481	808494	808506	57	3.
3	9. 808519	808531	808544	808556	808569	808581	808594	808606	808619	808632	808644	808657	56	4.
4	9. 808669	808682	808694	808707	808719	808732	808744	808757	808769	808782	808794	808807	55	1 =
5	9. 808819	808832	808844	808857	808869	808882	808894	808907	808919	808932	808944	808957	54	2.
6	9. 808969	888982	808994	809007	809019	809032	809044	809057	809069	809082	809094	809107	53	3.
7	9. 809119	809132	809144	809157	809169	809182	809194	809207	809219	809232	809244	809257	52	4.
8	9. 809269	809282	809294	809307	809319	809332	809344	809357	809369	809382	809394	809406	51	1 =
9	9. 809419	809431	809444	809456	809469	809481	809494	809506	809519	809531	809544	809556	50	2.
10	9. 809569	809581	809594	809606	809619	809631	809643	809656	809668	809681	809693	809706	49	3.
11	9. 809718	809731	809743	809756	809768	809781	809793	809806	809818	809830	809843	809855	48	4.
12	9. 809868	809880	809893	809905	809918	809930	809943	809955	809967	809980	809992	810005	47	1 =
13	9. 810017	810030	810042	810055	810067	810080	810092	810104	810117	810129	810142	810154	46	2.
14	9. 810167	810179	810192	810204	810216	810229	810241	810254	810266	810279	810291	810303	45	3.
15	9. 810316	810328	810341	810353	810366	810378	810391	810403	810415	810428	810440	810453	44	4.
16	9. 810465	810478	810490	810502	810515	810527	810540	810552	810565	810577	810589	810602	43	1 =
17	9. 810614	810627	810639	810651	810664	810676	810689	810701	810714	810726	810738	810751	42	2.
18	9. 810763	810776	810788	810800	810813	810825	810838	810850	810862	810875	810887	810900	41	3.
19	9. 810912	810925	810937	810949	810962	810974	810987	810999	811011	811024	811036	811049	40	4.
20	9. 811061	811073	811086	811098	811111	811123	811135	811148	811160	811173	811185	811197	39	1 =
21	9. 811210	811222	811234	811247	811259	811272	811284	811296	811309	811321	811334	811346	38	2.
22	9. 811358	811371	811383	811396	811408	811420	811433	811445	811457	811470	811482	811495	37	3.
23	9. 811507	811519	811532	811544	811556	811569	811581	811594	811606	811618	811631	811643	36	4.
24	9. 811655	811668	811680	811693	811705	811717	811730	811742	811754	811767	811779	811791	35	1 =
25	9. 811804	811816	811829	811841	811853	811866	811878	811890	811903	811915	811927	811940	34	2.
26	9. 811952	811964	811977	811989	812002	812014	812026	812039	812051	812063	812076	812088	33	3.
27	9. 812100	812113	812125	812137	812150	812162	812174	812187	812199	812211	812224	812236	32	4.
28	9. 812248	812261	812273	812285	812298	812310	812322	812335	812347	812360	812372	812384	31	1 =
29	9. 812397	812409	812421	812434	812446	812458	812470	812483	812495	812507	812520	812532	30	2.
30	9. 812544	812557	812569	812581	812594	812606	812618	812631	812643	812655	812668	812680	29	3.
31	9. 812692	812705	812717	812729	812742	812754	812766	812779	812791	812803	812815	812828	28	4.
32	9. 812840	812852	812865	812877	812889	812902	812914	812926	812939	812951	812963	812976	27	1 =
33	9. 812988	813000	813012	813025	813037	813049	813062	813074	813086	813099	813111	813123	26	2.
34	9. 813135	813148	813160	813172	813185	813197	813209	813221	813234	813246	813258	813271	25	3.
35	9. 813283	813295	813308	813320	813332	813344	813357	813369	813381	813394	813406	813418	24	4.
36	9. 813430	813443	813455	813467	813480	813492	813504	813516	813529	813541	813553	813565	23	1 =
37	9. 813578	813590	813602	813615	813627	813639	813651	813664	813676	813688	813700	813713	22	2.
38	9. 813725	813737	813750	813762	813774	813786	813799	813811	813823	813835	813848	813860	21	3.
39	9. 813872	813884	813897	813909	813921	813933	813946	813958	813970	813983	813995	814007	20	4.
40	9. 814019	814032	814044	814056	814068	814081	814093	814105	814117	814130	814142	814154	19	1 =
41	9. 814166	814179	814191	814203	814215	814227	814240	814252	814264	814276	814289	814301	18	2.
42	9. 814313	814325	814338	814350	814362	814374	814387	814399	814411	814423	814436	814448	17	3.
43	9. 814460	814472	814484	814497	814509	814521	814533	814546	814558	814570	814582	814595	16	4.
44	9. 814607	814619	814631	814643	814656	814668	814680	814692	814705	814717	814729	814741	15	1 =
45	9. 814753	814766	814778	814790	814802	814815	814827	814839	814851	814863	814876	814888	14	2.
46	9. 814900	814912	814924	814937	814949	814961	814973	814985	814998	815010	815022	815034	13	3.
47	9. 815046	815059	815071	815083	815095	815107	815120	815132	815144	815156	815168	815181	12	4.
48	9. 815193	815205	815217	815229	815242	815254	815266	815278	815290	815303	815315	815327	11	1 =
49	9. 815339	815351	815364	815376	815388	815400	815412	815424	815437	815449	815461	815473	10	2.
50	9. 815485	815498	815510	815522	815534	815546	815558	815571	815583	815595	815607	815619	9	3.
51	9. 815632	815644	815656	815668	815680	815692	815705	815717	815729	815741	815753	815765	8	4.
52	9. 815778	815790	815802	815814	815826	815838	815851	815863	815875	815887	815899	815911	7	1 =
53	9. 815924	815936	815948	815960	815972	815984	815997	816009	816021	816033	816045	816057	6	2.
54	9. 816069	816082	816094	816106	816118	816130	816142	816155	816167	816179	816191	816203	5	3.
55	9. 816215	816227	816240	816252	816264	816276	816288	816300	816312	816325	816337	816349	4	4.
56	9. 816361	816373	816385	816397	816410	816422	816434	816446	816458	816470	816482	816494	3	1 =
57	9. 816507	816519	816531	816543	816555	816567	816579	816592	816604	816616	816628	816640	2	2.
58	9. 816652	816664	816676	816689	816701	816713	816725	816737	816749	816761	816773	816785	1	3.
59	9. 816798	816810	816822	816834	816846	816858	816870	816882	816895	816907	816919	816931	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 49 degrees, or Sine of 139 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 41 degrees, or Co-sine of 131 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.816943	816955	816967	816979	816991	817004	817016	817028	817040	817052	817064	817076	59	1″ = 2
1	9.817088	817100	817112	817125	817137	817149	817161	817173	817185	817197	817209	817221	58	2. 5
2	9.817233	817246	817258	817270	817282	817294	817306	817318	817330	817342	817354	817366	57	3. 7
3	9.817379	817391	817403	817415	817427	817439	817451	817463	817475	817487	817499	817512	56	4. 10
4	9.817524	817536	817548	817560	817572	817584	817596	817608	817620	817632	817644	817656	55	1 = 2
5	9.817669	817681	817693	817705	817717	817729	817741	817753	817765	817777	817789	817801	54	2. 5
6	9.817813	817825	817838	817850	817862	817874	817886	817898	817910	817922	817934	817946	53	3. 7
7	9.817958	817970	817982	817994	818006	818018	818031	818043	818055	818067	818079	818091	52	4. 10
8	9.818103	818115	818127	818139	818151	818163	818175	818187	818199	818211	818223	818235	51	1 = 2
9	9.818247	818260	818272	818284	818296	818308	818320	818332	818344	818356	818368	818380	50	2. 5
10	9.818392	818404	818416	818428	818440	818452	818464	818476	818488	818500	818512	818524	49	3. 7
11	9.818536	818548	818560	818573	818585	818597	818609	818621	818633	818645	818657	818669	48	4. 10
12	9.818681	818693	818705	818717	818729	818741	818753	818765	818777	818789	818801	818813	47	1 = 2
13	9.818825	818837	818849	818861	818873	818885	818897	818909	818921	818933	818945	818957	46	2. 5
14	9.818969	818981	818993	819005	819017	819029	819041	819053	819065	819077	819089	819101	45	3. 7
15	9.819113	819125	819137	819149	819161	819173	819185	819197	819209	819221	819233	819245	44	4. 10
16	9.819257	819269	819281	819293	819305	819317	819329	819341	819353	819365	819377	819389	43	1 = 2
17	9.819401	819413	819425	819437	819449	819461	819473	819485	819497	819509	819521	819533	42	2. 5
18	9.819545	819557	819569	819581	819593	819605	819617	819629	819641	819653	819665	819677	41	3. 7
19	9.819689	819701	819713	819725	819737	819749	819761	819773	819785	819797	819809	819821	40	4. 10
20	9.819833	819844	819856	819868	819880	819892	819904	819916	819928	819940	819952	819964	39	1 = 2
21	9.819976	819988	820000	820012	820024	820036	820048	820060	820072	820084	820096	820108	38	2. 5
22	9.820120	820132	820144	820155	820167	820179	820191	820203	820215	820227	820239	820251	37	3. 7
23	9.820263	820275	820287	820299	820311	820323	820335	820347	820359	820371	820382	820394	36	4. 10
24	9.820406	820418	820430	820442	820454	820466	820478	820490	820502	820514	820526	820538	35	1 = 2
25	9.820550	820562	820573	820585	820597	820609	820621	820633	820645	820657	820669	820681	34	2. 5
26	9.820693	820705	820717	820729	820740	820752	820764	820776	820788	820800	820812	820824	33	3. 7
27	9.820836	820848	820860	820872	820884	820895	820907	820919	820931	820943	820955	820967	32	4. 10
28	9.820979	820991	821003	821015	821027	821038	821050	821062	821074	821086	821098	821110	31	1 = 2
29	9.821122	821134	821146	821158	821169	821181	821193	821205	821217	821229	821241	821253	30	2. 5
30	9.821265	821277	821288	821300	821312	821324	821336	821348	821360	821372	821384	821395	29	3. 7
31	9.821407	821419	821431	821443	821455	821467	821479	821491	821502	821514	821526	821538	28	4. 10
32	9.821550	821562	821574	821586	821598	821609	821621	821633	821645	821657	821669	821681	27	1 = 2
33	9.821693	821704	821716	821728	821740	821752	821764	821776	821788	821800	821811	821823	26	2. 5
34	9.821835	821847	821859	821871	821883	821894	821906	821918	821930	821942	821954	821966	25	3. 7
35	9.821978	821989	822001	822013	822025	822037	822049	822061	822072	822084	822096	822108	24	4. 10
36	9.822120	822132	822144	822155	822167	822179	822191	822203	822215	822227	822238	822250	23	1 = 2
37	9.822262	822274	822286	822298	822310	822321	822333	822345	822357	822369	822381	822392	22	2 5
38	9.822404	822416	822428	822440	822452	822463	822475	822487	822499	822511	822523	822535	21	3. 7
39	9.822546	822558	822570	822582	822594	822606	822617	822629	822641	822653	822665	822677	20	4. 9
40	9.822688	822700	822712	822724	822736	822748	822759	822771	822783	822795	822807	822818	19	1 = 2
41	9.822830	822842	822854	822866	822878	822889	822901	822913	822925	822937	822948	822960	18	2. 5
42	9.822972	822984	822996	823008	823019	823031	823043	823055	823067	823078	823090	823102	17	3. 7
43	9.823114	823126	823137	823149	823161	823173	823185	823197	823208	823220	823232	823244	16	4. 9
44	9.823256	823267	823279	823291	823303	823315	823326	823338	823350	823362	823374	823385	15	1 = 2
45	9.823397	823409	823421	823432	823444	823456	823468	823480	823491	823503	823515	823527	14	2. 5
46	9.823539	823550	823562	823574	823586	823598	823609	823621	823633	823645	823656	823668	13	3. 7
47	9.823680	823692	823704	823715	823727	823739	823751	823762	823774	823786	823798	823810	12	4. 9
48	9.823821	823833	823845	823857	823868	823880	823892	823904	823916	823927	823939	823951	11	1 = 2
49	9.823963	823974	823986	823998	824010	824021	824033	824045	824057	824068	824080	824092	10	2. 5
50	9.824104	824116	824127	824139	824151	824163	824174	824186	824198	824210	824221	824233	9	3. 7
51	9.824245	824257	824268	824280	824292	824304	824315	824327	824339	824351	824362	824374	8	4. 9
52	9.824386	824398	824409	824421	824433	824445	824456	824468	824480	824492	824503	824515	7	1 = 2
53	9.824527	824539	824550	824562	824574	824585	824597	824609	824621	824632	824644	824656	6	2. 5
54	9.824668	824679	824691	824703	824715	824726	824738	824750	824761	824773	824785	824797	5	3. 7
55	9.824808	824820	824832	824844	824855	824867	824879	824890	824902	824914	824926	824937	4	4. 9
56	9.824949	824961	824973	824984	824996	825008	825019	825031	825043	825055	825066	825078	3	1 = 2
57	9.825090	825101	825113	825125	825137	825148	825160	825172	825183	825195	825207	825218	2	2. 5
58	9.825230	825242	825254	825265	825277	825289	825300	825312	825324	825335	825347	825359	1	3. 7
59	9.825371	825382	825394	825406	825417	825429	825441	825452	825464	825476	825488	825499	0	4. 9
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 48 degrees, or Sine of 138 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 42 degrees, or Co-sine of 132 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 825511	825523	825534	825546	825558	825569	825581	825593	825604	825616	825628	825640	59	1″ =
1	9. 825651	825663	825675	825686	825698	825710	825721	825733	825745	825756	825768	825780	58	2.
2	9. 825791	825803	825815	825826	825838	825850	825861	825873	825885	825896	825908	825920	57	3.
3	9. 825931	825943	825955	825967	825978	825990	826001	826013	826025	826037	826048	826060	56	4.
4	9. 826072	826083	826095	826107	826118	826130	826141	826153	826165	826176	826188	826200	55	1 =
5	9. 826211	826223	826235	826246	826258	826270	826281	826293	826305	826316	826328	826340	54	2.
6	9. 826351	826363	826375	826386	826398	826410	826421	826433	826444	826456	826468	826479	53	3.
7	9. 826491	826503	826514	826526	826538	826549	826561	826573	826584	826596	826607	826619	52	4.
8	9. 826631	826642	826654	826666	826677	826689	826701	826712	826724	826735	826747	826759	51	1 =
9	9. 826770	826782	826794	826805	826817	826829	826840	826852	826863	826875	826887	826898	50	2.
10	9. 826910	826922	826933	826945	826956	826968	826980	826991	827003	827014	827026	827038	49	3.
11	9. 827049	827061	827073	827084	827096	827107	827119	827131	827142	827154	827165	827177	48	4.
12	9. 827189	827200	827212	827224	827235	827247	827258	827270	827282	827293	827305	827316	47	1 =
13	9. 827328	827340	827351	827363	827374	827386	827398	827409	827421	827432	827444	827456	46	2.
14	9. 827467	827479	827490	827502	827514	827525	827537	827548	827560	827572	827583	827595	45	3.
15	9. 827606	827618	827629	827641	827653	827664	827676	827687	827699	827711	827722	827734	44	4.
16	9. 827745	827757	827769	827780	827792	827803	827815	827826	827838	827850	827861	827873	43	1 =
17	9. 827884	827896	827907	827919	827931	827942	827954	827965	827977	827988	828000	828012	42	2.
18	9. 828023	828035	828046	828058	828069	828081	828093	828104	828116	828127	828139	828150	41	3.
19	9. 828162	828174	828185	828197	828208	828220	828231	828243	828254	828266	828278	828289	40	4.
20	9. 828301	828312	828324	828335	828347	828358	828370	828382	828393	828405	828416	828428	39	1 =
21	9. 828439	828451	828462	828474	828486	828497	828509	828520	828532	828543	828555	828566	38	2.
22	9. 828578	828589	828601	828613	828624	828636	828647	828659	828670	828682	828693	828705	37	3.
23	9. 828716	828728	828739	828751	828762	828774	828786	828797	828809	828820	828832	828843	36	4.
24	9. 828855	828866	828878	828889	828901	828912	828924	828935	828947	828958	828970	828982	35	1 =
25	9. 828993	829005	829016	829028	829039	829051	829062	829074	829085	829097	829108	829120	34	2.
26	9. 829131	829143	829154	829166	829177	829189	829200	829212	829223	829235	829246	829258	33	3.
27	9. 829269	829281	829292	829304	829315	829327	829338	829350	829361	829373	829384	829396	32	4.
28	9. 829408	829419	829431	829442	829454	829465	829477	829488	829500	829511	829522	829534	31	1 =
29	9. 829545	829557	829568	829580	829591	829603	829614	829626	829637	829649	829660	829672	30	2.
30	9. 829683	829695	829706	829718	829729	829741	829752	829764	829775	829787	829798	829810	29	3.
31	9. 829821	829833	829844	829856	829867	829879	829890	829902	829913	829925	829936	829947	28	4.
32	9. 829959	829970	829982	829993	830005	830016	830028	830039	830051	830062	830074	830085	27	1 =
33	9. 830097	830108	830120	830131	830143	830154	830165	830177	830188	830200	830211	830223	26	2.
34	9. 830234	830246	830257	830269	830280	830292	830303	830314	830326	830337	830349	830360	25	3.
35	9. 830372	830383	830395	830406	830418	830429	830440	830452	830463	830475	830486	830498	24	4.
36	9. 830509	830521	830532	830543	830555	830566	830578	830589	830601	830612	830624	830635	23	1 =
37	9. 830646	830658	830669	830681	830692	830704	830715	830727	830738	830749	830761	830772	22	2
38	9. 830784	830795	830807	830818	830829	830841	830852	830864	830875	830887	830898	830910	21	3.
39	9. 830921	830932	830944	830955	830967	830978	830989	831001	831012	831024	831035	831047	20	4.
40	9. 831058	831069	831081	831092	831104	831115	831127	831138	831149	831161	831172	831184	19	1 =
41	9. 831195	831206	831218	831229	831241	831252	831264	831275	831286	831298	831309	831321	18	2.
42	9. 831332	831343	831355	831366	831378	831389	831400	831412	831423	831435	831446	831457	17	3.
43	9. 831469	831480	831492	831503	831514	831526	831537	831549	831560	831571	831583	831594	16	4.
44	9. 831606	831617	831628	831640	831651	831663	831674	831685	831697	831708	831720	831731	15	1 =
45	9. 831742	831754	831765	831777	831788	831799	831811	831822	831833	831845	831856	831868	14	2.
46	9. 831879	831890	831902	831913	831925	831936	831947	831959	831970	831981	831993	832004	13	3.
47	9. 832016	832027	832038	832050	832061	832072	832084	832095	832107	832118	832129	832141	12	4.
48	9. 832152	832163	832175	832186	832197	832209	832220	832232	832243	832254	832266	832277	11	1 =
49	9. 832288	832300	832311	832322	832334	832345	832357	832368	832379	832391	832402	832413	10	2.
50	9. 832425	832436	832447	832459	832470	832481	832493	832504	832516	832527	832538	832550	9	3.
51	9. 832561	832572	832584	832595	832606	832618	832629	832640	832652	832663	832674	832686	8	4.
52	9. 832697	832708	832720	832731	832742	832754	832765	832776	832788	832799	832810	832822	7	1 =
53	9. 832833	832844	832856	832867	832878	832890	832901	832912	832924	832935	832946	832958	6	2.
54	9. 832969	832980	832992	833003	833014	833026	833037	833048	833060	833071	833082	833094	5	3.
55	9. 833105	833116	833128	833139	833150	833162	833173	833184	833196	833207	833218	833230	4	4.
56	9. 833241	833252	833263	833275	833286	833297	833309	833320	833331	833343	833354	833365	3	1 =
57	9. 833377	833388	833399	833411	833422	833433	833444	833456	833467	833478	833490	833501	2	2.
58	9. 833512	833524	833535	833546	833557	833569	833580	833591	833603	833614	833625	833637	1	3.
59	9. 833648	833659	833670	833682	833693	833704	833716	833727	833738	833750	833761	833772	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 47 degrees, or Sine of 137 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 43 degrees, or Co-sine of 133 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.833783	833795	833806	833817	833829	833840	833851	833862	833874	833885	833896	833908	59	1″ = 2
1	9.833919	833930	833941	833953	833964	833975	833987	833998	834009	834020	834032	834043	58	2. 5
2	9.834054	834065	834077	834088	834099	834111	834122	834133	834144	834156	834167	834178	57	3. 7
3	9.834189	834201	834212	834223	834235	834246	834257	834268	834280	834291	834302	834313	56	4. 9
4	9.834325	834336	834347	834358	834370	834381	834392	834403	834415	834426	834437	834449	55	1 = 2
5	9.834460	834471	834482	834494	834505	834516	834527	834539	834550	834561	834572	834584	54	2. 5
6	9.834595	834606	834617	834629	834640	834651	834662	834674	834685	834696	834707	834719	53	3. 7
7	9.834730	834741	834752	834763	834775	834786	834797	834808	834820	834831	834842	834853	52	4. 9
8	9.834865	834876	834887	834898	834910	834921	834932	834943	834955	834966	834977	834988	51	1 = 2
9	9.834999	835011	835022	835033	835044	835056	835067	835078	835089	835100	835112	835123	50	2. 5
10	9.835134	835145	835157	835168	835179	835190	835202	835213	835224	835235	835246	835258	49	3. 7
11	9.835269	835280	835291	835302	835314	835325	835336	835347	835359	835370	835381	835392	48	4. 9
12	9.835403	835415	835426	835437	835448	835459	835471	835482	835493	835504	835515	835527	47	1 = 2
13	9.835538	835549	835560	835571	835583	835594	835605	835616	835627	835639	835650	835661	46	2. 4
14	9.835672	835683	835695	835706	835717	835728	835739	835751	835762	835773	835784	835795	45	3. 7
15	9.835807	835818	835829	835840	835851	835863	835874	835885	835896	835907	835919	835930	44	4. 9
16	9.835941	835952	835963	835974	835986	835997	836008	836019	836030	836042	836053	836064	43	1 = 2
17	9.836075	836086	836097	836109	836120	836131	836142	836153	836164	836176	836187	836198	42	2. 4
18	9.836209	836220	836231	836243	836254	836265	836276	836287	836299	836310	836321	836332	41	3. 7
19	9.836343	836354	836366	836377	836388	836399	836410	836421	836432	836444	836455	836466	40	4. 9
20	9.836477	836488	836499	836511	836522	836533	836544	836555	836566	836578	836589	836600	39	1 = 2
21	9.836611	836622	836633	836644	836656	836667	836678	836689	836700	836711	836722	836734	38	2. 4
22	9.836745	836756	836767	836778	836789	836800	836812	836823	836834	836845	836856	836867	37	3. 7
23	9.836878	836890	836901	836912	836923	836934	836945	836956	836968	836979	836990	837001	36	4. 9
24	9.837012	837023	837034	837045	837057	837068	837079	837090	837101	837112	837123	837135	35	1 = 2
25	9.837146	837157	837168	837179	837190	837201	837212	837224	837235	837246	837257	837268	34	2. 4
26	9.837279	837290	837301	837312	837324	837335	837346	837357	837368	837379	837390	837401	33	3. 7
27	9.837413	837424	837435	837446	837457	837468	837479	837490	837501	837513	837524	837535	32	4. 9
28	9.837546	837557	837568	837579	837590	837601	837612	837624	837635	837646	837657	837668	31	1 = 2
29	9.837679	837690	837701	837712	837723	837735	837746	837757	837768	837779	837790	837801	30	2. 4
30	9.837812	837823	837834	837846	837857	837868	837879	837890	837901	837912	837923	837934	29	3. 7
31	9.837945	837956	837968	837979	837990	838001	838012	838023	838034	838045	838056	838067	28	4. 9
32	9.838078	838089	838101	838112	838123	838134	838145	838156	838167	838178	838189	838200	27	1 = 2
33	9.838211	838222	838233	838245	838256	838267	838278	838289	838300	838311	838322	838333	26	2. 4
34	9.838344	838355	838366	838377	838388	838399	838411	838422	838433	838444	838455	838466	25	3. 7
35	9.838477	838488	838499	838510	838521	838532	838543	838554	838565	838576	838587	838599	24	4. 9
36	9.838610	838621	838632	838643	838654	838665	838676	838687	838698	838709	838720	838731	23	1 = 2
37	9.838742	838753	838764	838775	838786	838797	838809	838820	838831	838842	838853	838864	22	2. 4
38	9.838875	838886	838897	838908	838919	838930	838941	838952	838963	838974	838985	838996	21	3. 7
39	9.839007	839018	839029	839040	839051	839062	839073	839084	839096	839107	839118	839129	20	4. 9
40	9.839140	839151	839162	839173	839184	839195	839206	839217	839228	839239	839250	839261	19	1 = 2
41	9.839272	839283	839294	839305	839316	839327	839338	839349	839360	839371	839382	839393	18	2. 4
42	9.839404	839415	839426	839437	839448	839459	839470	839481	839492	839503	839514	839525	17	3. 7
43	9.839536	839547	839558	839569	839580	839591	839602	839613	839624	839635	839646	839657	16	4. 9
44	9.839668	839679	839690	839701	839712	839723	839734	839745	839756	839767	839778	839789	15	1 = 2
45	9.839800	839811	839822	839833	839844	839855	839866	839877	839888	839899	839910	839921	14	2. 4
46	9.839932	839943	839954	839965	839976	839987	839998	840009	840020	840031	840042	840053	13	3. 7
47	9.840064	840075	840086	840097	840108	840119	840130	840141	840152	840163	840174	840185	12	4. 9
48	9.840196	840207	840218	840229	840240	840251	840262	840273	840284	840295	840306	840317	11	1 = 2
49	9.840328	840339	840350	840361	840372	840383	840394	840404	840415	840426	840437	840448	10	2. 4
50	9.840459	840470	840481	840492	840503	840514	840525	840536	840547	840558	840569	840580	9	3. 7
51	9.840591	840602	840613	840624	840635	840646	840657	840668	840679	840689	840700	840711	8	4. 9
52	9.840722	840733	840744	840755	840766	840777	840788	840799	840810	840821	840832	840843	7	1 = 2
53	9.840854	840865	840876	840887	840897	840908	840919	840930	840941	840952	840963	840974	6	2. 4
54	9.840985	840996	841007	841018	841029	841040	841051	841062	841073	841083	841094	841105	5	3. 7
55	9.841116	841127	841138	841149	841160	841171	841182	841193	841204	841215	841226	841237	4	4. 9
56	9.841247	841258	841269	841280	841291	841302	841313	841324	841335	841346	841357	841368	3	1 = 2
57	9.841379	841389	841400	841411	841422	841433	841444	841455	841466	841477	841488	841499	2	2. 4
58	9.841510	841520	841531	841542	841553	841564	841575	841586	841597	841608	841619	841630	1	3. 7
59	9.841640	841651	841662	841673	841684	841695	841706	841717	841728	841739	841750	841760	0	4. 9
Minutes	60′	55′	50′	45″	40′	35″	30′	25″	20′	15″	10′	5′	Minutes	Propor. parts.
	Co-sine of 46 degrees, or Sine of 136 degrees.													

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LOGARITHMIC SINES.

Sine of 44 degrees, or Co-sine of 134 degrees.												Minutes	Proper parts.
0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
9.841771	841782	841793	841804	841815	841826	841837	841848	841859	841869	841880	841891	59	1″ =
9.841902	841913	841924	841935	841946	841957	841967	841978	841989	842000	842011	842022	58	2.
9.842033	842044	842055	842065	842076	842087	842098	842109	842120	842131	842142	842153	57	3.
9.842163	842174	842185	842196	842207	842218	842229	842240	842250	842261	842272	842283	56	4.
9.842294	842305	842316	842327	842337	842348	842359	842370	842381	842392	842403	842414	55	1 =
9.842424	842435	842446	842457	842468	842479	842490	842501	842511	842522	842533	842544	54	2.
9.842555	842566	842577	842587	842598	842609	842620	842631	842642	842653	842663	842674	53	3.
9.842685	842696	842707	842718	842729	842739	842750	842761	842772	842783	842794	842805	52	4.
9.842815	842826	842837	842848	842859	842870	842881	842891	842902	842913	842924	842935	51	1 =
9.842946	842956	842967	842978	842989	843000	843011	843022	843032	843043	843054	843065	50	2.
9.843076	843087	843097	843108	843119	843130	843141	843152	843162	843173	843184	843195	49	3.
9.843206	843217	843227	843238	843249	843260	843271	843282	843292	843303	843314	843325	48	4.
9.843336	843347	843357	843368	843379	843390	843401	843411	843422	843433	843444	843455	47	1 =
9.843466	843476	843487	843498	843509	843520	843530	843541	843552	843563	843574	843585	46	2.
9.843595	843606	843617	843628	843639	843649	843660	843671	843682	843693	843703	843714	45	3.
9.843725	843736	843747	843757	843768	843779	843790	843801	843812	843822	843833	843844	44	4.
9.843855	843866	843876	843887	843898	843909	843920	843930	843941	843952	843963	843973	43	1 =
9.843984	843995	844006	844017	844027	844038	844049	844060	844071	844081	844092	844103	42	2.
9.844114	844125	844135	844146	844157	844168	844179	844189	844200	844211	844222	844232	41	3.
9.844243	844254	844265	844276	844286	844297	844308	844319	844329	844340	844351	844362	40	4.
9.844373	844383	844394	844405	844416	844426	844437	844448	844459	844470	844480	844491	39	1 =
9.844502	844513	844523	844534	844545	844556	844566	844577	844588	844599	844609	844620	38	2.
9.844631	844642	844653	844663	844674	844685	844696	844706	844717	844728	844739	844749	37	3.
9.844760	844771	844782	844792	844803	844814	844825	844835	844846	844857	844868	844878	36	4.
9.844889	844900	844911	844921	844932	844943	844954	844964	844975	844986	844997	845007	35	1 =
9.845018	845029	845040	845050	845061	845072	845083	845093	845104	845115	845126	845136	34	2.
9.845147	845158	845169	845179	845190	845201	845211	845222	845233	845244	845254	845265	33	3.
9.845276	845287	845297	845308	845319	845329	845340	845351	845362	845372	845383	845394	32	4.
9.845405	845415	845426	845437	845447	845458	845469	845480	845490	845501	845512	845523	31	1 =
9.845533	845544	845555	845565	845576	845587	845598	845608	845619	845630	845640	845651	30	2.
9.845662	845673	845683	845694	845705	845715	845726	845737	845748	845758	845769	845780	29	3.
9.845790	845801	845812	845822	845833	845844	845855	845865	845876	845887	845897	845908	28	4.
9.845919	845930	845940	845951	845962	845972	845983	845994	846004	846015	846026	846036	27	1 =
9.846047	846058	846069	846079	846090	846101	846111	846122	846133	846143	846154	846165	26	2.
9.846175	846186	846197	846208	846218	846229	846240	846250	846261	846272	846282	846293	25	3.
9.846304	846314	846325	846336	846346	846357	846368	846378	846389	846400	846410	846421	24	4.
9.846432	846443	846453	846464	846475	846485	846496	846507	846517	846528	846539	846549	23	1 =
9.846560	846571	846581	846592	846603	846613	846624	846635	846645	846656	846667	846677	22	2.
9.846688	846699	846709	846720	846731	846741	846752	846763	846773	846784	846795	846805	21	3.
9.846816	846826	846837	846848	846858	846869	846880	846890	846901	846912	846922	846933	20	4.
9.846944	846954	846965	846976	846986	846997	847008	847018	847029	847040	847050	847061	19	1 =
9.847071	847082	847093	847103	847114	847125	847135	847146	847157	847167	847178	847189	18	2.
9.847199	847210	847220	847231	847242	847252	847263	847274	847284	847295	847306	847316	17	3.
9.847327	847337	847348	847359	847369	847380	847391	847401	847412	847422	847433	847444	16	4.
9.847454	847465	847476	847486	847497	847507	847518	847529	847539	847550	847561	847571	15	1 =
9.847582	847592	847603	847614	847624	847635	847646	847656	847667	847677	847688	847699	14	2.
9.847709	847720	847730	847741	847752	847762	847773	847783	847794	847805	847815	847826	13	3.
9.847837	847847	847858	847868	847879	847890	847900	847911	847921	847932	847943	847953	12	4.
9.847964	847974	847985	847996	848006	848017	848027	848038	848049	848059	848070	848080	11	1 =
9.848091	848102	848112	848123	848133	848144	848155	848165	848176	848186	848197	848207	10	2.
9.848218	848229	848239	848250	848260	848271	848282	848292	848303	848313	848324	848335	9	3.
9.848345	848356	848366	848377	848387	848398	848409	848419	848430	848440	848451	848461	8	4.
9.848472	848483	848493	848504	848514	848525	848535	848546	848557	848567	848578	848588	7	1 =
9.848599	848610	848620	848631	848641	848652	848662	848673	848683	848694	848705	848715	6	2.
9.848726	848736	848747	848757	848768	848779	848789	848800	848810	848821	848831	848842	5	3.
9.848852	848863	848874	848884	848895	848905	848916	848926	848937	848947	848958	848969	4	4.
9.848979	848999	849000	849011	849021	849032	849042	849053	849064	849074	849085	849095	3	1 =
9.849106	849116	849127	849137	849148	849158	849169	849180	849190	849201	849211	849222	2	2.
9.849232	849243	849253	849264	849274	849285	849295	849306	849317	849327	849338	849348	1	3.
9.849359	849369	849380	849390	849401	849411	849422	849432	849443	849453	849464	849475	0	4.
60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
Co-sine of 45 degrees, or Sine of 135 degrees.													

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LOGARITHMIC SINES

Minutes	Sine of 45 degrees, or Co-sine of 135 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.849485	849496	849506	849517	849527	849538	849548	849559	849569	849580	849590	849601	59	1″ = 2
1	9.849611	849622	849632	849643	849653	849664	849674	849685	849696	849706	849717	849727	58	2. 4
2	9.849738	849748	849759	849769	849780	849790	849801	849811	849822	849832	849843	849853	57	3. 6
3	9.849864	849874	849885	849895	849906	849916	849927	849937	849948	849958	849969	849979	56	4. 8
4	9.849990	850000	850011	850021	850032	850042	850053	850063	850074	850084	850095	850105	55	1 = 2
5	9.850116	850126	850137	850147	850158	850168	850179	850189	850200	850210	850221	850231	54	2. 4
6	9.850242	850252	850263	850273	850284	850294	850305	850315	850326	850336	850347	850357	53	3. 6
7	9.850368	850378	850389	850399	850410	850420	850430	850441	850451	850462	850472	850483	52	4. 8
8	9.850493	850504	850514	850525	850535	850546	850556	850567	850577	850588	850598	850609	51	1 = 2
9	9.850619	850630	850640	850650	850661	850671	850682	850692	850703	850713	850724	850734	50	2. 4
10	9.850745	850755	850766	850776	850787	850797	850807	850818	850828	850839	850849	850860	49	3. 6
11	9.850870	850881	850891	850902	850912	850923	850933	850943	850954	850964	850975	850985	48	4. 8
12	9.850996	851006	851017	851027	851038	851048	851058	851069	851079	851090	851100	851111	47	1 = 2
13	9.851121	851132	851142	851153	851163	851173	851184	851194	851205	851215	851226	851236	46	2. 4
14	9.851247	851257	851267	851278	851288	851299	851309	851320	851330	851340	851351	851361	45	3. 6
15	9.851372	851382	851393	851403	851414	851424	851434	851445	851455	851466	851476	851487	44	4. 8
16	9.851497	851507	851518	851528	851539	851549	851560	851570	851580	851591	851601	851612	43	1 = 2
17	9.851622	851633	851643	851653	851664	851674	851685	851695	851705	851716	851726	851737	42	2. 4
18	9.851747	851758	851768	851778	851789	851799	851810	851820	851830	851841	851851	851862	41	3. 6
19	9.851872	851883	851893	851903	851914	851924	851935	851945	851955	851966	851976	851987	40	4. 8
20	9.851997	852007	852018	852028	852039	852049	852059	852070	852080	852091	852101	852111	39	1 = 2
21	9.852122	852132	852143	852153	852163	852174	852184	852195	852205	852215	852226	852236	38	2. 4
22	9.852247	852257	852267	852278	852288	852299	852309	852319	852330	852340	852351	852361	37	3. 6
23	9.852371	852382	852392	852402	852413	852423	852434	852444	852454	852465	852475	852486	36	4. 8
24	9.852496	852506	852517	852527	852537	852548	852558	852569	852579	852589	852600	852610	35	1 = 2
25	9.852620	852631	852641	852652	852662	852672	852683	852693	852703	852714	852724	852735	34	2. 4
26	9.852745	852755	852766	852776	852786	852797	852807	852818	852828	852838	852849	852859	33	3. 6
27	9.852869	852880	852890	852900	852911	852921	852932	852942	852952	852963	852973	852983	32	4. 8
28	9.852994	853004	853014	853025	853035	853045	853056	853066	853077	853087	853097	853108	31	1 = 2
29	9.853118	853128	853139	853149	853159	853170	853180	853190	853201	853211	853221	853232	30	2. 4
30	9.853242	853252	853263	853273	853283	853294	853304	853315	853325	853335	853346	853356	29	3. 6
31	9.853366	853377	853387	853397	853408	853418	853428	853439	853449	853459	853470	853480	28	4. 8
32	9.853490	853501	853511	853521	853532	853542	853552	853563	853573	853583	853594	853604	27	1 = 2
33	9.853614	853625	853635	853645	853656	853666	853676	853686	853697	853707	853717	853728	26	2. 4
34	9.853738	853748	853759	853769	853779	853790	853800	853810	853821	853831	853841	853852	25	3. 6
35	9.853862	853872	853883	853893	853903	853913	853924	853934	853944	853955	853965	853975	24	4. 8
36	9.853986	853996	854006	854017	854027	854037	854048	854058	854068	854078	854089	854099	23	1 = 2
37	9.854109	854120	854130	854140	854151	854161	854171	854181	854192	854202	854212	854223	22	2 4
38	9.854233	854243	854254	854264	854274	854284	854295	854305	854315	854326	854336	854346	21	3. 6
39	9.854356	854367	854377	854387	854398	854408	854418	854429	854439	854449	854459	854470	20	4. 8
40	9.854480	854490	854501	854511	854521	854531	854542	854552	854562	854573	854583	854593	19	1 = 2
41	9.854603	854614	854624	854634	854644	854655	854665	854675	854686	854696	854706	854716	18	2. 4
42	9.854727	854737	854747	854757	854768	854778	854788	854799	854809	854819	854829	854840	17	3. 6
43	9.854850	854860	854870	854881	854891	854901	854911	854922	854932	854942	854953	854963	16	4. 8
44	9.854973	854983	854994	855004	855014	855024	855035	855045	855055	855065	855076	855086	15	1 = 2
45	9.855096	855106	855117	855127	855137	855147	855158	855168	855178	855188	855199	855209	14	2. 4
46	9.855219	855229	855240	855250	855260	855270	855281	855291	855301	855311	855322	855332	13	3. 6
47	9.855342	855352	855363	855373	855383	855393	855404	855414	855424	855434	855445	855455	12	4. 8
48	9.855465	855475	855486	855496	855506	855516	855526	855537	855547	855557	855567	855578	11	1 = 2
49	9.855588	855598	855608	855619	855629	855639	855649	855659	855670	855680	855690	855700	10	2. 4
50	9.855711	855721	855731	855741	855752	855762	855772	855782	855792	855803	855813	855823	9	3. 6
51	9.855833	855844	855854	855864	855874	855884	855895	855905	855915	855925	855935	855946	8	4. 8
52	9.855956	855966	855976	855987	855997	856007	856017	856027	856038	856048	856058	856068	7	1 = 2
53	9.856078	856089	856099	856109	856119	856129	856140	856150	856160	856170	856180	856191	6	2. 4
54	9.856201	856211	856221	856231	856242	856252	856262	856272	856282	856293	856303	856313	5	3. 6
55	9.856323	856333	856344	856354	856364	856374	856384	856395	856405	856415	856425	856435	4	4. 8
56	9.856446	856456	856466	856476	856486	856497	856507	856517	856527	856537	856547	856558	3	1 = 2
57	9.856568	856578	856588	856598	856609	856619	856629	856639	856649	856659	856670	856680	2	2. 4
58	9.856690	856700	856710	856721	856731	856741	856751	856761	856771	856782	856792	856802	1	3. 6
59	9.856812	856822	856832	856843	856853	856863	856873	856883	856893	856904	856914	856924	0	4. 8
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 44 degrees, or Sine of 134 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 46 degrees, or Co-sine of 136 degrees.												Minutes	Proper Parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.856934	856944	856954	856965	856975	856985	856995	857005	857015	857026	857036	857046	59	1″ =
1	9.857056	857066	857076	857087	857097	857107	857117	857127	857137	857148	857158	857168	58	2.
2	9.857178	857188	857198	857208	857219	857229	857239	857249	857259	857269	857280	857290	57	3.
3	9.857300	857310	857320	857330	857340	857351	857361	857371	857381	857391	857401	857411	56	4.
4	9.857422	857432	857442	857452	857462	857472	857482	857493	857503	857513	857523	857533	55	1 =
5	9.857543	857553	857564	857574	857584	857594	857604	857614	857624	857634	857645	857655	54	2.
6	9.857665	857675	857685	857695	857705	857715	857726	857736	857746	857756	857766	857776	53	3.
7	9.857786	857797	857807	857817	857827	857837	857847	857857	857867	857877	857888	857898	52	4.
8	9.857908	857918	857928	857938	857948	857958	857969	857979	857989	857999	858009	858019	51	1 =
9	9.858029	858039	858049	858060	858070	858080	858090	858100	858110	858120	858130	858140	50	2.
10	9.858151	858161	858171	858181	858191	858201	858211	858221	858231	858242	858252	858262	49	3.
11	9.858272	858282	858292	858302	858312	858322	858332	858343	858353	858363	858373	858383	48	4.
12	9.858393	858403	858413	858423	858433	858443	858454	858464	858474	858484	858494	858504	47	1 =
13	9.858514	858524	858534	858544	858554	858565	858575	858585	858595	858605	858615	858625	46	2.
14	9.858635	858645	858655	858665	858675	858686	858696	858706	858716	858726	858736	858746	45	3.
15	9.858756	858766	858776	858786	858796	858807	858817	858827	858837	858847	858857	858867	44	4.
16	9.858877	858887	858897	858907	858917	858927	858937	858948	858958	858968	858978	858988	43	1 =
17	9.858998	859008	859018	859028	859038	859048	859058	859068	859078	859088	859098	859109	42	2.
18	9.859119	859129	859139	859149	859159	859169	859179	859189	859199	859209	859219	859229	41	3.
19	9.859239	859249	859259	859269	859280	859290	859300	859310	859320	859330	859340	859350	40	4.
20	9.859360	859370	859380	859390	859400	859410	859420	859430	859440	859450	859460	859470	39	1 =
21	9.859480	859491	859501	859511	859521	859531	859541	859551	859561	859571	859581	859591	38	2.
22	9.859601	859611	859621	859631	859641	859651	859661	859671	859681	859691	859701	859711	37	3.
23	9.859721	859731	859741	859751	859761	859772	859782	859792	859802	859812	859822	859832	36	4.
24	9.859842	859852	859862	859872	859882	859892	859902	859912	859922	859932	859942	859952	35	1 =
25	9.859962	859972	859982	859992	860002	860012	860022	860032	860042	860052	860062	860072	34	2.
26	9.860082	860092	860102	860112	860122	860132	860142	860152	860162	860172	860182	860192	33	3.
27	9.860202	860212	860222	860232	860242	860252	860262	860272	860282	860292	860302	860312	32	4.
28	9.860322	860332	860342	860352	860362	860372	860382	860392	860402	860412	860422	860432	31	1 =
29	9.860442	860452	860462	860472	860482	860492	860502	860512	860522	860532	860542	860552	30	2.
30	9.860562	860572	860582	860592	860602	860612	860622	860632	860642	860652	860662	860672	29	3.
31	9.860682	860692	860702	860712	860722	860732	860742	860752	860762	860772	860782	860792	28	4.
32	9.860802	860812	860822	860832	860842	860852	860862	860872	860882	860892	860902	860912	27	1 =
33	9.860922	860932	860942	860952	860961	860971	860981	860991	861001	861011	861021	861031	26	2.
34	9.861041	861051	861061	861071	861081	861091	861101	861111	861121	861131	861141	861151	25	3.
35	9.861161	861171	861181	861191	861201	861211	861221	861231	861240	861250	861260	861270	24	4.
36	9.861280	861290	861300	861310	861320	861330	861340	861350	861360	861370	861380	861390	23	1 =
37	9.861400	861410	861420	861430	861440	861449	861459	861469	861479	861489	861499	861509	22	2
38	9.861519	861529	861539	861549	861559	861569	861579	861589	861599	861609	861619	861628	21	3.
39	9.861638	861648	861658	861668	861678	861688	861698	861708	861718	861728	861738	861748	20	4.
40	9.861758	861768	861777	861787	861797	861807	861817	861827	861837	861847	861857	861867	19	1 =
41	9.861877	861887	861897	861907	861916	861926	861936	861946	861956	861966	861976	861986	18	2.
42	9.861996	862006	862016	862026	862036	862045	862055	862065	862075	862085	862095	862105	17	3.
43	9.862115	862125	862135	862145	862155	862164	862174	862184	862194	862204	862214	862224	16	4.
44	9.862234	862244	862254	862264	862273	862283	862293	862303	862313	862323	862333	862343	15	1 =
45	9.862353	862363	862372	862382	862392	862402	862412	862422	862432	862442	862452	862462	14	2.
46	9.862471	862481	862491	862501	862511	862521	862531	862541	862551	862561	862570	862580	13	3.
47	9.862590	862600	862610	862620	862630	862640	862650	862659	862669	862679	862689	862699	12	4.
48	9.862709	862719	862729	862739	862748	862758	862768	862778	862788	862798	862808	862818	11	1 =
49	9.862827	862837	862847	862857	862867	862877	862887	862897	862907	862916	862926	862936	10	2.
50	9.862946	862956	862966	862976	862986	862995	863005	863015	863025	863035	863045	863055	9	3.
51	9.863064	863074	863084	863094	863104	863114	863124	863134	863143	863153	863163	863173	8	4.
52	9.863183	863193	863203	863212	863222	863232	863242	863252	863262	863272	863281	863291	7	1 =
53	9.863301	863311	863321	863331	863341	863350	863360	863370	863380	863390	863400	863410	6	2.
54	9.863419	863429	863439	863449	863459	863469	863479	863488	863498	863508	863518	863528	5	3.
55	9.863538	863547	863557	863567	863577	863587	863597	863607	863616	863626	863636	863646	4	4.
56	9.863656	863666	863675	863685	863695	863705	863715	863725	863734	863744	863754	863764	3	1 =
57	9.863774	863784	863793	863803	863813	863823	863833	863843	863852	863862	863872	863882	2	2.
58	9.863892	863902	863911	863921	863931	863941	863951	863961	863970	863980	863990	864000	1	3.
59	9.864010	864019	864029	864039	864049	864059	864069	864078	864088	864098	864108	864118	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper Parts
	Co-sine of 43 degrees, or Sine of 133 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 47 degrees, or Co-sine of 137 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.864128	864137	864147	864157	864167	864177	864186	864196	864206	864216	864226	864235	59	1″ = 2
1	9.864245	864255	864265	864275	864285	864294	864304	864314	864324	864334	864343	864353	58	2. 4
2	9.864363	864373	864383	864392	864402	864412	864422	864432	864441	864451	864461	864471	57	3. 6
3	9.864481	864490	864500	864510	864520	864530	864539	864549	864559	864569	864579	864588	56	4. 8
4	9.864598	864608	864618	864628	864637	864647	864657	864667	864677	864686	864696	864706	55	1 = 2
5	9.864716	864725	864735	864745	864755	864765	864774	864784	864794	864804	864814	864823	54	2. 4
6	9.864833	864843	864853	864862	864872	864882	864892	864902	864911	864921	864931	864941	53	3. 6
7	9.864950	864960	864970	864980	864990	864999	865009	865019	865029	865038	865048	865058	52	4. 8
8	9.865068	865078	865087	865097	865107	865117	865126	865136	865146	865156	865165	865175	51	1 = 2
9	9.865185	865195	865205	865214	865224	865234	865244	865253	865263	865273	865283	865292	50	2. 4
10	9.865302	865312	865322	865331	865341	865351	865361	865370	865380	865390	865400	865409	49	3. 6
11	9.865419	865429	865439	865448	865458	865468	865478	865487	865497	865507	865517	865526	48	4. 8
12	9.865536	865546	865556	865565	865575	865585	865595	865604	865614	865624	865634	865643	47	1 = 2
13	9.865653	865663	865673	865682	865692	865702	865712	865721	865731	865741	865751	865760	46	2. 4
14	9.865770	865780	865790	865799	865809	865819	865828	865838	865848	865858	865867	865877	45	3. 6
15	9.865887	865897	865906	865916	865926	865936	865945	865955	865965	865974	865984	865994	44	4. 8
16	9.866004	866013	866023	866033	866043	866052	866062	866072	866081	866091	866101	866111	43	1 = 2
17	9.866120	866130	866140	866149	866159	866169	866179	866188	866198	866208	866217	866227	42	2. 4
18	9.866237	866247	866256	866266	866276	866285	866295	866305	866315	866324	866334	866344	41	3. 6
19	9.866353	866363	866373	866383	866392	866402	866412	866421	866431	866441	866451	866460	40	4. 8
20	9.866470	866480	866489	866499	866509	866518	866528	866538	866548	866557	866567	866577	39	1 = 2
21	9.866586	866596	866606	866615	866625	866635	866645	866654	866664	866674	866683	866693	38	2. 4
22	9.866703	866712	866722	866732	866741	866751	866761	866770	866780	866790	866800	866809	37	3. 6
23	9.866819	866829	866838	866848	866858	866867	866877	866887	866896	866906	866916	866925	36	4. 8
24	9.866935	866945	866955	866964	866974	866984	866993	867003	867013	867022	867032	867042	35	1 = 2
25	9.867051	867061	867071	867080	867090	867100	867109	867119	867129	867138	867148	867158	34	2. 4
26	9.867167	867177	867187	867196	867206	867216	867225	867235	867245	867254	867264	867274	33	3. 6
27	9.867283	867293	867303	867312	867322	867332	867341	867351	867361	867370	867380	867390	32	4. 8
28	9.867399	867409	867419	867428	867438	867448	867457	867467	867477	867486	867496	867505	31	1 = 2
29	9.867515	867525	867534	867544	867554	867563	867573	867583	867592	867602	867612	867621	30	2. 4
30	9.867631	867641	867650	867660	867670	867679	867689	867698	867708	867718	867727	867737	29	3. 6
31	9.867747	867756	867766	867776	867785	867795	867805	867814	867824	867833	867843	867853	28	4. 8
32	9.867862	867872	867882	867891	867901	867910	867920	867930	867939	867949	867959	867968	27	1 = 2
33	9.867978	867988	867997	868007	868016	868026	868036	868045	868055	868065	868074	868084	26	2. 4
34	9.868093	868103	868113	868122	868132	868142	868151	868161	868170	868180	868190	868199	25	3. 6
35	9.868209	868219	868228	868238	868247	868257	868267	868276	868286	868295	868305	868315	24	4. 8
36	9.868324	868334	868344	868353	868363	868372	868382	868392	868401	868411	868420	868430	23	1 = 2
37	9.868440	868449	868459	868468	868478	868488	868497	868507	868516	868526	868536	868545	22	2 4
38	9.868555	868564	868574	868584	868593	868603	868612	868622	868632	868641	868651	868660	21	3. 6
39	9.868670	868680	868689	868699	868708	868718	868728	868737	868747	868756	868766	868776	20	4. 8
40	9.868785	868795	868804	868814	868824	868833	868843	868852	868862	868871	868881	868891	19	1 = 2
41	9.868900	868910	868919	868929	868939	868948	868958	868967	868977	868986	868996	869006	18	2. 4
42	9.869015	869025	869034	869044	869054	869063	869073	869082	869092	869101	869111	869121	17	3. 6
43	9.869130	869140	869149	869159	869168	869178	869188	869197	869207	869216	869226	869235	16	4. 8
44	9.869245	869255	869264	869274	869283	869293	869302	869312	869322	869331	869341	869350	15	1 = 2
45	9.869360	869369	869379	869388	869398	869408	869417	869427	869436	869446	869455	869465	14	2. 4
46	9.869474	869484	869494	869503	869513	869522	869532	869541	869551	869560	869570	869580	13	3. 6
47	9.869589	869599	869608	869618	869627	869637	869646	869656	869666	869675	869685	869694	12	4. 8
48	9.869704	869713	869723	869732	869742	869751	869761	869771	869780	869790	869799	869809	11	1 = 2
49	9.869818	869828	869837	869847	869856	869866	869875	869885	869895	869904	869914	869923	10	2. 4
50	9.869933	869942	869952	869961	869971	869980	869990	869999	870009	870018	870028	870038	9	3. 6
51	9.870047	870057	870066	870076	870085	870095	870104	870114	870123	870133	870142	870152	8	4. 8
52	9.870161	870171	870180	870190	870199	870209	870219	870228	870238	870247	870257	870266	7	1 = 2
53	9.870276	870285	870295	870304	870314	870323	870333	870342	870352	870361	870371	870380	6	2. 4
54	9.870390	870399	870409	870418	870428	870437	870447	870456	870466	870475	870485	870494	5	3. 6
55	9.870504	870513	870523	870532	870542	870551	870561	870570	870580	870589	870599	870608	4	4. 8
56	9.870618	870627	870637	870646	870656	870665	870675	870684	870694	870703	870713	870722	3	1 = 2
57	9.870732	870741	870751	870760	870770	870779	870789	870798	870808	870817	870827	870836	2	2. 4
58	9.870846	870855	870865	870874	870884	870893	870903	870912	870922	870931	870941	870950	1	3. 6
59	9.870960	870969	870979	870988	870998	871007	871017	871026	871036	871045	871055	871064	0	4. 8
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 42 degrees, or Sine of 132 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 40 degrees, or Co-sine of 130 degrees.												Minutes	Proportionals.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 808068	808080	808093	808105	808118	808130	808143	808155	808168	808180	808193	808206	59	1″ =
1	9. 808218	808231	808243	808256	808268	808281	808293	808306	808318	808331	808343	808356	58	2.
2	9. 808368	808381	808394	808406	808419	808431	808444	808456	808469	808481	808494	808506	57	3.
3	9. 808519	808531	808544	808556	808569	808581	808594	808606	808619	808632	808644	808657	56	4.
4	9. 808669	808682	808694	808707	808719	808732	808744	808757	808769	808782	808794	808807	55	1 =
5	9. 808819	808832	808844	808857	808869	808882	808894	808907	808919	808932	808944	808957	54	2.
6	9. 808969	808982	808994	809007	809019	809032	809044	809057	809069	809082	809094	809107	53	3.
7	9. 809119	809132	809144	809157	809169	809182	809194	809207	809219	809232	809244	809257	52	4.
8	9. 809269	809282	809294	809307	809319	809332	809344	809357	809369	809382	809394	809406	51	1 =
9	9. 809419	809431	809444	809456	809469	809481	809494	809506	809519	809531	809544	809556	50	2.
10	9. 809569	809581	809594	809606	809619	809631	809643	809656	809668	809681	809693	809706	49	3.
11	9. 809718	809731	809743	809756	809768	809781	809793	809806	809818	809830	809843	809855	48	4.
12	9. 809868	809880	809893	809905	809918	809930	809943	809955	809967	809980	809992	810005	47	1 =
13	9. 810017	810030	810042	810055	810067	810080	810092	810104	810117	810129	810142	810154	46	2.
14	9. 810167	810179	810192	810204	810216	810229	810241	810254	810266	810279	810291	810303	45	3.
15	9. 810316	810328	810341	810353	810366	810378	810391	810403	810415	810428	810440	810453	44	4.
16	9. 810465	810478	810490	810502	810515	810527	810540	810552	810565	810577	810589	810602	43	1 =
17	9. 810614	810627	810639	810651	810664	810676	810689	810701	810714	810726	810738	810751	42	2.
18	9. 810763	810776	810788	810800	810813	810825	810838	810850	810862	810875	810887	810900	41	3.
19	9. 810912	810925	810937	810949	810962	810974	810987	810999	811011	811024	811036	811049	40	4.
20	9. 811061	811073	811086	811098	811111	811123	811135	811148	811160	811173	811185	811197	39	1 =
21	9. 811210	811222	811234	811247	811259	811272	811284	811296	811309	811321	811334	811346	38	2.
22	9. 811358	811371	811383	811396	811408	811420	811433	811445	811457	811470	811482	811495	37	3.
23	9. 811507	811519	811532	811544	811556	811569	811581	811594	811606	811618	811631	811643	36	4.
24	9. 811655	811668	811680	811693	811705	811717	811730	811742	811754	811767	811779	811791	35	1 =
25	9. 811804	811816	811829	811841	811853	811866	811878	811890	811903	811915	811927	811940	34	2.
26	9. 811952	811964	811977	811989	812002	812014	812026	812039	812051	812063	812076	812088	33	3.
27	9. 812100	812113	812125	812137	812150	812162	812174	812187	812199	812211	812224	812236	32	4.
28	9. 812248	812261	812273	812285	812298	812310	812322	812335	812347	812360	812372	812384	31	1 =
29	9. 812397	812409	812421	812434	812446	812458	812470	812483	812495	812507	812520	812532	30	2.
30	9. 812544	812557	812569	812581	812594	812606	812618	812631	812643	812655	812668	812680	29	3.
31	9. 812692	812705	812717	812729	812742	812754	812766	812779	812791	812803	812815	812828	28	4.
32	9. 812840	812852	812865	812877	812889	812902	812914	812926	812939	812951	812963	812976	27	1 =
33	9. 812988	813000	813012	813025	813037	813049	813062	813074	813086	813099	813111	813123	26	2.
34	9. 813135	813148	813160	813172	813185	813197	813209	813221	813234	813246	813258	813271	25	3.
35	9. 813283	813295	813308	813320	813332	813344	813357	813369	813381	813394	813406	813418	24	4.
36	9. 813430	813443	813455	813467	813480	813492	813504	813516	813529	813541	813553	813565	23	1 =
37	9. 813578	813590	813602	813615	813627	813639	813651	813664	813676	813688	813700	813713	22	2.
38	9. 813725	813737	813750	813762	813774	813786	813799	813811	813823	813835	813848	813860	21	3.
39	9. 813872	813884	813897	813909	813921	813933	813946	813958	813970	813983	813995	814007	20	4.
40	9. 814019	814032	814044	814056	814068	814081	814093	814105	814117	814130	814142	814154	19	1 =
41	9. 814166	814179	814191	814203	814215	814227	814240	814252	814264	814276	814289	814301	18	2.
42	9. 814313	814325	814338	814350	814362	814374	814387	814399	814411	814423	814436	814448	17	3.
43	9. 814460	814472	814484	814497	814509	814521	814533	814546	814558	814570	814582	814595	16	4.
44	9. 814607	814619	814631	814643	814656	814668	814680	814692	814705	814717	814729	814741	15	1 =
45	9. 814753	814766	814778	814790	814802	814815	814827	814839	814851	814863	814876	814888	14	2.
46	9. 814900	814912	814924	814937	814949	814961	814973	814985	814998	815010	815022	815034	13	3.
47	9. 815046	815059	815071	815083	815095	815107	815120	815132	815144	815156	815168	815181	12	4.
48	9. 815193	815205	815217	815229	815242	815254	815266	815278	815290	815303	815315	815327	11	1 =
49	9. 815339	815351	815364	815376	815388	815400	815412	815424	815437	815449	815461	815473	10	2.
50	9. 815485	815498	815510	815522	815534	815546	815558	815571	815583	815595	815607	815619	9	3.
51	9. 815632	815644	815656	815668	815680	815692	815705	815717	815729	815741	815753	815765	8	4.
52	9. 815778	815790	815802	815814	815826	815838	815851	815863	815875	815887	815899	815911	7	1 =
53	9. 815924	815936	815948	815960	815972	815984	815997	816009	816021	816033	816045	816057	6	2.
54	9. 816069	816082	816094	816106	816118	816130	816142	816155	816167	816179	816191	816203	5	3.
55	9. 816215	816227	816240	816252	816264	816276	816288	816300	816312	816325	816337	816349	4	4.
56	9. 816361	816373	816385	816397	816410	816422	816434	816446	816458	816470	816482	816494	3	1 =
57	9. 816507	816519	816531	816543	816555	816567	816579	816592	816604	816616	816628	816640	2	2.
58	9. 816652	816664	816676	816689	816701	816713	816725	816737	816749	816761	816773	816785	1	3.
59	9. 816798	816810	816822	816834	816846	816858	816870	816882	816895	816907	816919	816931	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportionals.
	Co-sine of 49 degrees, or Sine of 139 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 41 degrees, or Co-sine of 131 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 816943	816955	816967	816979	816991	817004	817016	817028	817040	817052	817064	817076	59	1″ = 2
1	9. 817088	817100	817112	817125	817137	817149	817161	817173	817185	817197	817209	817221	58	2. 5
2	9. 817233	817246	817258	817270	817282	817294	817306	817318	817330	817342	817354	817366	57	3. 7
3	9. 817379	817391	817403	817415	817427	817439	817451	817463	817475	817487	817499	817512	56	4. 10
4	9. 817524	817536	817548	817560	817572	817584	817596	817608	817620	817632	817644	817656	55	1 = 2
5	9. 817669	817681	817693	817705	817717	817729	817741	817753	817765	817777	817789	817801	54	2. 5
6	9. 817813	817825	817838	817850	817862	817874	817886	817898	817910	817922	817934	817946	53	3. 7
7	9. 817958	817970	817982	817994	818006	818018	818031	818043	818055	818067	818079	818091	52	4. 10
8	9. 818103	818115	818127	818139	818151	818163	818175	818187	818199	818211	818223	818235	51	1 = 2
9	9. 818247	818260	818272	818284	818296	818308	818320	818332	818344	818356	818368	818380	50	2. 5
10	9. 818392	818404	818416	818428	818440	818452	818464	818476	818488	818500	818512	818524	49	3. 7
11	9. 818536	818548	818560	818573	818585	818597	818609	818621	818633	818645	818657	818669	48	4. 10
12	9. 818681	818693	818705	818717	818729	818741	818753	818765	818777	818789	818801	818813	47	1 = 2
13	9. 818825	818837	818849	818861	818873	818885	818897	818909	818921	818933	818945	818957	46	2. 5
14	9. 818969	818981	818993	819005	819017	819029	819041	819053	819065	819077	819089	819101	45	3. 7
15	9. 819113	819125	819137	819149	819161	819173	819185	819197	819209	819221	819233	819245	44	4. 10
16	9. 819257	819269	819281	819293	819305	819317	819329	819341	819353	819365	819377	819389	43	1 = 2
17	9. 819401	819413	819425	819437	819449	819461	819473	819485	819497	819509	819521	819533	42	2. 5
18	9. 819545	819557	819569	819581	819593	819605	819617	819629	819641	819653	819665	819677	41	3. 7
19	9. 819689	819701	819713	819725	819737	819749	819761	819773	819785	819797	819809	819821	40	4. 10
20	9. 819833	819844	819856	819868	819880	819892	819904	819916	819928	819940	819952	819964	39	1 = 2
21	9. 819976	819988	820000	820012	820024	820036	820048	820060	820072	820084	820096	820108	38	2. 5
22	9. 820120	820132	820144	820155	820167	820179	820191	820203	820215	820227	820239	820251	37	3. 7
23	9. 820263	820275	820287	820299	820311	820323	820335	820347	820359	820371	820382	820394	36	4. 10
24	9. 820406	820418	820430	820442	820454	820466	820478	820490	820502	820514	820526	820538	35	1 = 2
25	9. 820550	820562	820573	820585	820597	820609	820621	820633	820645	820657	820669	820681	34	2. 5
26	9. 820693	820705	820717	820729	820740	820752	820764	820776	820788	820800	820812	820824	33	3. 7
27	9. 820836	820848	820860	820872	820884	820895	820907	820919	820931	820943	820955	820967	32	4. 10
28	9. 820979	820991	821003	821015	821027	821038	821050	821062	821074	821086	821098	821110	31	1 = 2
29	9. 821122	821134	821146	821158	821169	821181	821193	821205	821217	821229	821241	821253	30	2. 5
30	9. 821265	821277	821288	821300	821312	821324	821336	821348	821360	821372	821384	821395	29	3. 7
31	9. 821407	821419	821431	821443	821455	821467	821479	821491	821502	821514	821526	821538	28	4. 10
32	9. 821550	821562	821574	821586	821598	821609	821621	821633	821645	821657	821669	821681	27	1 = 2
33	9. 821693	821704	821716	821728	821740	821752	821764	821776	821788	821800	821811	821823	26	2. 5
34	9. 821835	821847	821859	821871	821883	821894	821906	821918	821930	821942	821954	821966	25	3. 7
35	9. 821978	821989	822001	822013	822025	822037	822049	822061	822072	822084	822096	822108	24	4. 10
36	9. 822120	822132	822144	822155	822167	822179	822191	822203	822215	822227	822238	822250	23	1 = 2
37	9. 822262	822274	822286	822298	822310	822321	822333	822345	822357	822369	822381	822392	22	2 5
38	9. 822404	822416	822428	822440	822452	822463	822475	822487	822499	822511	822523	822535	21	3. 7
39	9. 822546	822558	822570	822582	822594	822606	822617	822629	822641	822653	822665	822677	20	4. 9
40	9. 822688	822700	822712	822724	822736	822748	822759	822771	822783	822795	822807	822818	19	1 = 2
41	9. 822830	822842	822854	822866	822878	822889	822901	822913	822925	822937	822948	822960	18	2. 5
42	9. 822972	822984	822996	823008	823019	823031	823043	823055	823067	823078	823090	823102	17	3. 7
43	9. 823114	823126	823137	823149	823161	823173	823185	823197	823208	823220	823232	823244	16	4. 9
44	9. 823256	823267	823279	823291	823303	823315	823326	823338	823350	823362	823374	823385	15	1 = 2
45	9. 823397	823409	823421	823432	823444	823456	823468	823480	823491	823503	823515	823527	14	2. 5
46	9. 823539	823550	823562	823574	823586	823598	823609	823621	823633	823645	823656	823668	13	3. 7
47	9. 823680	823692	823704	823715	823727	823739	823751	823762	823774	823786	823798	823810	12	4. 9
48	9. 823821	823833	823845	823857	823868	823880	823892	823904	823916	823927	823939	823951	11	1 = 2
49	9. 823963	823974	823986	823998	824010	824021	824033	824045	824057	824068	824080	824092	10	2. 5
50	9. 824104	824116	824127	824139	824151	824163	824174	824186	824198	824210	824221	824233	9	3. 7
51	9. 824245	824257	824268	824280	824292	824304	824315	824327	824339	824351	824362	824374	8	4. 9
52	9. 824386	824398	824409	824421	824433	824445	824456	824468	824480	824492	824503	824515	7	1 = 2
53	9. 824527	824539	824550	824562	824574	824585	824597	824609	824621	824632	824644	824656	6	2. 5
54	9. 824668	824679	824691	824703	824715	824726	824738	824750	824761	824773	824785	824797	5	3. 7
55	9. 824808	824820	824832	824844	824855	824867	824879	824890	824902	824914	824926	824937	4	4. 9
56	9. 824949	824961	824973	824984	824996	825008	825019	825031	825043	825055	825066	825078	3	1 = 2
57	9. 825090	825101	825113	825125	825137	825148	825160	825172	825183	825195	825207	825218	2	2. 5
58	9. 825230	825242	825254	825265	825277	825289	825300	825312	825324	825335	825347	825359	1	3. 7
59	9. 825371	825382	825394	825406	825417	825429	825441	825452	825464	825476	825488	825499	0	4. 9
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 48 degrees, or Sine of 138 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 42 degrees, or Co-sine of 132 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 825511	825523	825534	825546	825558	825569	825581	825593	825604	825616	825628	825640	59	1″ =
1	9. 825651	825663	825675	825686	825698	825710	825721	825733	825745	825756	825768	825780	58	2.
2	9. 825791	825803	825815	825826	825838	825850	825861	825873	825885	825896	825908	825920	57	3.
3	9. 825931	825943	825955	825967	825978	825990	826001	826013	826025	826037	826048	826060	56	4.
4	9. 826072	826083	826095	826107	826118	826130	826141	826153	826165	826176	826188	826200	55	1 =
5	9. 826211	826223	826235	826246	826258	826270	826281	826293	826305	826316	826328	826340	54	2.
6	9. 826351	826363	826375	826386	826398	826410	826421	826433	826444	826456	826468	826479	53	3.
7	9. 826491	826503	826514	826526	826538	826549	826561	826573	826584	826596	826607	826619	52	4.
8	9. 826631	826642	826654	826666	826677	826689	826701	826712	826724	826735	826747	826759	51	1 =
9	9. 826770	826782	826794	826805	826817	826829	826840	826852	826863	826875	826887	826898	50	2.
10	9. 826910	826922	826933	826945	826956	826968	826980	826991	827003	827014	827026	827038	49	3.
11	9. 827049	827061	827073	827084	827096	827107	827119	827131	827142	827154	827165	827177	48	4.
12	9. 827189	827200	827212	827224	827235	827247	827258	827270	827282	827293	827305	827316	47	1 =
13	9. 827328	827340	827351	827363	827374	827386	827398	827409	827421	827432	827444	827456	46	2.
14	9. 827467	827479	827490	827502	827514	827525	827537	827548	827560	827572	827583	827595	45	3.
15	9. 827606	827618	827629	827641	827653	827664	827676	827687	827699	827711	827722	827734	44	4.
16	9. 827745	827757	827769	827780	827792	827803	827815	827826	827838	827850	827861	827873	43	1 =
17	9. 827884	827896	827907	827919	827931	827942	827954	827965	827977	827988	828000	828012	42	2.
18	9. 828023	828035	828046	828058	828069	828081	828093	828104	828116	828127	828139	828150	41	3.
19	9. 828162	828174	828185	828197	828208	828220	828231	828243	828254	828266	828278	828289	40	4.
20	9. 828301	828312	828324	828335	828347	828358	828370	828382	828393	828405	828416	828428	39	1 =
21	9. 828439	828451	828462	828474	828486	828497	828509	828520	828532	828543	828555	828566	38	2.
22	9. 828578	828589	828601	828613	828624	828636	828647	828659	828670	828682	828693	828705	37	3.
23	9. 828716	828728	828739	828751	828762	828774	828786	828797	828809	828820	828832	828843	36	4.
24	9. 828855	828866	828878	828889	828901	828912	828924	828935	828947	828958	828970	828982	35	1 =
25	9. 828993	829005	829016	829028	829039	829051	829062	829074	829085	829097	829108	829120	34	2.
26	9. 829131	829143	829154	829166	829177	829189	829200	829212	829223	829235	829246	829258	33	3.
27	9. 829269	829281	829292	829304	829315	829327	829338	829350	829361	829373	829384	829396	32	4.
28	9. 829408	829419	829431	829442	829454	829465	829477	829488	829500	829511	829522	829534	31	1 =
29	9. 829545	829557	829568	829580	829591	829603	829614	829626	829637	829649	829660	829672	30	2.
30	9. 829683	829695	829706	829718	829729	829741	829752	829764	829775	829787	829798	829810	29	3.
31	9. 829821	829833	829844	829856	829867	829879	829890	829902	829913	829925	829936	829947	28	4.
32	9. 829959	829970	829982	829993	830005	830016	830028	830039	830051	830062	830074	830085	27	1 =
33	9. 830097	830108	830120	830131	830143	830154	830165	830177	830188	830200	830211	830223	26	2.
34	9. 830234	830246	830257	830269	830280	830292	830303	830314	830326	830337	830349	830360	25	3.
35	9. 830372	830383	830395	830406	830418	830429	830440	830452	830463	830475	830486	830498	24	4.
36	9. 830509	830521	830532	830543	830555	830566	830578	830589	830601	830612	830624	830635	23	1 =
37	9. 830646	830658	830669	830681	830692	830704	830715	830727	830738	830749	830761	830772	22	2
38	9. 830784	830795	830807	830818	830829	830841	830852	830864	830875	830887	830898	830910	21	3.
39	9. 830921	830932	830944	830955	830967	830978	830989	831001	831012	831024	831035	831047	20	4.
40	9. 831058	831069	831081	831092	831104	831115	831127	831138	831149	831161	831172	831184	19	1 =
41	9. 831195	831206	831218	831229	831241	831252	831264	831275	831286	831298	831309	831321	18	2.
42	9. 831332	831343	831355	831366	831378	831389	831400	831412	831423	831435	831446	831457	17	3.
43	9. 831469	831480	831492	831503	831514	831526	831537	831549	831560	831571	831583	831594	16	4.
44	9. 831606	831617	831628	831640	831651	831663	831674	831685	831697	831708	831720	831731	15	1 =
45	9. 831742	831754	831765	831777	831788	831799	831811	831822	831833	831845	831856	831868	14	2.
46	9. 831879	831890	831902	831913	831925	831936	831947	831959	831970	831981	831993	832004	13	3.
47	9. 832016	832027	832038	832050	832061	832072	832084	832095	832107	832118	832120	832141	12	4.
48	9. 832152	832163	832175	832186	832197	832209	832220	832232	832243	832254	832266	832277	11	1 =
49	9. 832288	832300	832311	832322	832334	832345	832357	832368	832379	832391	832402	832413	10	2.
50	9. 832425	832436	832447	832459	832470	832481	832493	832504	832516	832527	832538	832550	9	3.
51	9. 832561	832572	832584	832595	832606	832618	832629	832640	832652	832663	832674	832686	8	4.
52	9. 832697	832708	832720	832731	832742	832754	832765	832776	832788	832799	832810	832812	7	1 =
53	9. 832833	832844	832856	832867	832878	832890	832901	832912	832924	832935	832946	832958	6	2.
54	9. 832969	832980	832992	833003	833014	833026	833037	833048	833060	833071	833082	833094	5	3.
55	9. 833105	833116	833128	833139	833150	833162	833173	833184	833196	833207	833218	833230	4	4.
56	9. 833241	833252	833263	833275	833286	833297	833309	833320	833331	833343	833354	833365	3	1 =
57	9. 833377	833388	833399	833411	833422	833433	833444	833456	833467	833478	833490	833501	2	2.
58	9. 833512	833524	833535	833546	833557	833569	833580	833591	833603	833614	833625	833637	1	3.
59	9. 833648	833659	833670	833682	833693	833704	833716	833727	833738	833750	833761	833772	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 47 degrees, or Sine of 137 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 43 degrees, or Co-sine of 133 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.833783	833795	833806	833817	833829	833840	833851	833862	833874	833885	833896	833908	59	1″ = 2
1	9.833919	833930	833941	833953	833964	833975	833987	833998	834009	834020	834032	834043	58	2. 5
2	9.834054	834065	834077	834088	834099	834111	834122	834133	834144	834156	834167	834178	57	3. 7
3	9.834189	834201	834212	834223	834235	834246	834257	834268	834280	834291	834302	834313	56	4. 9
4	9.834325	834336	834347	834358	834370	834381	834392	834403	834415	834426	834437	834449	55	1 = 2
5	9.834460	834471	834482	834494	834505	834516	834527	834539	834550	834561	834572	834584	54	2. 5
6	9.834595	834606	834617	834629	834640	834651	834662	834674	834685	834696	834707	834719	53	3. 7
7	9.834730	834741	834752	834763	834775	834786	834797	834808	834820	834831	834842	834853	52	4. 9
8	9.834865	834876	834887	834898	834910	834921	834932	834943	834955	834966	834977	834988	51	1 = 2
9	9.834999	835011	835022	835033	835044	835056	835067	835078	835089	835100	835112	835123	50	2. 5
10	9.835134	835145	835157	835168	835179	835190	835202	835213	835224	835235	835246	835258	49	3. 7
11	9.835269	835280	835291	835302	835314	835325	835336	835347	835359	835370	835381	835392	48	4. 9
12	9.835403	835415	835426	835437	835448	835459	835471	835482	835493	835504	835515	835527	47	1 = 2
13	9.835538	835549	835560	835571	835583	835594	835605	835616	835627	835639	835650	835661	46	2. 4
14	9.835672	835683	835695	835706	835717	835728	835739	835751	835762	835773	835784	835795	45	3. 7
15	9.835807	835818	835829	835840	835851	835863	835874	835885	835896	835907	835919	835930	44	4. 9
16	9.835941	835952	835963	835974	835986	835997	836008	836019	836030	836042	836053	836064	43	1 = 2
17	9.836075	836086	836097	836109	836120	836131	836142	836153	836164	836176	836187	836198	42	2. 4
18	9.836209	836220	836231	836243	836254	836265	836276	836287	836299	836310	836321	836332	41	3. 7
19	9.836343	836354	836366	836377	836388	836399	836410	836421	836432	836444	836455	836466	40	4. 9
20	9.836477	836488	836499	836511	836522	836533	836544	836555	836566	836578	836589	836600	39	1 = 2
21	9.836611	836622	836633	836644	836656	836667	836678	836689	836700	836711	836722	836734	38	2. 4
22	9.836745	836756	836767	836778	836789	836800	836812	836823	836834	836845	836856	836867	37	3. 7
23	9.836878	836890	836901	836912	836923	836934	836945	836956	836968	836979	836990	837001	36	4. 9
24	9.837012	837023	837034	837045	837057	837068	837079	837090	837101	837112	837123	837135	35	1 = 2
25	9.837146	837157	837168	837179	837190	837201	837212	837224	837235	837246	837257	837268	34	2. 4
26	9.837279	837290	837301	837312	837324	837335	837346	837357	837368	837379	837390	837401	33	3. 7
27	9.837413	837424	837435	837446	837457	837468	837479	837490	837501	837513	837524	837535	32	4. 9
28	9.837546	837557	837568	837579	837590	837601	837612	837624	837635	837646	837657	837668	31	1 = 2
29	9.837679	837690	837701	837712	837723	837735	837746	837757	837768	837779	837790	837801	30	2. 4
30	9.837812	837823	837834	837846	837857	837868	837879	837890	837901	837912	837923	837934	29	3. 7
31	9.837945	837956	837968	837979	837990	838001	838012	838023	838034	838045	838056	838067	28	4. 9
32	9.838078	838089	838101	838112	838123	838134	838145	838156	838167	838178	838189	838200	27	1 = 2
33	9.838211	838222	838233	838245	838256	838267	838278	838289	838300	838311	838322	838333	26	2. 4
34	9.838344	838355	838366	838377	838388	838399	838411	838422	838433	838444	838455	838466	25	3. 7
35	9.838477	838488	838499	838510	838521	838532	838543	838554	838565	838576	838587	838599	24	4. 9
36	9.838610	838621	838632	838643	838654	838665	838676	838687	838698	838709	838720	838731	23	1 = 2
37	9.838742	838753	838764	838775	838786	838797	838809	838820	838831	838842	838853	838864	22	2. 4
38	9.838875	838886	838897	838908	838919	838930	838941	838952	838963	838974	838985	838996	21	3. 7
39	9.839007	839018	839029	839040	839051	839062	839073	839084	839096	839107	839118	839129	20	4. 9
40	9.839140	839151	839162	839173	839184	839195	839206	839217	839228	839239	839250	839261	19	1 = 2
41	9.839272	839283	839294	839305	839316	839327	839338	839349	839360	839371	839382	839393	18	2. 4
42	9.839404	839415	839426	839437	839448	839459	839470	839481	839492	839503	839514	839525	17	3. 7
43	9.839536	839547	839558	839569	839580	839591	839602	839613	839624	839635	839646	839657	16	4. 9
44	9.839668	839679	839690	839701	839712	839723	839734	839745	839756	839767	839778	839789	15	1 = 2
45	9.839800	839811	839822	839833	839844	839855	839866	839877	839888	839899	839910	839921	14	2. 4
46	9.839932	839943	839954	839965	839976	839987	839998	840009	840020	840031	840042	840053	13	3. 7
47	9.840064	840075	840086	840097	840108	840119	840130	840141	840152	840163	840174	840185	12	4. 9
48	9.840196	840207	840218	840229	840240	840251	840262	840273	840284	840295	840306	840317	11	1 = 2
49	9.840328	840339	840350	840361	840372	840383	840394	840404	840415	840426	840437	840448	10	2. 4
50	9.840459	840470	840481	840492	840503	840514	840525	840536	840547	840558	840569	840580	9	3. 7
51	9.840591	840602	840613	840624	840635	840646	840657	840668	840679	840689	840700	840711	8	4. 9
52	9.840722	840733	840744	840755	840766	840777	840788	840799	840810	840821	840832	840843	7	1 = 2
53	9.840854	840865	840876	840887	840897	840908	840919	840930	840941	840952	840963	840974	6	2. 4
54	9.840985	840996	841007	841018	841029	841040	841051	841062	841073	841083	841094	841105	5	3. 7
55	9.841116	841127	841138	841149	841160	841171	841182	841193	841204	841215	841226	841237	4	4. 9
56	9.841247	841258	841269	841280	841291	841302	841313	841324	841335	841346	841357	841368	3	1 = 2
57	9.841379	841389	841400	841411	841422	841433	841444	841455	841466	841477	841488	841499	2	2. 4
58	9.841510	841520	841531	841542	841553	841564	841575	841586	841597	841608	841619	841630	1	3. 7
59	9.841640	841651	841662	841673	841684	841695	841706	841717	841728	841739	841750	841760	0	4. 9
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-sine of 46 degrees, or Sine of 136 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 44 degrees, or Co-sine of 134 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 841771	841782	841793	841804	841815	841826	841837	841848	841859	841869	841880	841891	59	1″ =
1	9. 841902	841913	841924	841935	841946	841957	841967	841978	841989	842000	842011	842022	58	2.
2	9. 842033	842044	842055	842065	842076	842087	842098	842109	842120	842131	842142	842153	57	3.
3	9. 842163	842174	842185	842196	842207	842218	842229	842240	842250	842261	842272	842283	56	4.
4	9. 842294	842305	842316	842327	842337	842348	842359	842370	842381	842392	842403	842414	55	1 =
5	9. 842424	842435	842446	842457	842468	842479	842490	842501	842511	842522	842533	842544	54	2.
6	9. 842555	842566	842577	842587	842598	842609	842620	842631	842642	842653	842663	842674	53	3.
7	9. 842685	842696	842707	842718	842729	842739	842750	842761	842772	842783	842794	842805	52	4.
8	9. 842815	842826	842837	842848	842859	842870	842881	842891	842902	842913	842924	842935	51	1 =
9	9. 842946	842956	842967	842978	842989	843000	843011	843022	843032	843043	843054	843065	50	2.
10	9. 843076	843087	843097	843108	843119	843130	843141	843152	843162	843173	843184	843195	49	3.
11	9. 843206	843217	843227	843238	843249	843260	843271	843282	843292	843303	843314	843325	48	4.
12	9. 843336	843347	843357	843368	843379	843390	843401	843411	843422	843433	843444	843455	47	1 =
13	9. 843466	843476	843487	843498	843509	843520	843530	843541	843552	843563	843574	843585	46	2.
14	9. 843595	843606	843617	843628	843639	843649	843660	843671	843682	843693	843703	843714	45	3.
15	9. 843725	843736	843747	843757	843768	843779	843790	843801	843812	843822	843833	843844	44	4.
16	9. 843855	843866	843876	843887	843898	843909	843920	843930	843941	843952	843963	843973	43	1 =
17	9. 843984	843995	844006	844017	844027	844038	844049	844060	844071	844081	844092	844103	42	2.
18	9. 844114	844125	844135	844146	844157	844168	844179	844189	844200	844211	844222	844232	41	3.
19	9. 844243	844254	844265	844276	844286	844297	844308	844319	844329	844340	844351	844362	40	4.
20	9. 844373	844383	844394	844405	844416	844426	844437	844448	844459	844470	844480	844491	39	1 =
21	9. 844502	844513	844523	844534	844545	844556	844566	844577	844588	844599	844609	844620	38	2.
22	9. 844631	844642	844653	844663	844674	844685	844696	844706	844717	844728	844739	844749	37	3.
23	9. 844760	844771	844782	844792	844803	844814	844825	844835	844846	844857	844868	844878	36	4.
24	9. 844889	844900	844911	844921	844932	844943	844954	844964	844975	844986	844997	845007	35	1 =
25	9. 845018	845029	845040	845050	845061	845072	845083	845093	845104	845115	845126	845136	34	2.
26	9. 845147	845158	845169	845179	845190	845201	845211	845222	845233	845244	845254	845265	33	3.
27	9. 845276	845287	845297	845308	845319	845329	845340	845351	845362	845372	845383	845394	32	4.
28	9. 845405	845415	845426	845437	845447	845458	845469	845480	845490	845501	845512	845523	31	1 =
29	9. 845533	845544	845555	845565	845576	845587	845598	845608	845619	845630	845640	845651	30	2.
30	9. 845662	845673	845683	845694	845705	845715	845726	845737	845748	845758	845769	845780	29	3.
31	9. 845790	845801	845812	845822	845833	845844	845855	845865	845876	845887	845897	845908	28	4.
32	9. 845919	845930	845940	845951	845962	845972	845983	845994	846004	846015	846026	846036	27	1 =
33	9. 846047	846058	846069	846079	846090	846101	846111	846122	846133	846143	846154	846165	26	2.
34	9. 846175	846186	846197	846208	846218	846229	846240	846250	846261	846272	846282	846293	25	3.
35	9. 846304	846314	846325	846336	846346	846357	846368	846378	846389	846400	846410	846421	24	4.
36	9. 846432	846443	846453	846464	846475	846485	846496	846507	846517	846528	846539	846549	23	1 =
37	9. 846560	846571	846581	846592	846603	846613	846624	846635	846645	846656	846667	846677	22	2.
38	9. 846688	846699	846709	846720	846731	846741	846752	846763	846773	846784	846795	846805	21	3.
39	9. 846816	846826	846837	846848	846858	846869	846880	846890	846901	846912	846922	846933	20	4.
40	9. 846944	846954	846965	846976	846986	846997	847008	847018	847029	847040	847050	847061	19	1 =
41	9. 847071	847082	847093	847103	847114	847125	847135	847146	847157	847167	847178	847189	18	2.
42	9. 847199	847210	847220	847231	847242	847252	847263	847274	847284	847295	847306	847316	17	3.
43	9. 847327	847337	847348	847359	847369	847380	847391	847401	847412	847422	847433	847444	16	4.
44	9. 847454	847465	847476	847486	847497	847507	847518	847529	847539	847550	847561	847571	15	1 =
45	9. 847582	847592	847603	847614	847624	847635	847646	847656	847667	847677	847688	847699	14	2.
46	9. 847709	847720	847730	847741	847752	847762	847773	847783	847794	847805	847815	847826	13	3.
47	9. 847837	847847	847858	847868	847879	847890	847900	847911	847921	847932	847943	847953	12	4.
48	9. 847964	847974	847985	847996	848006	848017	848027	848038	848049	848059	848070	848080	11	1 =
49	9. 848091	848102	848112	848123	848133	848144	848155	848165	848176	848186	848197	848207	10	2.
50	9. 848218	848229	848239	848250	848260	848271	848282	848292	848303	848313	848324	848335	9	3.
51	9. 848345	848356	848366	848377	848387	848398	848400	848419	848430	848440	848451	848461	8	4.
52	9. 848472	848483	848493	848504	848514	848525	848535	848546	848557	848567	848578	848588	7	1 =
53	9. 848599	848610	848620	848631	848641	848652	848662	848673	848683	848694	848705	848715	6	2.
54	9. 848726	848736	848747	848757	848768	848779	848789	848800	848810	848821	848831	848842	5	3.
55	9. 848852	848863	848874	848884	848895	848905	848916	848926	848937	848947	848958	848969	4	4.
56	9. 848979	848990	849000	849011	849021	849032	849042	849053	849064	849074	849085	849095	3	1 =
57	9. 849106	849116	849127	849137	849148	849158	849169	849180	849190	849201	849211	849222	2	2.
58	9. 849232	849243	849253	849264	849274	849285	849295	849306	849317	849327	849338	849348	1	3.
59	9. 849359	849369	849380	849390	849401	849411	849422	849432	849443	849453	849464	849475	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 45 degrees, or Sine of 135 degrees.													

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Minutes	Sine of 45 degrees, or Co-sine of 135 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.849485	849496	849506	849517	849527	849538	849548	849559	849569	849580	849590	849601	59	1″ = 2
1	9.849611	849622	849632	849643	849653	849664	849674	849685	849696	849706	849717	849727	58	2. 4
2	9.849738	849748	849759	849769	849780	849790	849801	849811	849822	849832	849843	849853	57	3. 6
3	9.849864	849874	849885	849895	849906	849916	849927	849937	849948	849958	849969	849979	56	4. 8
4	9.849990	850000	850011	850021	850032	850042	850053	850063	850074	850084	850095	850105	55	1 = 2
5	9.850116	850126	850137	850147	850158	850168	850179	850189	850200	850210	850221	850231	54	2. 4
6	9.850242	850252	850263	850273	850284	850294	850305	850315	850326	850336	850347	850357	53	3. 6
7	9.850368	850378	850389	850399	850410	850420	850430	850441	850451	850462	850472	850483	52	4. 8
8	9.850493	850504	850514	850525	850535	850546	850556	850567	850577	850588	850598	850609	51	1 = 2
9	9.850619	850630	850640	850650	850661	850671	850682	850692	850703	850713	850724	850734	50	2. 4
10	9.850745	850755	850766	850776	850787	850797	850807	850818	850828	850839	850849	850860	49	3. 6
11	9.850870	850881	850891	850902	850912	850923	850933	850943	850954	850964	850975	850985	48	4. 8
12	9.850996	851006	851017	851027	851038	851048	851058	851069	851079	851090	851100	851111	47	1 = 2
13	9.851121	851132	851142	851153	851163	851173	851184	851194	851205	851215	851226	851236	46	2. 4
14	9.851247	851257	851267	851278	851288	851299	851309	851320	851330	851340	851351	851361	45	3. 6
15	9.851372	851382	851393	851403	851414	851424	851434	851445	851455	851466	851476	851487	44	4. 8
16	9.851497	851507	851518	851528	851539	851549	851560	851570	851580	851591	851601	851612	43	1 = 2
17	9.851622	851633	851643	851653	851664	851674	851685	851695	851705	851716	851726	851737	42	2. 4
18	9.851747	851758	851768	851778	851789	851799	851810	851820	851830	851841	851851	851862	41	3. 6
19	9.851872	851883	851893	851903	851914	851924	851935	851945	851955	851966	851976	851987	40	4. 8
20	9.851997	852007	852018	852028	852039	852049	852059	852070	852080	852091	852101	852111	39	1 = 2
21	9.852122	852132	852143	852153	852163	852174	852184	852195	852205	852215	852226	852236	38	2. 4
22	9.852247	852257	852267	852278	852288	852299	852309	852319	852330	852340	852351	852361	37	3. 6
23	9.852371	852382	852392	852402	852413	852423	852434	852444	852454	852465	852475	852486	36	4. 8
24	9.852496	852506	852517	852527	852537	852548	852558	852569	852579	852589	852600	852610	35	1 = 2
25	9.852620	852631	852641	852652	852662	852672	852683	852693	852703	852714	852724	852735	34	2. 4
26	9.852745	852755	852766	852776	852786	852797	852807	852818	852828	852838	852849	852859	33	3. 6
27	9.852869	852880	852890	852900	852911	852921	852932	852942	852952	852963	852973	852983	32	4. 8
28	9.852994	853004	853014	853025	853035	853045	853056	853066	853077	853087	853097	853108	31	1 = 2
29	9.853118	853128	853139	853149	853159	853170	853180	853190	853201	853211	853221	853232	30	2. 4
30	9.853242	853252	853263	853273	853283	853294	853304	853315	853325	853335	853346	853356	29	3. 6
31	9.853366	853377	853387	853397	853408	853418	853428	853439	853449	853459	853470	853480	28	4. 8
32	9.853490	853501	853511	853521	853532	853542	853552	853563	853573	853583	853594	853604	27	1 = 2
33	9.853614	853625	853635	853645	853656	853666	853676	853686	853697	853707	853717	853728	26	2. 4
34	9.853738	853748	853759	853769	853779	853790	853800	853810	853821	853831	853841	853852	25	3. 6
35	9.853862	853872	853883	853893	853903	853913	853924	853934	853944	853955	853965	853975	24	4. 8
36	9.853986	853996	854006	854017	854027	854037	854048	854058	854068	854078	854089	854099	23	1 = 2
37	9.854109	854120	854130	854140	854151	854161	854171	854181	854192	854202	854212	854223	22	2 4
38	9.854233	854243	854254	854264	854274	854284	854295	854305	854315	854326	854336	854346	21	3. 6
39	9.854356	854367	854377	854387	854398	854408	854418	854429	854439	854449	854459	854470	20	4. 8
40	9.854480	854490	854501	854511	854521	854531	854542	854552	854562	854573	854583	854593	19	1 = 2
41	9.854603	854614	854624	854634	854644	854655	854665	854675	854686	854696	854706	854716	18	2. 4
42	9.854727	854737	854747	854757	854768	854778	854788	854799	854809	854819	854829	854840	17	3. 6
43	9.854850	854860	854870	854881	854891	854901	854911	854922	854932	854942	854953	854963	16	4. 8
44	9.854973	854983	854994	855004	855014	855024	855035	855045	855055	855065	855076	855086	15	1 = 2
45	9.855096	855106	855117	855127	855137	855147	855158	855168	855178	855188	855199	855209	14	2. 4
46	9.855219	855229	855240	855250	855260	855270	855281	855291	855301	855311	855322	855332	13	3. 6
47	9.855342	855352	855363	855373	855383	855393	855404	855414	855424	855434	855445	855455	12	4. 8
48	9.855465	855475	855486	855496	855506	855516	855526	855537	855547	855557	855567	855578	11	1 = 2
49	9.855588	855598	855608	855619	855629	855639	855649	855659	855670	855680	855690	855700	10	2. 4
50	9.855711	855721	855731	855741	855752	855762	855772	855782	855792	855803	855813	855823	9	3. 6
51	9.855833	855844	855854	855864	855874	855884	855895	855905	855915	855925	855935	855946	8	4. 8
52	9.855956	855966	855976	855987	855997	856007	856017	856027	856038	856048	856058	856068	7	1 = 2
53	9.856078	856089	856099	856109	856119	856129	856140	856150	856160	856170	856180	856191	6	2. 4
54	9.856201	856211	856221	856231	856242	856252	856262	856272	856282	856293	856303	856313	5	3. 6
55	9.856323	856333	856344	856354	856364	856374	856384	856395	856405	856415	856425	856435	4	4. 8
56	9.856446	856456	856466	856476	856486	856497	856507	856517	856527	856537	856547	856558	3	1 = 2
57	9.856568	856578	856588	856598	856609	856619	856629	856639	856649	856659	856670	856680	2	2. 4
58	9.856690	856700	856710	856721	856731	856741	856751	856761	856771	856782	856792	856802	1	3. 6
59	9.856812	856822	856832	856843	856853	856863	856873	856883	856893	856904	856914	856924	0	4. 8
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 44 degrees, or Sine of 134 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 46 degrees, or Co-sine of 136 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.856934	856944	856954	856965	856975	856985	856995	857005	857015	857026	857036	857046	59	1″ = 1
1	9.857056	857066	857076	857087	857097	857107	857117	857127	857137	857148	857158	857168	58	2. 4
2	9.857178	857188	857198	857208	857219	857229	857239	857249	857259	857269	857280	857290	57	3. 6
3	9.857300	857310	857320	857330	857340	857351	857361	857371	857381	857391	857401	857411	56	4. 8
4	9.857422	857432	857442	857452	857462	857472	857482	857493	857503	857513	857523	857533	55	1″ = 1
5	9.857543	857553	857564	857574	857584	857594	857604	857614	857624	857634	857645	857655	54	2. 4
6	9.857665	857675	857685	857695	857705	857715	857726	857736	857746	857756	857766	857776	53	3. 6
7	9.857786	857797	857807	857817	857827	857837	857847	857857	857867	857877	857888	857898	52	4. 8
8	9.857908	857918	857928	857938	857948	857958	857969	857979	857989	857999	858009	858019	51	1″ = 1
9	9.858029	858039	858049	858060	858070	858080	858090	858100	858110	858120	858130	858140	50	2. 4
10	9.858151	858161	858171	858181	858191	858201	858211	858221	858231	858242	858252	858262	49	3. 6
11	9.858272	858282	858292	858302	858312	858322	858332	858343	858353	858363	858373	858383	48	4. 8
12	9.858393	858403	858413	858423	858433	858443	858454	858464	858474	858484	858494	858504	47	1″ = 1
13	9.858514	858524	858534	858544	858554	858565	858575	858585	858595	858605	858615	858625	46	2. 4
14	9.858635	858645	858655	858665	858675	858686	858696	858706	858716	858726	858736	858746	45	3. 6
15	9.858756	858766	858776	858786	858796	858807	858817	858827	858837	858847	858857	858867	44	4. 8
16	9.858877	858887	858897	858907	858917	858927	858937	858948	858958	858968	858978	858988	43	1″ = 1
17	9.858998	859008	859018	859028	859038	859048	859058	859068	859078	859088	859098	859109	42	2. 4
18	9.859119	859129	859139	859149	859159	859169	859179	859189	859199	859209	859219	859229	41	3. 6
19	9.859239	859249	859259	859269	859280	859290	859300	859310	859320	859330	859340	859350	40	4. 8
20	9.859360	859370	859380	859390	859400	859410	859420	859430	859440	859450	859460	859470	39	1″ = 1
21	9.859480	859491	859501	859511	859521	859531	859541	859551	859561	859571	859581	859591	38	2. 4
22	9.859601	859611	859621	859631	859641	859651	859661	859671	859681	859691	859701	859711	37	3. 6
23	9.859721	859731	859741	859751	859761	859772	859782	859792	859802	859812	859822	859832	36	4. 8
24	9.859842	859852	859862	859872	859882	859892	859902	859912	859922	859932	859942	859952	35	1″ = 1
25	9.859962	859972	859982	859992	860002	860012	860022	860032	860042	860052	860062	860072	34	2. 4
26	9.860082	860092	860102	860112	860122	860132	860142	860152	860162	860172	860182	860192	33	3. 6
27	9.860202	860212	860222	860232	860242	860252	860262	860272	860282	860292	860302	860312	32	4. 8
28	9.860322	860332	860342	860352	860362	860372	860382	860392	860402	860412	860422	860432	31	1″ = 1
29	9.860442	860452	860462	860472	860482	860492	860502	860512	860522	860532	860542	860552	30	2. 4
30	9.860562	860572	860582	860592	860602	860612	860622	860632	860642	860652	860662	860672	29	3. 6
31	9.860682	860692	860702	860712	860722	860732	860742	860752	860762	860772	860782	860792	28	4. 8
32	9.860802	860812	860822	860832	860842	860852	860862	860872	860882	860892	860902	860912	27	1″ = 1
33	9.860922	860932	860942	860952	860961	860971	860981	860991	861001	861011	861021	861031	26	2. 4
34	9.861041	861051	861061	861071	861081	861091	861101	861111	861121	861131	861141	861151	25	3. 6
35	9.861161	861171	861181	861191	861201	861211	861221	861231	861240	861250	861260	861270	24	4. 8
36	9.861280	861290	861300	861310	861320	861330	861340	861350	861360	861370	861380	861390	23	1″ = 1
37	9.861400	861410	861420	861430	861440	861449	861459	861469	861479	861489	861499	861509	22	2. 4
38	9.861519	861529	861539	861549	861559	861569	861579	861589	861599	861609	861619	861628	21	3. 6
39	9.861638	861648	861658	861668	861678	861688	861698	861708	861718	861728	861738	861748	20	4. 8
40	9.861758	861768	861777	861787	861797	861807	861817	861827	861837	861847	861857	861867	19	1″ = 1
41	9.861877	861887	861897	861907	861916	861926	861936	861946	861956	861966	861976	861986	18	2. 4
42	9.861996	862006	862016	862026	862036	862045	862055	862065	862075	862085	862095	862105	17	3. 6
43	9.862115	862125	862135	862145	862155	862164	862174	862184	862194	862204	862214	862224	16	4. 8
44	9.862234	862244	862254	862264	862273	862283	862293	862303	862313	862323	862333	862343	15	1″ = 1
45	9.862353	862363	862372	862382	862392	862402	862412	862422	862432	862442	862452	862462	14	2. 4
46	9.862471	862481	862491	862501	862511	862521	862531	862541	862551	862561	862570	862580	13	3. 6
47	9.862590	862600	862610	862620	862630	862640	862650	862659	862669	862679	862689	862699	12	4. 8
48	9.862709	862719	862729	862739	862748	862758	862768	862778	862788	862798	862808	862818	11	1″ = 1
49	9.862827	862837	862847	862857	862867	862877	862887	862897	862907	862916	862926	862936	10	2. 4
50	9.862946	862956	862966	862976	862986	862995	863005	863015	863025	863035	863045	863055	9	3. 6
51	9.863064	863074	863084	863094	863104	863114	863124	863134	863143	863153	863163	863173	8	4. 8
52	9.863183	863193	863203	863212	863222	863232	863242	863252	863262	863272	863281	863291	7	1″ = 1
53	9.863301	863311	863321	863331	863341	863350	863360	863370	863380	863390	863400	863410	6	2. 4
54	9.863419	863429	863439	863449	863459	863469	863479	863488	863498	863508	863518	863528	5	3. 6
55	9.863538	863547	863557	863567	863577	863587	863597	863607	863616	863626	863636	863646	4	4. 8
56	9.863656	863666	863675	863685	863695	863705	863715	863725	863734	863744	863754	863764	3	1″ = 1
57	9.863774	863784	863793	863803	863813	863823	863833	863843	863852	863862	863872	863882	2	2. 4
58	9.863892	863902	863911	863921	863931	863941	863951	863961	863970	863980	863990	864000	1	3. 6
59	9.864010	864019	864029	864039	864049	864059	864069	864078	864088	864098	864108	864118	0	4. 8
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 43 degrees, or Sine of 133 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 47 degrees, or Co-sine of 137 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.864128	864137	864147	864157	864167	864177	864186	864196	864206	864216	864226	864235	59	1″ = 2
1	9.864245	864255	864265	864275	864285	864294	864304	864314	864324	864334	864343	864353	58	2. 4
2	9.864363	864373	864383	864392	864402	864412	864422	864432	864441	864451	864461	864471	57	3. 6
3	9.864481	864490	864500	864510	864520	864530	864539	864549	864559	864569	864579	864588	56	4. 8
4	9.864598	864608	864618	864628	864637	864647	864657	864667	864677	864686	864696	864706	55	1 = 2
5	9.864716	864725	864735	864745	864755	864765	864774	864784	864794	864804	864814	864823	54	2. 4
6	9.864833	864843	864853	864862	864872	864882	864892	864902	864911	864921	864931	864941	53	3. 6
7	9.864950	864960	864970	864980	864990	864999	865009	865019	865029	865038	865048	865058	52	4. 8
8	9.865068	865078	865087	865097	865107	865117	865126	865136	865146	865156	865165	865175	51	1 = 2
9	9.865185	865195	865205	865214	865224	865234	865244	865253	865263	865273	865283	865292	50	2. 4
10	9.865302	865312	865322	865331	865341	865351	865361	865370	865380	865390	865400	865409	49	3. 6
11	9.865419	865429	865439	865448	865458	865468	865478	865487	865497	865507	865517	865526	48	4. 8
12	9.865536	865546	865556	865565	865575	865585	865595	865604	865614	865624	865634	865643	47	1 = 2
13	9.865653	865663	865673	865682	865692	865702	865712	865721	865731	865741	865751	865760	46	2. 4
14	9.865770	865780	865790	865799	865809	865819	865828	865838	865848	865858	865867	865877	45	3. 6
15	9.865887	865897	865906	865916	865926	865936	865945	865955	865965	865974	865984	865994	44	4. 8
16	9.866004	866013	866023	866033	866043	866052	866062	866072	866081	866091	866101	866111	43	1 = 2
17	9.866120	866130	866140	866149	866159	866169	866179	866188	866198	866208	866217	866227	42	2. 4
18	9.866237	866247	866256	866266	866276	866285	866295	866305	866315	866324	866334	866344	41	3. 6
19	9.866353	866363	866373	866383	866392	866402	866412	866421	866431	866441	866451	866460	40	4. 8
20	9.866470	866480	866489	866499	866509	866518	866528	866538	866548	866557	866567	866577	39	1 = 2
21	9.866586	866596	866606	866615	866625	866635	866645	866654	866664	866674	866683	866693	38	2. 4
22	9.866703	866712	866722	866732	866741	866751	866761	866770	866780	866790	866800	866809	37	3. 6
23	9.866819	866829	866838	866848	866858	866867	866877	866887	866896	866906	866916	866925	36	4. 8
24	9.866935	866945	866955	866964	866974	866984	866993	867003	867013	867022	867032	867042	35	1 = 2
25	9.867051	867061	867071	867080	867090	867100	867109	867119	867129	867138	867148	867158	34	2. 4
26	9.867167	867177	867187	867196	867206	867216	867225	867235	867245	867254	867264	867274	33	3. 6
27	9.867283	867293	867303	867312	867322	867332	867341	867351	867361	867370	867380	867390	32	4. 8
28	9.867399	867409	867419	867428	867438	867448	867457	867467	867477	867486	867496	867505	31	1 = 2
29	9.867515	867525	867534	867544	867554	867563	867573	867583	867592	867602	867612	867621	30	2. 4
30	9.867631	867641	867650	867660	867670	867679	867689	867698	867708	867718	867727	867737	29	3. 6
31	9.867747	867756	867766	867776	867785	867795	867805	867814	867824	867833	867843	867853	28	4. 8
32	9.867862	867872	867882	867891	867901	867910	867920	867930	867939	867949	867959	867968	27	1 = 2
33	9.867978	867988	867997	868007	868016	868026	868036	868045	868055	868065	868074	868084	26	2. 4
34	9.868093	868103	868113	868122	868132	868142	868151	868161	868170	868180	868190	868199	25	3. 6
35	9.868209	868219	868228	868238	868247	868257	868267	868276	868286	868295	868305	868315	24	4. 8
36	9.868324	868334	868344	868353	868363	868372	868382	868392	868401	868411	868420	868430	23	1 = 2
37	9.868440	868449	868459	868468	868478	868488	868497	868507	868516	868526	868536	868545	22	2 4
38	9.868555	868564	868574	868584	868593	868603	868612	868622	868632	868641	868651	868660	21	3. 6
39	9.868670	868680	868689	868699	868708	868718	868728	868737	868747	868756	868766	868776	20	4. 8
40	9.868785	868795	868804	868814	868824	868833	868843	868852	868862	868871	868881	868891	19	1 = 2
41	9.868900	868910	868919	868929	868939	868948	868958	868967	868977	868986	868996	869006	18	2. 4
42	9.869015	869025	869034	869044	869054	869063	869073	869082	869092	869101	869111	869121	17	3. 6
43	9.869130	869140	869149	869159	869168	869178	869188	869197	869207	869216	869226	869235	16	4. 8
44	9.869245	869255	869264	869274	869283	869293	869302	869312	869322	869331	869341	869350	15	1 = 2
45	9.869360	869369	869379	869388	869398	869408	869417	869427	869436	869446	869455	869465	14	2. 4
46	9.869474	869484	869494	869503	869513	869522	869532	869541	869551	869560	869570	869580	13	3. 6
47	9.869589	869599	869608	869618	869627	869637	869646	869656	869666	869675	869685	869694	12	4. 8
48	9.869704	869713	869723	869732	869742	869751	869761	869771	869780	869790	869799	869809	11	1 = 2
49	9.869818	869828	869837	869847	869856	869866	869875	869885	869895	869904	869914	869923	10	2. 4
50	9.869933	869942	869952	869961	869971	869980	869990	869999	870009	870018	870028	870038	9	3. 6
51	9.870047	870057	870066	870076	870085	870095	870104	870114	870123	870133	870142	870152	8	4. 8
52	9.870161	870171	870180	870190	870199	870209	870219	870228	870238	870247	870257	870266	7	1 = 2
53	9.870276	870285	870295	870304	870314	870323	870333	870342	870352	870361	870371	870380	6	2. 4
54	9.870390	870399	870409	870418	870428	870437	870447	870456	870466	870475	870485	870494	5	3. 6
55	9.870504	870513	870523	870532	870542	870551	870561	870570	870580	870589	870599	870608	4	4. 8
56	9.870618	870627	870637	870646	870656	870665	870675	870684	870694	870703	870713	870722	3	1 = 2
57	9.870732	870741	870751	870760	870770	870779	870789	870798	870808	870817	870827	870836	2	2. 4
58	9.870846	870855	870865	870874	870884	870893	870903	870912	870922	870931	870941	870950	1	3. 6
59	9.870960	870969	870979	870988	870998	871007	871017	871026	871036	871045	871055	871064	0	4. 8
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 42 degrees, or Sine of 132 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 48 degrees, or Co-sine of 138 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.871074	871083	871092	871102	871111	871121	871130	871140	871149	871159	871168	871178	59	1″ = 2
1	9.871187	871197	871206	871216	871225	871235	871244	871254	871263	871272	871282	871291	58	2. 4
2	9.871301	871310	871320	871329	871339	871348	871358	871367	871377	871386	871396	871405	57	3. 6
3	9.871414	871424	871433	871443	871452	871462	871471	871481	871490	871500	871509	871519	56	4. 8
4	9.871528	871537	871547	871556	871566	871575	871585	871594	871604	871613	871623	871632	55	1 = 2
5	9.871641	871651	871660	871670	871679	871689	871698	871708	871717	871726	871736	871745	54	2. 4
6	9.871755	871764	871774	871783	871793	871802	871811	871821	871830	871840	871849	871859	53	3. 6
7	9.871868	871878	871887	871896	871906	871915	871925	871934	871944	871953	871963	871972	52	4. 8
8	9.871981	871991	872000	872010	872019	872029	872038	872047	872057	872066	872076	872085	51	1 = 2
9	9.872095	872104	872113	872123	872132	872142	872151	872161	872170	872179	872189	872198	50	2. 4
10	9.872208	872217	872227	872236	872245	872255	872264	872274	872283	872292	872302	872311	49	3. 6
11	9.872321	872330	872340	872349	872358	872368	872377	872387	872396	872405	872415	872424	48	4. 8
12	9.872434	872443	872453	872462	872471	872481	872490	872500	872509	872518	872528	872537	47	1 = 2
13	9.872547	872556	872565	872575	872584	872594	872603	872612	872622	872631	872641	872650	46	2. 4
14	9.872659	872669	872678	872688	872697	872706	872716	872725	872735	872744	872753	872763	45	3. 6
15	9.872772	872782	872791	872800	872810	872819	872829	872838	872847	872857	872866	872876	44	4. 8
16	9.872885	872894	872904	872913	872923	872932	872941	872951	872960	872969	872979	872988	43	1 = 2
17	9.872998	873007	873016	873026	873035	873045	873054	873063	873073	873082	873091	873101	42	2. 4
18	9.873110	873120	873129	873138	873148	873157	873167	873176	873185	873195	873204	873213	41	3. 6
19	9.873223	873232	873242	873251	873260	873270	873279	873288	873298	873307	873316	873326	40	4. 8
20	9.873335	873345	873354	873363	873373	873382	873391	873401	873410	873420	873429	873438	39	1 = 2
21	9.873448	873457	873466	873476	873485	873494	873504	873513	873523	873532	873541	873551	38	2. 4
22	9.873560	873569	873579	873588	873597	873607	873616	873625	873635	873644	873654	873663	37	3. 6
23	9.873672	873682	873691	873700	873710	873719	873728	873738	873747	873756	873766	873775	36	4. 7
24	9.873784	873794	873803	873812	873822	873831	873840	873850	873859	873869	873878	873887	35	1 = 2
25	9.873897	873906	873915	873925	873934	873943	873953	873962	873971	873981	873990	873999	34	2. 4
26	9.874009	874018	874027	874037	874046	874055	874065	874074	874083	874093	874102	874111	33	3. 6
27	9.874121	874130	874139	874149	874158	874167	874177	874186	874195	874205	874214	874223	32	4. 7
28	9.874233	874242	874251	874260	874270	874279	874288	874298	874307	874316	874326	874335	31	1 = 2
29	9.874344	874354	874363	874372	874382	874391	874400	874410	874419	874428	874438	874447	30	2. 4
30	9.874456	874466	874475	874484	874493	874503	874512	874521	874531	874540	874549	874559	29	3. 6
31	9.874568	874577	874587	874596	874605	874614	874624	874633	874642	874652	874661	874670	28	4. 7
32	9.874680	874689	874698	874708	874717	874726	874735	874745	874754	874763	874773	874782	27	1 = 2
33	9.874791	874801	874810	874819	874828	874838	874847	874856	874866	874875	874884	874893	26	2. 4
34	9.874903	874912	874921	874931	874940	874949	874958	874968	874977	874986	874996	875005	25	3. 6
35	9.875014	875024	875033	875042	875051	875061	875070	875079	875088	875098	875107	875116	24	4. 7
36	9.875126	875135	875144	875153	875163	875172	875181	875191	875200	875209	875218	875228	23	1 = 2
37	9.875237	875246	875256	875265	875274	875283	875293	875302	875311	875320	875330	875339	22	2. 4
38	9.875348	875358	875367	875376	875385	875395	875404	875413	875422	875432	875441	875450	21	3. 6
39	9.875459	875469	875478	875487	875497	875506	875515	875524	875534	875543	875552	875561	20	4. 7
40	9.875571	875580	875589	875598	875608	875617	875626	875635	875645	875654	875663	875672	19	1 = 2
41	9.875682	875691	875700	875709	875719	875728	875737	875746	875756	875765	875774	875783	18	2. 4
42	9.875793	875802	875811	875820	875830	875839	875848	875857	875867	875876	875885	875894	17	3. 6
43	9.875904	875913	875922	875931	875941	875950	875959	875968	875978	875987	875996	876005	16	4. 7
44	9.876015	876024	876033	876042	876051	876061	876070	876079	876088	876098	876107	876116	15	1 = 2
45	9.876125	876135	876144	876153	876162	876172	876181	876190	876199	876208	876218	876227	14	2. 4
46	9.876236	876245	876255	876264	876273	876282	876291	876301	876310	876319	876328	876338	13	3. 6
47	9.876347	876356	876365	876374	876384	876393	876402	876411	876421	876430	876439	876448	12	4. 7
48	9.876457	876467	876476	876485	876494	876504	876513	876522	876531	876540	876550	876559	11	1 = 2
49	9.876568	876577	876586	876596	876605	876614	876623	876632	876642	876651	876660	876669	10	2. 4
50	9.876679	876688	876697	876706	876715	876725	876734	876743	876752	876761	876771	876780	9	3. 6
51	9.876789	876798	876807	876817	876826	876835	876844	876853	876863	876872	876881	876890	8	4. 7
52	9.876899	876908	876918	876927	876936	876945	876954	876964	876973	876982	876991	877000	7	1 = 2
53	9.877010	877019	877028	877037	877046	877056	877065	877074	877083	877092	877101	877111	6	2. 4
54	9.877120	877129	877138	877147	877157	877166	877175	877184	877193	877202	877212	877221	5	3. 6
55	9.877230	877239	877248	877258	877267	877276	877285	877294	877303	877313	877322	877331	4	4. 7
56	9.877340	877349	877358	877368	877377	877386	877395	877404	877413	877423	877432	877441	3	1 = 2
57	9.877450	877459	877468	877478	877487	877496	877505	877514	877523	877533	877542	877551	2	2. 4
58	9.877560	877569	877578	877588	877597	877606	877615	877624	877633	877643	877652	877661	1	3. 6
59	9.877670	877679	877688	877698	877707	877716	877725	877734	877743	877752	877762	877771	0	4. 7
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 41 degrees, or Sine of 131 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 49 degrees, or Co-sine of 139 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.877780	877789	877798	877807	877817	877826	877835	877844	877853	877862	877871	877881	59	1″ = 2
1	9.877890	877899	877908	877917	877926	877935	877945	877954	877963	877972	877981	877990	58	2. 4
2	9.877999	878009	878018	878027	878036	878045	878054	878063	878073	878082	878091	878100	57	3. 5
3	9.878109	878118	878127	878136	878146	878155	878164	878173	878182	878191	878200	878210	56	4. 7
4	9.878219	878228	878237	878246	878255	878264	878273	878283	878292	878301	878310	878319	55	1 = 2
5	9.878328	878337	878346	878356	878365	878374	878383	878392	878401	878410	878419	878429	54	2. 4
6	9.878438	878447	878456	878465	878474	878483	878492	878501	878511	878520	878529	878538	53	3. 5
7	9.878547	878556	878565	878574	878584	878593	878602	878611	878620	878629	878638	878647	52	4. 7
8	9.878656	878666	878675	878684	878693	878702	878711	878720	878729	878738	878747	878757	51	1 = 2
9	9.878766	878775	878784	878793	878802	878811	878820	878829	878838	878848	878857	878866	50	2. 4
10	9.878875	878884	878893	878902	878911	878920	878929	878939	878948	878957	878966	878975	49	3. 5
11	9.878984	878993	879002	879011	879020	879029	879039	879048	879057	879066	879075	879084	48	4. 7
12	9.879093	879102	879111	879120	879129	879139	879148	879157	879166	879175	879184	879193	47	1 = 2
13	9.879202	879211	879220	879229	879238	879248	879257	879266	879275	879284	879293	879302	46	2. 4
14	9.879311	879320	879329	879338	879347	879356	879366	879375	879384	879393	879402	879411	45	3. 5
15	9.879420	879429	879438	879447	879456	879465	879474	879483	879492	879502	879511	879520	44	4. 7
16	9.879529	879538	879547	879556	879565	879574	879583	879592	879601	879610	879619	879628	43	1 = 2
17	9.879638	879647	879656	879665	879674	879683	879692	879701	879710	879719	879728	879737	42	2. 4
18	9.879746	879755	879764	879773	879782	879791	879801	879810	879819	879828	879837	879846	41	3. 5
19	9.879855	879864	879873	879882	879891	879900	879909	879918	879927	879936	879945	879954	40	4. 7
20	9.879963	879972	879982	879991	880000	880009	880018	880027	880036	880045	880054	880063	39	1 = 2
21	9.880072	880081	880090	880099	880108	880117	880126	880135	880144	880153	880162	880171	38	2. 4
22	9.880180	880189	880198	880207	880216	880226	880235	880244	880253	880262	880271	880280	37	3. 5
23	9.880289	880298	880307	880316	880325	880334	880343	880352	880361	880370	880379	880388	36	4. 7
24	9.880397	880406	880415	880424	880433	880442	880451	880460	880469	880478	880487	880496	35	1 = 2
25	9.880505	880514	880523	880532	880541	880550	880559	880568	880577	880586	880595	880604	34	2. 4
26	9.880613	880622	880631	880641	880650	880659	880668	880677	880686	880695	880704	880713	33	3. 5
27	9.880722	880731	880740	880749	880758	880767	880776	880785	880794	880803	880812	880821	32	4. 7
28	9.880830	880839	880848	880857	880866	880875	880884	880893	880902	880911	880920	880929	31	1 = 2
29	9.880938	880947	880956	880965	880974	880983	880992	881001	881010	881019	881028	881037	30	2. 4
30	9.881046	881055	881064	881073	881082	881091	881100	881108	881117	881126	881135	881144	29	3. 5
31	9.881153	881162	881171	881180	881189	881198	881207	881216	881225	881234	881243	881252	28	4. 7
32	9.881261	881270	881279	881288	881297	881306	881315	881324	881333	881342	881351	881360	27	1 = 2
33	9.881369	881378	881387	881396	881405	881414	881423	881432	881441	881450	881459	881468	26	2. 4
34	9.881477	881486	881495	881504	881513	881521	881530	881539	881548	881557	881566	881575	25	3. 5
35	9.881584	881593	881602	881611	881620	881629	881638	881647	881656	881665	881674	881683	24	4. 7
36	9.881692	881701	881710	881719	881728	881737	881746	881755	881763	881772	881781	881790	23	1 = 2
37	9.881799	881808	881817	881826	881835	881844	881853	881862	881871	881880	881889	881898	22	2. 4
38	9.881907	881916	881925	881934	881943	881951	881960	881969	881978	881987	881996	882005	21	3. 5
39	9.882014	882023	882032	882041	882050	882059	882068	882077	882086	882095	882103	882112	20	4. 7
40	9.882121	882130	882139	882148	882157	882166	882175	882184	882193	882202	882211	882220	19	1 = 2
41	9.882229	882238	882246	882255	882264	882273	882282	882291	882300	882309	882318	882327	18	2. 4
42	9.882336	882345	882354	882363	882371	882380	882389	882398	882407	882416	882425	882434	17	3. 5
43	9.882443	882452	882461	882470	882479	882487	882496	882505	882514	882523	882532	882541	16	4. 7
44	9.882550	882559	882568	882577	882586	882594	882603	882612	882621	882630	882639	882648	15	1 = 2
45	9.882657	882666	882675	882684	882693	882701	882710	882719	882728	882737	882746	882755	14	2. 4
46	9.882764	882773	882782	882791	882799	882808	882817	882826	882835	882844	882853	882862	13	3. 5
47	9.882871	882880	882888	882897	882906	882915	882924	882933	882942	882951	882960	882969	12	4. 7
48	9.882977	882986	882995	883004	883013	883022	883031	883040	883049	883057	883066	883075	11	1 = 2
49	9.883084	883093	883102	883111	883120	883129	883138	883146	883155	883164	883173	883182	10	2. 4
50	9.883191	883200	883209	883217	883226	883235	883244	883253	883262	883271	883280	883289	9	3. 5
51	9.883297	883306	883315	883324	883333	883342	883351	883360	883368	883377	883386	883395	8	4. 7
52	9.883404	883413	883422	883431	883439	883448	883457	883466	883475	883484	883493	883502	7	1 = 2
53	9.883510	883519	883528	883537	883546	883555	883564	883573	883581	883590	883599	883608	6	2. 4
54	9.883617	883626	883635	883643	883652	883661	883670	883679	883688	883697	883705	883714	5	3. 5
55	9.883723	883732	883741	883750	883759	883768	883776	883785	883794	883803	883812	883821	4	4. 7
56	9.883829	883838	883847	883856	883865	883874	883883	883891	883900	883909	883918	883927	3	1 = 2
57	9.883936	883945	883953	883962	883971	883980	883989	883998	884007	884015	884024	884033	2	2. 4
58	9.884042	884051	884060	884068	884077	884086	884095	884104	884113	884121	884130	884139	1	3. 5
59	9.884148	884157	884166	884174	884183	884192	884201	884210	884219	884228	884236	884245	0	4. 7
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 40 degrees, or Sine of 130 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 50 degrees, or Co-sine of 140 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30	35″	40″	45″	50″	55″		
0	9. 884254	884263	884272	884281	884289	884298	884307	884316	884325	884334	884342	884351	59	1″ =
1	9. 884360	884369	884378	884386	884395	884404	884413	884422	884431	884439	884448	884457	58	2.
2	9. 884466	884475	884484	884492	884501	884510	884519	884528	884536	884545	884554	884563	57	3.
3	9. 884572	884581	884589	884598	884607	884616	884625	884633	884642	884651	884660	884669	56	4.
4	9. 884678	884686	884695	884704	884713	884722	884730	884739	884748	884757	884766	884774	55	1 =
5	9. 884783	884792	884801	884810	884818	884827	884836	884845	884854	884863	884871	884880	54	2.
6	9. 884889	884898	884907	884915	884924	884933	884942	884951	884959	884968	884977	884986	53	3.
7	9. 884995	885003	885012	885021	885030	885038	885047	885056	885065	885074	885082	885091	52	4.
8	9. 885100	885109	885118	885126	885135	885144	885153	885162	885170	885179	885188	885197	51	1 =
9	9. 885206	885214	885223	885232	885241	885249	885258	885267	885276	885285	885293	885302	50	2.
10	9. 885311	885320	885328	885337	885346	885355	885364	885372	885381	885390	885399	885408	49	3.
11	9. 885416	885425	885434	885443	885451	885460	885469	885478	885486	885495	885504	885513	48	4.
12	9. 885522	885530	885539	885548	885557	885565	885574	885583	885592	885600	885609	885618	47	1 =
13	9. 885627	885636	885644	885653	885662	885671	885679	885688	885697	885706	885714	885723	46	2.
14	9. 885732	885741	885749	885758	885767	885776	885785	885793	885802	885811	885820	885828	45	3.
15	9. 885837	885846	885855	885863	885872	885881	885890	885898	885907	885916	885925	885933	44	4.
16	9. 885942	885951	885960	885968	885977	885986	885995	886003	886012	886021	886030	886038	43	1 =
17	9. 886047	886056	886065	886073	886082	886091	886100	886108	886117	886126	886134	886143	42	2.
18	9. 886152	886161	886169	886178	886187	886196	886204	886213	886222	886231	886239	886248	41	3.
19	9. 886257	886266	886274	886283	886292	886301	886309	886318	886327	886335	886344	886353	40	4.
20	9. 886362	886370	886379	886388	886397	886405	886414	886423	886431	886440	886449	886458	39	1 =
21	9. 886466	886475	886484	886493	886501	886510	886519	886527	886536	886545	886554	886562	38	2.
22	9. 886571	886580	886588	886597	886606	886615	886623	886632	886641	886649	886658	886667	37	3.
23	9. 886676	886684	886693	886702	886710	886719	886728	886737	886745	886754	886763	886771	36	4.
24	9. 886780	886789	886798	886806	886815	886824	886832	886841	886850	886859	886867	886876	35	1 =
25	9. 886885	886893	886902	886911	886919	886928	886937	886946	886954	886963	886972	886980	34	2.
26	9. 886989	886998	887006	887015	887024	887033	887041	887050	887059	887067	887076	887085	33	3.
27	9. 887093	887102	887111	887119	887128	887137	887146	887154	887163	887172	887180	887189	32	4.
28	9. 887198	887206	887215	887224	887232	887241	887250	887259	887267	887276	887285	887293	31	1 =
29	9. 887302	887311	887319	887328	887337	887345	887354	887363	887371	887380	887389	887397	30	2.
30	9. 887406	887415	887423	887432	887441	887449	887458	887467	887476	887484	887493	887502	29	3.
31	9. 887510	887519	887528	887536	887545	887554	887562	887571	887580	887588	887597	887606	28	4.
32	9. 887614	887623	887632	887640	887649	887658	887666	887675	887684	887692	887701	887710	27	1 =
33	9. 887718	887727	887736	887744	887753	887762	887770	887779	887788	887796	887805	887814	26	2.
34	9. 887822	887831	887839	887848	887857	887865	887874	887883	887891	887900	887909	887917	25	3.
35	9. 887926	887935	887943	887952	887961	887969	887978	887987	887995	888004	888013	888021	24	4.
36	9. 888030	888038	888047	888056	888064	888073	888082	888090	888099	888108	888116	888125	23	1 =
37	9. 888134	888142	888151	888159	888168	888177	888185	888194	888203	888211	888220	888229	22	2.
38	9. 888237	888246	888255	888263	888272	888280	888289	888298	888306	888315	888324	888332	21	3.
39	9. 888341	888349	888358	888367	888375	888384	888393	888401	888410	888419	888427	888436	20	4.
40	9. 888444	888453	888462	888470	888479	888488	888496	888505	888513	888522	888531	888539	19	1 =
41	9. 888548	888557	888565	888574	888582	888591	888600	888608	888617	888625	888634	888643	18	2.
42	9. 888651	888660	888669	888677	888686	888694	888703	888712	888720	888729	888737	888746	17	3.
43	9. 888755	888763	888772	888781	888789	888798	888806	888815	888824	888832	888841	888849	16	4.
44	9. 888858	888867	888875	888884	888892	888901	888910	888918	888927	888935	888944	888953	15	1 =
45	9. 888961	888970	888978	888987	888996	889004	889013	889021	889030	889039	889047	889056	14	2.
46	9. 889064	889073	889082	889090	889099	889107	889116	889125	889133	889142	889150	889159	13	3.
47	9. 889168	889176	889185	889193	889202	889211	889219	889228	889236	889245	889253	889262	12	4.
48	9. 889271	889279	889288	889296	889305	889314	889322	889331	889339	889348	889356	889365	11	1 =
49	9. 889374	889382	889391	889399	889408	889417	889425	889434	889442	889451	889459	889468	10	2.
50	9. 889477	889485	889494	889502	889511	889519	889528	889537	889545	889554	889562	889571	9	3.
51	9. 889579	889588	889597	889605	889614	889622	889631	889639	889648	889657	889665	889674	8	4.
52	9. 889682	889691	889699	889708	889717	889725	889734	889742	889751	889759	889768	889776	7	1 =
53	9. 889785	889794	889802	889811	889819	889828	889836	889845	889854	889862	889871	889879	6	2.
54	9. 889888	889896	889905	889913	889922	889931	889939	889948	889956	889965	889973	889982	5	3.
55	9. 889990	889999	890007	890016	890025	890033	890042	890050	890059	890067	890076	890084	4	4.
56	9. 890093	890101	890110	890119	890127	890136	890144	890153	890161	890170	890178	890187	3	1 =
57	9. 890195	890204	890213	890221	890230	890238	890247	890255	890264	890272	890281	890289	2	2.
58	9. 890298	890306	890315	890324	890332	890341	890349	890358	890366	890375	890383	890392	1	3.
59	9. 890400	890409	890417	890426	890434	890443	890451	890460	890469	890477	890486	890494	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 39 degrees, or Sine of 129 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 51 degrees, or Co-sine of 141 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.890503	890511	890520	890528	890537	890545	890554	890562	890571	890579	890588	890596	59	1″ = 2
1	9.890605	890613	890622	890630	890639	890648	890656	890665	890673	890682	890690	890699	58	2. 3
2	9.890707	890716	890724	890733	890741	890750	890758	890767	890775	890784	890792	890801	57	3. 5
3	9.890809	890818	890826	890835	890843	890852	890860	890869	890877	890886	890894	890903	56	4. 7
4	9.890911	890920	890928	890937	890945	890954	890962	890971	890979	890988	890996	891005	55	1 = 2
5	9.891013	891022	891030	891039	891047	891056	891064	891073	891081	891090	891098	891107	54	2. 3
6	9.891115	891124	891132	891141	891149	891158	891166	891175	891183	891192	891200	891209	53	3. 5
7	9.891217	891226	891234	891243	891251	891260	891268	891277	891285	891294	891302	891311	52	4. 7
8	9.891319	891328	891336	891345	891353	891362	891370	891378	891387	891395	891404	891412	51	1 = 2
9	9.891421	891429	891438	891446	891455	891463	891472	891480	891489	891497	891506	891514	50	2. 3
10	9.891523	891531	891540	891548	891557	891565	891573	891582	891590	891599	891607	891616	49	3. 5
11	9.891624	891633	891641	891650	891658	891667	891675	891684	891692	891700	891709	891717	48	4. 7
12	9.891726	891734	891743	891751	891760	891768	891777	891785	891794	891802	891811	891819	47	1 = 2
13	9.891827	891836	891844	891853	891861	891870	891878	891887	891895	891904	891912	891920	46	2. 3
14	9.891929	891937	891946	891954	891963	891971	891980	891988	891997	892005	892013	892022	45	3. 5
15	9.892030	892039	892047	892056	892064	892073	892081	892089	892098	892106	892115	892123	44	4. 7
16	9.892132	892140	892149	892157	892165	892174	892182	892191	892199	892208	892216	892225	43	1 = 2
17	9.892233	892241	892250	892258	892267	892275	892284	892292	892300	892309	892317	892326	42	2. 3
18	9.892334	892343	892351	892360	892368	892376	892385	892393	892402	892410	892419	892427	41	3. 5
19	9.892435	892444	892452	892461	892469	892478	892486	892494	892503	892511	892520	892528	40	4. 7
20	9.892536	892545	892553	892562	892570	892579	892587	892595	892604	892612	892621	892629	39	1 = 2
21	9.892637	892646	892654	892663	892671	892680	892688	892697	892705	892713	892722	892730	38	2. 3
22	9.892738	892747	892755	892764	892772	892781	892789	892797	892806	892814	892823	892831	37	3. 5
23	9.892839	892848	892856	892865	892873	892882	892890	892898	892907	892915	892924	892932	36	4. 7
24	9.892940	892949	892957	892966	892974	892982	892991	892999	893008	893016	893024	893033	35	1 = 2
25	9.893041	893050	893058	893066	893075	893083	893092	893100	893108	893117	893125	893134	34	2. 3
26	9.893142	893150	893159	893167	893176	893184	893192	893201	893209	893218	893226	893234	33	3. 5
27	9.893243	893251	893259	893268	893276	893285	893293	893301	893310	893318	893327	893335	32	4. 7
28	9.893343	893352	893360	893368	893377	893385	893394	893402	893410	893419	893427	893436	31	1 = 2
29	9.893444	893452	893461	893469	893477	893486	893494	893503	893511	893519	893528	893536	30	2. 3
30	9.893544	893553	893561	893570	893578	893586	893595	893603	893611	893620	893628	893637	29	3. 5
31	9.893645	893653	893662	893670	893678	893687	893695	893703	893712	893720	893729	893737	28	4. 7
32	9.893745	893754	893762	893770	893779	893787	893795	893804	893812	893821	893829	893837	27	1 = 2
33	9.893846	893854	893862	893871	893879	893887	893896	893904	893912	893921	893929	893938	26	2. 3
34	9.893946	893954	893963	893971	893979	893988	893996	894004	894013	894021	894029	894038	25	3. 5
35	9.894046	894054	894063	894071	894079	894088	894096	894105	894113	894121	894129	894138	24	4. 7
36	9.894146	894155	894163	894171	894180	894188	894196	894205	894213	894221	894230	894238	23	1 = 2
37	9.894246	894255	894263	894271	894280	894288	894296	894305	894313	894321	894330	894338	22	2. 3
38	9.894346	894355	894363	894371	894380	894388	894396	894405	894413	894421	894430	894438	21	3. 5
39	9.894446	894455	894463	894471	894480	894488	894496	894505	894513	894521	894530	894538	20	4. 7
40	9.894546	894555	894563	894571	894580	894588	894596	894605	894613	894621	894630	894638	19	1 = 2
41	9.894646	894654	894663	894671	894679	894688	894696	894704	894713	894721	894729	894738	18	2. 3
42	9.894746	894754	894763	894771	894779	894788	894796	894804	894812	894821	894829	894837	17	3. 5
43	9.894846	894854	894862	894871	894879	894887	894896	894904	894912	894920	894929	894937	16	4. 7
44	9.894945	894954	894962	894970	894979	894987	894995	895004	895012	895020	895028	895037	15	1 = 2
45	9.895045	895053	895062	895070	895078	895087	895095	895103	895111	895120	895128	895136	14	2. 3
46	9.895145	895153	895161	895169	895178	895186	895194	895203	895211	895219	895227	895236	13	3. 5
47	9.895244	895252	895261	895269	895277	895286	895294	895302	895310	895319	895327	895335	12	4. 7
48	9.895344	895352	895360	895368	895377	895385	895393	895401	895410	895418	895426	895435	11	1 = 2
49	9.895443	895451	895459	895468	895476	895484	895493	895501	895509	895517	895526	895534	10	2. 3
50	9.895542	895550	895559	895567	895575	895584	895592	895600	895608	895617	895625	895633	9	3. 5
51	9.895641	895650	895658	895666	895675	895683	895691	895699	895708	895716	895724	895732	8	4. 7
52	9.895741	895749	895757	895765	895774	895782	895790	895799	895807	895815	895823	895832	7	1 = 2
53	9.895840	895848	895856	895865	895873	895881	895889	895898	895906	895914	895922	895931	6	2. 3
54	9.895939	895947	895955	895964	895972	895980	895988	895997	896005	896013	896021	896030	5	3. 5
55	9.896038	896046	896054	896063	896071	896079	896087	896096	896104	896112	896120	896129	4	4. 7
56	9.896137	896145	896153	896162	896170	896178	896186	896195	896203	896211	896219	896228	3	1 = 2
57	9.896236	896244	896252	896261	896269	896277	896285	896293	896302	896310	896318	896326	2	2. 3
58	9.896335	896343	896351	896359	896368	896376	896384	896392	896401	896409	896417	896425	1	3. 5
59	9.896433	896442	896450	896458	896466	896475	896483	896491	896499	896508	896516	896524	0	4. 7
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 38 degrees, or Sine of 128 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 52 degrees, or Co-sine of 142 degrees,												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 896532	896540	896549	896557	896565	896573	896582	896590	896598	896606	896614	896623	59	1″ =
1	896631	896639	896647	896656	896664	896672	896680	896688	896697	896705	896713	896721	58	2.
2	896729	896738	896746	896754	896762	896771	896779	896787	896795	896803	896812	896820	57	3.
3	896828	896836	896844	896853	896861	896869	896877	896885	896894	896902	896910	896918	56	4.
4	896927	896935	896943	896951	896959	896968	896976	896984	896992	897000	897009	897017	55	1 =
5	897025	897033	897041	897050	897058	897066	897074	897082	897091	897099	897107	897115	54	2.
6	897123	897132	897140	897148	897156	897164	897172	897181	897189	897197	897205	897213	53	3.
7	897222	897230	897238	897246	897254	897263	897271	897279	897287	897295	897304	897312	52	4.
8	897320	897328	897336	897344	897353	897361	897369	897377	897385	897394	897402	897410	51	1 =
9	897418	897426	897434	897443	897451	897459	897467	897475	897484	897492	897500	897508	50	2.
10	897516	897524	897533	897541	897549	897557	897565	897573	897582	897590	897598	897606	49	3.
11	897614	897622	897631	897639	897647	897655	897663	897672	897680	897688	897696	897704	48	4.
12	897712	897721	897729	897737	897745	897753	897761	897770	897778	897786	897794	897802	47	1 =
13	897810	897818	897827	897835	897843	897851	897859	897867	897876	897884	897892	897900	46	2.
14	897908	897916	897925	897933	897941	897949	897957	897965	897973	897982	897990	897998	45	3.
15	898006	898014	898022	898031	898039	898047	898055	898063	898071	898079	898088	898096	44	4.
16	898104	898112	898120	898128	898136	898145	898153	898161	898169	898177	898185	898193	43	1 =
17	898202	898210	898218	898226	898234	898242	898250	898259	898267	898275	898283	898291	42	2.
18	898299	898307	898316	898324	898332	898340	898348	898356	898364	898372	898381	898389	41	3.
19	898397	898405	898413	898421	898429	898437	898446	898454	898462	898470	898478	898486	40	4.
20	898494	898503	898511	898519	898527	898535	898543	898551	898559	898568	898576	898584	39	1 =
21	898592	898600	898608	898616	898624	898633	898641	898649	898657	898665	898673	898681	38	2.
22	898689	898697	898706	898714	898722	898730	898738	898746	898754	898762	898770	898779	37	3.
23	898787	898795	898803	898811	898819	898827	898835	898843	898852	898860	898868	898876	36	4.
24	898884	898892	898900	898908	898916	898925	898933	898941	898949	898957	898965	898973	35	1 =
25	898981	898989	898997	899006	899014	899022	899030	899038	899046	899054	899062	899070	34	2.
26	899078	899087	899095	899103	899111	899119	899127	899135	899143	899151	899159	899168	33	3.
27	899176	899184	899192	899200	899208	899216	899224	899232	899240	899248	899257	899265	32	4.
28	899273	899281	899289	899297	899305	899313	899321	899329	899337	899345	899354	899362	31	1 =
29	899370	899378	899386	899394	899402	899410	899418	899426	899434	899442	899451	899459	30	2.
30	899467	899475	899483	899491	899499	899507	899515	899523	899531	899539	899547	899556	29	3.
31	899564	899572	899580	899588	899596	899604	899612	899620	899628	899636	899644	899652	28	4.
32	899660	899669	899677	899685	899693	899701	899709	899717	899725	899733	899741	899749	27	1 =
33	899757	899765	899773	899781	899790	899798	899806	899814	899822	899830	899838	899846	26	2.
34	899854	899862	899870	899878	899886	899894	899902	899910	899918	899926	899935	899943	25	3.
35	9. 899951	899959	899967	899975	899983	899991	899999	900007	900015	900023	900031	900039	24	4.
36	9. 900047	900055	900063	900071	900079	900088	900096	900104	900112	900120	900128	900136	23	1 =
37	9. 900144	900152	900160	900168	900176	900184	900192	900200	900208	900216	900224	900232	22	2.
38	9. 900240	900248	900256	900264	900272	900281	900289	900297	900305	900313	900321	900329	21	3.
39	9. 900337	900345	900353	900361	900369	900377	900385	900393	900401	900409	900417	900425	20	4.
40	9. 900433	900441	900449	900457	900465	900473	900481	900489	900497	900505	900513	900521	19	1 =
41	9. 900529	900538	900546	900554	900562	900570	900578	900586	900594	900602	900610	900618	18	2.
42	9. 900626	900634	900642	900650	900658	900666	900674	900682	900690	900698	900706	900714	17	3.
43	9. 900722	900730	900738	900746	900754	900762	900770	900778	900786	900794	900802	900810	16	4.
44	9. 900818	900826	900834	900842	900850	900858	900866	900874	900882	900890	900898	900906	15	1 =
45	9. 900914	900922	900930	900938	900946	900954	900962	900970	900978	900986	900994	901002	14	2.
46	9. 901010	901018	901026	901034	901042	901050	901058	901066	901074	901082	901090	901098	13	3.
47	9. 901106	901114	901122	901130	901138	901146	901154	901162	901170	901178	901186	901194	12	4.
48	9. 901202	901210	901218	901226	901234	901242	901250	901258	901266	901274	901282	901290	11	1 =
49	9. 901298	901306	901314	901322	901330	901338	901346	901354	901362	901370	901378	901386	10	2.
50	9. 901394	901402	901410	901418	901426	901434	901442	901450	901458	901466	901474	901482	9	3.
51	9. 901490	901498	901506	901513	901521	901529	901537	901545	901553	901561	901569	901577	8	4.
52	9. 901585	901593	901601	901609	901617	901625	901633	901641	901649	901657	901665	901673	7	1 =
53	9. 901681	901689	901697	901705	901713	901721	901729	901737	901745	901753	901761	901768	6	2.
54	9. 901776	901784	901792	901800	901808	901816	901824	901832	901840	901848	901856	901864	5	3.
55	9. 901872	901880	901888	901896	901904	901912	901920	901928	901936	901944	901952	901959	4	4.
56	9. 901967	901975	901983	901991	901999	902007	902015	902023	902031	902039	902047	902055	3	1 =
57	9. 902063	902071	902079	902087	902095	902103	902110	902118	902126	902134	902142	902150	2	2.
58	9. 902158	902166	902174	902182	902190	902198	902206	902214	902222	902230	902238	902246	1	3.
59	9. 902253	902261	902269	902277	902285	902293	902301	902309	902317	902325	902333	902341	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 37 degrees, or Sine of 127 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 53 degrees, or Co-sine of 143 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.902349	902357	902365	902372	902380	902388	902396	902404	902412	902420	902428	902436	59	1″ = 2
1	9.902444	902452	902460	902468	902476	902483	902491	902499	902507	902515	902523	902531	58	2. 3
2	9.902539	902547	902555	902563	902571	902579	902586	902594	902602	902610	902618	902626	57	3. 5
3	9.902634	902642	902650	902658	902666	902674	902682	902689	902697	902705	902713	902721	56	4. 6
4	9.902729	902737	902745	902753	902761	902769	902776	902784	902792	902800	902808	902816	55	1 = 2
5	9.902824	902832	902840	902848	902856	902863	902871	902879	902887	902895	902903	902911	54	2. 3
6	9.902919	902927	902935	902943	902950	902958	902966	902974	902982	902990	902998	903006	53	3. 5
7	9.903014	903022	903029	903037	903045	903053	903061	903069	903077	903085	903093	903101	52	4. 6
8	9.903108	903116	903124	903132	903140	903148	903156	903164	903172	903179	903187	903195	51	1 = 2
9	9.903203	903211	903219	903227	903235	903243	903250	903258	903266	903274	903282	903290	50	2. 3
10	9.903298	903306	903314	903321	903329	903337	903345	903353	903361	903369	903377	903384	49	3. 5
11	9.903392	903400	903408	903416	903424	903432	903440	903448	903455	903463	903471	903479	48	4. 6
12	9.903487	903495	903503	903511	903518	903526	903534	903542	903550	903558	903566	903574	47	1 = 2
13	9.903581	903589	903597	903605	903613	903621	903629	903636	903644	903652	903660	903668	46	2. 3
14	9.903676	903684	903692	903699	903707	903715	903723	903731	903739	903747	903754	903762	45	3. 5
15	9.903770	903778	903786	903794	903802	903809	903817	903825	903833	903841	903849	903857	44	4. 6
16	9.903864	903872	903880	903888	903896	903904	903912	903919	903927	903935	903943	903951	43	1 = 2
17	9.903959	903967	903974	903982	903990	903998	904006	904014	904022	904029	904037	904045	42	2. 3
18	9.904053	904061	904069	904076	904084	904092	904100	904108	904116	904124	904131	904139	41	3. 5
19	9.904147	904155	904163	904171	904178	904186	904194	904202	904210	904218	904225	904233	40	4. 6
20	9.904241	904249	904257	904265	904272	904280	904288	904296	904304	904312	904319	904327	39	1 = 2
21	9.904335	904343	904351	904359	904366	904374	904382	904390	904398	904406	904413	904421	38	2. 3
22	9.904429	904437	904445	904453	904460	904468	904476	904484	904492	904500	904507	904515	37	3. 5
23	9.904523	904531	904539	904546	904554	904562	904570	904578	904586	904593	904601	904609	36	4. 6
24	9.904617	904625	904633	904640	904648	904656	904664	904672	904679	904687	904695	904703	35	1 = 2
25	9.904711	904718	904726	904734	904742	904750	904758	904765	904773	904781	904789	904797	34	2. 3
26	9.904804	904812	904820	904828	904836	904843	904851	904859	904867	904875	904882	904890	33	3. 5
27	9.904898	904906	904914	904921	904929	904937	904945	904953	904960	904968	904976	904984	32	4. 6
28	9.904992	904999	905007	905015	905023	905031	905038	905046	905054	905062	905070	905077	31	1 = 2
29	9.905085	905093	905101	905109	905116	905124	905132	905140	905148	905155	905163	905171	30	2. 3
30	9.905179	905187	905194	905202	905210	905218	905226	905233	905241	905249	905257	905264	29	3. 5
31	9.905272	905280	905288	905296	905303	905311	905319	905327	905334	905342	905350	905358	28	4. 6
32	9.905366	905373	905381	905389	905397	905405	905412	905420	905428	905436	905443	905451	27	1 = 2
33	9.905459	905467	905475	905482	905490	905498	905506	905513	905521	905529	905537	905544	26	2. 3
34	9.905552	905560	905568	905576	905583	905591	905599	905607	905614	905622	905630	905638	25	3. 5
35	9.905645	905653	905661	905669	905677	905684	905692	905700	905708	905715	905723	905731	24	4. 6
36	9.905739	905746	905754	905762	905770	905777	905785	905793	905801	905808	905816	905824	23	1 = 2
37	9.905832	905839	905847	905855	905863	905871	905878	905886	905894	905902	905909	905917	22	2. 3
38	9.905925	905933	905940	905948	905956	905964	905971	905979	905987	905995	906002	906010	21	3. 5
39	9.906018	906026	906033	906041	906049	906057	906064	906072	906080	906088	906095	906103	20	4. 6
40	9.906111	906118	906126	906134	906142	906149	906157	906165	906173	906180	906188	906196	19	1 = 2
41	9.906204	906211	906219	906227	906235	906242	906250	906258	906266	906273	906281	906289	18	2. 3
42	9.906296	906304	906312	906320	906327	906335	906343	906351	906358	906366	906374	906381	17	3. 5
43	9.906389	906397	906405	906412	906420	906428	906436	906443	906451	906459	906466	906474	16	4. 6
44	9.906482	906490	906497	906505	906513	906521	906528	906536	906544	906551	906559	906567	15	1 = 2
45	9.906575	906582	906590	906598	906605	906613	906621	906629	906636	906644	906652	906659	14	2. 3
46	9.906667	906675	906683	906690	906698	906706	906713	906721	906729	906737	906744	906752	13	3. 5
47	9.906760	906767	906775	906783	906791	906798	906806	906814	906821	906829	906837	906845	12	4. 6
48	9.906852	906860	906868	906875	906883	906891	906898	906906	906914	906922	906929	906937	11	1 = 2
49	9.906945	906952	906960	906968	906975	906983	906991	906999	907006	907014	907022	907029	10	2. 3
50	9.907037	907045	907052	907060	907068	907076	907083	907091	907099	907106	907114	907122	9	3. 5
51	9.907129	907137	907145	907152	907160	907168	907175	907183	907191	907199	907206	907214	8	4. 6
52	9.907222	907229	907237	907245	907252	907260	907268	907275	907283	907291	907298	907306	7	1 = 2
53	9.907314	907322	907329	907337	907345	907352	907360	907368	907375	907383	907391	907398	6	2. 3
54	9.907406	907414	907421	907429	907437	907444	907452	907460	907467	907475	907483	907490	5	3. 5
55	9.907498	907506	907513	907521	907529	907536	907544	907552	907559	907567	907575	907582	4	4. 6
56	9.907590	907598	907605	907613	907621	907628	907636	907644	907651	907659	907667	907674	3	1 = 2
57	9.907682	907690	907697	907705	907713	907720	907728	907736	907743	907751	907759	907766	2	2. 3
58	9.907774	907782	907789	907797	907805	907812	907820	907828	907835	907843	907851	907858	1	3. 5
59	9.907866	907874	907881	907889	907896	907904	907912	907919	907927	907935	907942	907950	0	4. 6
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 36 degrees, or Sine of 126 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 46 degrees, or Co-sine of 136 degrees.												Minutes	Proportional parts
	0′	5′	10′	15′	20′	25	30′	35′	40′	45′	50′	55′		
0	9.856934	856944	856954	856965	856975	856985	856995	857005	857015	857026	857036	857046	59	1″ =
1	9.857056	857066	857076	857087	857097	857107	857117	857127	857137	857148	857158	857168	58	2.
2	9.857178	857188	857198	857208	857219	857229	857239	857249	857259	857269	857280	857290	57	3.
3	9.857300	857310	857320	857330	857340	857351	857361	857371	857381	857391	857401	857411	56	4.
4	9.857422	857432	857442	857452	857462	857472	857482	857493	857503	857513	857523	857533	55	1 =
5	9.857543	857553	857564	857574	857584	857594	857604	857614	857624	857634	857645	857655	54	2.
6	9.857665	857675	857685	857695	857705	857715	857726	857736	857746	857756	857766	857776	53	3.
7	9.857786	857797	857807	857817	857827	857837	857847	857857	857867	857877	857888	857898	52	4.
8	9.857908	857918	857928	857938	857948	857958	857969	857979	857989	857999	858009	858019	51	1 =
9	9.858029	858039	858049	858060	858070	858080	858090	858100	858110	858120	858130	858140	50	2.
10	9.858151	858161	858171	858181	858191	858201	858211	858221	858231	858242	858252	858262	49	3.
11	9.858272	858282	858292	858302	858312	858322	858332	858343	858353	858363	858373	858383	48	4.
12	9.858393	858403	858413	858423	858433	858443	858454	858464	858474	858484	858494	858504	47	1 =
13	9.858514	858524	858534	858544	858554	858565	858575	858585	858595	858605	858615	858625	46	2.
14	9.858635	858645	858655	858665	858675	858686	858696	858706	858716	858726	858736	858746	45	3.
15	9.858756	858766	858776	858786	858796	858807	858817	858827	858837	858847	858857	858867	44	4.
16	9.858877	858887	858897	858907	858917	858927	858937	858948	858958	858968	858978	858988	43	1 =
17	9.858998	859008	859018	859028	859038	859048	859058	859068	859078	859088	859098	859109	42	2.
18	9.859119	859129	859139	859149	859159	859169	859179	859189	859199	859209	859219	859229	41	3.
19	9.859239	859249	859259	859269	859280	859290	859300	859310	859320	859330	859340	859350	40	4.
20	9.859360	859370	859380	859390	859400	859410	859420	859430	859440	859450	859460	859470	39	1 =
21	9.859480	859491	859501	859511	859521	859531	859541	859551	859561	859571	859581	859591	38	2.
22	9.859601	859611	859621	859631	859641	859651	859661	859671	859681	859691	859701	859711	37	3.
23	9.859721	859731	859741	859751	859761	859772	859782	859792	859802	859812	859822	859832	36	4.
24	9.859842	859852	859862	859872	859882	859892	859902	859912	859922	859932	859942	859952	35	1 =
25	9.859962	859972	859982	859992	860002	860012	860022	860032	860042	860052	860062	860072	34	2.
26	9.860082	860092	860102	860112	860122	860132	860142	860152	860162	860172	860182	860192	33	3.
27	9.860202	860212	860222	860232	860242	860252	860262	860272	860282	860292	860302	860312	32	4.
28	9.860322	860332	860342	860352	860362	860372	860382	860392	860402	860412	860422	860432	31	1 =
29	9.860442	860452	860462	860472	860482	860492	860502	860512	860522	860532	860542	860552	30	2.
30	9.860562	860572	860582	860592	860602	860612	860622	860632	860642	860652	860662	860672	29	3.
31	9.860682	860692	860702	860712	860722	860732	860742	860752	860762	860772	860782	860792	28	4.
32	9.860802	860812	860822	860832	860842	860852	860862	860872	860882	860892	860902	860912	27	1 =
33	9.860922	860932	860942	860952	860961	860971	860981	860991	861001	861011	861021	861031	26	2.
34	9.861041	861051	861061	861071	861081	861091	861101	861111	861121	861131	861141	861151	25	3.
35	9.861161	861171	861181	861191	861201	861211	861221	861231	861240	861250	861260	861270	24	4.
36	9.861280	861290	861300	861310	861320	861330	861340	861350	861360	861370	861380	861390	23	1 =
37	9.861400	861410	861420	861430	861440	861449	861459	861469	861479	861489	861499	861509	22	2
38	9.861519	861529	861539	861549	861559	861569	861579	861589	861599	861609	861619	861628	21	3.
39	9.861638	861648	861658	861668	861678	861688	861698	861708	861718	861728	861738	861748	20	4.
40	9.861758	861768	861777	861787	861797	861807	861817	861827	861837	861847	861857	861867	19	1 =
41	9.861877	861887	861897	861907	861916	861926	861936	861946	861956	861966	861976	861986	18	2.
42	9.861996	862006	862016	862026	862036	862045	862055	862065	862075	862085	862095	862105	17	3.
43	9.862115	862125	862135	862145	862155	862164	862174	862184	862194	862204	862214	862224	16	4.
44	9.862234	862244	862254	862264	862273	862283	862293	862303	862313	862323	862333	862343	15	1 =
45	9.862353	862363	862372	862382	862392	862402	862412	862422	862432	862442	862452	862462	14	2.
46	9.862471	862481	862491	862501	862511	862521	862531	862541	862551	862561	862570	862580	13	3.
47	9.862590	862600	862610	862620	862630	862640	862650	862659	862669	862679	862689	862699	12	4.
48	9.862709	862719	862729	862739	862748	862758	862768	862778	862788	862798	862808	862818	11	1 =
49	9.862827	862837	862847	862857	862867	862877	862887	862897	862907	862916	862926	862936	10	2.
50	9.862946	862956	862966	862976	862986	862995	863005	863015	863025	863035	863045	863055	9	3.
51	9.863064	863074	863084	863094	863104	863114	863124	863134	863143	863153	863163	863173	8	4.
52	9.863183	863193	863203	863212	863222	863232	863242	863252	863262	863272	863281	863291	7	1 =
53	9.863301	863311	863321	863331	863341	863350	863360	863370	863380	863390	863400	863410	6	2.
54	9.863419	863429	863439	863449	863459	863469	863479	863488	863498	863508	863518	863528	5	3.
55	9.863538	863547	863557	863567	863577	863587	863597	863607	863616	863626	863636	863646	4	4.
56	9.863656	863666	863675	863685	863695	863705	863715	863725	863734	863744	863754	863764	3	1 =
57	9.863774	863784	863793	863803	863813	863823	863833	863843	863852	863862	863872	863882	2	2.
58	9.863892	863902	863911	863921	863931	863941	863951	863961	863970	863980	863990	864000	1	3.
59	9.864010	864019	864029	864039	864049	864059	864069	864078	864088	864098	864108	864118	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proportional parts
	Co-sine of 43 degrees, or Sine of 133 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 47 degrees, or Co-sine of 137 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.864128	864137	864147	864157	864167	864177	864186	864196	864206	864216	864226	864235	59	1″ = 2
1	9.864245	864255	864265	864275	864285	864294	864304	864314	864324	864334	864343	864353	58	2. 4
2	9.864363	864373	864383	864392	864402	864412	864422	864432	864441	864451	864461	864471	57	3. 6
3	9.864481	864490	864500	864510	864520	864530	864539	864549	864559	864569	864579	864588	56	4. 8
4	9.864598	864608	864618	864628	864637	864647	864657	864667	864677	864686	864696	864706	55	1 = 2
5	9.864716	864725	864735	864745	864755	864765	864774	864784	864794	864804	864814	864823	54	2. 4
6	9.864833	864843	864853	864862	864872	864882	864892	864902	864911	864921	864931	864941	53	3. 6
7	9.864950	864960	864970	864980	864990	864999	865009	865019	865029	865038	865048	865058	52	4. 8
8	9.865068	865078	865087	865097	865107	865117	865126	865136	865146	865156	865165	865175	51	1 = 2
9	9.865185	865195	865205	865214	865224	865234	865244	865253	865263	865273	865283	865292	50	2. 4
10	9.865302	865312	865322	865331	865341	865351	865361	865370	865380	865390	865400	865409	49	3. 6
11	9.865419	865429	865439	865448	865458	865468	865478	865487	865497	865507	865517	865526	48	4. 8
12	9.865536	865546	865556	865565	865575	865585	865595	865604	865614	865624	865634	865643	47	1 = 2
13	9.865653	865663	865673	865682	865692	865702	865712	865721	865731	865741	865751	865760	46	2. 4
14	9.865770	865780	865790	865799	865809	865819	865828	865838	865848	865858	865867	865877	45	3. 6
15	9.865887	865897	865906	865916	865926	865936	865945	865955	865965	865974	865984	865994	44	4. 8
16	9.866004	866013	866023	866033	866043	866052	866062	866072	866081	866091	866101	866111	43	1 = 2
17	9.866120	866130	866140	866149	866159	866169	866179	866188	866198	866208	866217	866227	42	2. 4
18	9.866237	866247	866256	866266	866276	866285	866295	866305	866315	866324	866334	866344	41	3. 6
19	9.866353	866363	866373	866383	866392	866402	866412	866421	866431	866441	866451	866460	40	4. 8
20	9.866470	866480	866489	866499	866509	866518	866528	866538	866548	866557	866567	866577	39	1 = 2
21	9.866586	866596	866606	866615	866625	866635	866645	866654	866664	866674	866683	866693	38	2. 4
22	9.866703	866712	866722	866732	866741	866751	866761	866770	866780	866790	866800	866809	37	3. 6
23	9.866819	866829	866838	866848	866858	866867	866877	866887	866896	866906	866916	866925	36	4. 8
24	9.866935	866945	866955	866964	866974	866984	866993	867003	867013	867022	867032	867042	35	1 = 2
25	9.867051	867061	867071	867080	867090	867100	867109	867119	867129	867138	867148	867158	34	2. 4
26	9.867167	867177	867187	867196	867206	867216	867225	867235	867245	867254	867264	867274	33	3. 6
27	9.867283	867293	867303	867312	867322	867332	867341	867351	867361	867370	867380	867390	32	4. 8
28	9.867399	867409	867419	867428	867438	867448	867457	867467	867477	867486	867496	867505	31	1 = 2
29	9.867515	867525	867534	867544	867554	867563	867573	867583	867592	867602	867612	867621	30	2. 4
30	9.867631	867641	867650	867660	867670	867679	867689	867698	867708	867718	867727	867737	29	3. 6
31	9.867747	867756	867766	867776	867785	867795	867805	867814	867824	867833	867843	867853	28	4. 8
32	9.867862	867872	867882	867891	867901	867910	867920	867930	867939	867949	867959	867968	27	1 = 2
33	9.867978	867988	867997	868007	868016	868026	868036	868045	868055	868065	868074	868084	26	2. 4
34	9.868093	868103	868113	868122	868132	868142	868151	868161	868170	868180	868190	868199	25	3. 6
35	9.868209	868219	868228	868238	868247	868257	868267	868276	868286	868295	868305	868315	24	4. 8
36	9.868324	868334	868344	868353	868363	868372	868382	868392	868401	868411	868420	868430	23	1 = 2
37	9.868440	868449	868459	868468	868478	868488	868497	868507	868516	868526	868536	868545	22	2 4
38	9.868555	868564	868574	868584	868593	868603	868612	868622	868632	868641	868651	868660	21	3. 6
39	9.868670	868680	868689	868699	868708	868718	868728	868737	868747	868756	868766	868776	20	4. 8
40	9.868785	868795	868804	868814	868824	868833	868843	868852	868862	868871	868881	868891	19	1 = 2
41	9.868900	868910	868919	868929	868939	868948	868958	868967	868977	868986	868996	869006	18	2. 4
42	9.869015	869025	869034	869044	869054	869063	869073	869082	869092	869101	869111	869121	17	3. 6
43	9.869130	869140	869149	869159	869168	869178	869188	869197	869207	869216	869226	869235	16	4. 8
44	9.869245	869255	869264	869274	869283	869293	869302	869312	869322	869331	869341	869350	15	1 = 2
45	9.869360	869369	869379	869388	869398	869408	869417	869427	869436	869446	869455	869465	14	2. 4
46	9.869474	869484	869494	869503	869513	869522	869532	869541	869551	869560	869570	869580	13	3. 6
47	9.869589	869599	869608	869618	869627	869637	869646	869656	869666	869675	869685	869694	12	4. 8
48	9.869704	869713	869723	869732	869742	869751	869761	869771	869780	869790	869799	869809	11	1 = 2
49	9.869818	869828	869837	869847	869856	869866	869875	869885	869895	869904	869914	869923	10	2. 4
50	9.869933	869942	869952	869961	869971	869980	869990	869999	870009	870018	870028	870038	9	3. 6
51	9.870047	870057	870066	870076	870085	870095	870104	870114	870123	870133	870142	870152	8	4. 8
52	9.870161	870171	870180	870190	870199	870209	870219	870228	870238	870247	870257	870266	7	1 = 2
53	9.870276	870285	870295	870304	870314	870323	870333	870342	870352	870361	870371	870380	6	2. 4
54	9.870390	870399	870409	870418	870428	870437	870447	870456	870466	870475	870485	870494	5	3. 6
55	9.870504	870513	870523	870532	870542	870551	870561	870570	870580	870589	870599	870608	4	4. 8
56	9.870618	870627	870637	870646	870656	870665	870675	870684	870694	870703	870713	870722	3	1 = 2
57	9.870732	870741	870751	870760	870770	870779	870789	870798	870808	870817	870827	870836	2	2. 4
58	9.870846	870855	870865	870874	870884	870893	870903	870912	870922	870931	870941	870950	1	3. 6
59	9.870960	870969	870979	870988	870998	871007	871017	871026	871036	871045	871055	871064	0	4. 8
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 42 degrees, or Sine of 132 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 48 degrees, or Co-sine of 138 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.871074	871083	871092	871102	871111	871121	871130	871140	871149	871159	871168	871178	59	1″ = 2
1	9.871187	871197	871206	871216	871225	871235	871244	871254	871263	871272	871282	871291	58	2. 4
2	9.871301	871310	871320	871329	871339	871348	871358	871367	871377	871386	871396	871405	57	3. 6
3	9.871414	871424	871433	871443	871452	871462	871471	871481	871490	871500	871509	871519	56	4. 8
4	9.871528	871537	871547	871556	871566	871575	871585	871594	871604	871613	871623	871632	55	1 = 2
5	9.871641	871651	871660	871670	871679	871689	871698	871708	871717	871726	871736	871745	54	2. 4
6	9.871755	871764	871774	871783	871793	871802	871811	871821	871830	871840	871849	871859	53	3. 6
7	9.871868	871878	871887	871896	871906	871915	871925	871934	871944	871953	871963	871972	52	4. 8
8	9.871981	871991	872000	872010	872019	872029	872038	872047	872057	872066	872076	872085	51	1 = 2
9	9.872095	872104	872113	872123	872132	872142	872151	872161	872170	872179	872189	872198	50	2. 4
10	9.872208	872217	872227	872236	872245	872255	872264	872274	872283	872292	872302	872311	49	3. 6
11	9.872321	872330	872340	872349	872358	872368	872377	872387	872396	872405	872415	872424	48	4. 8
12	9.872434	872443	872453	872462	872471	872481	872490	872500	872509	872518	872528	872537	47	1 = 2
13	9.872547	872556	872565	872575	872584	872594	872603	872612	872622	872631	872641	872650	46	2. 4
14	9.872659	872669	872678	872688	872697	872706	872716	872725	872735	872744	872753	872763	45	3. 6
15	9.872772	872782	872791	872800	872810	872819	872829	872838	872847	872857	872866	872876	44	4. 8
16	9.872885	872894	872904	872913	872923	872932	872941	872951	872960	872969	872979	872988	43	1 = 2
17	9.872998	873007	873016	873026	873035	873045	873054	873063	873073	873082	873091	873101	42	2. 4
18	9.873110	873120	873129	873138	873148	873157	873167	873176	873185	873195	873204	873213	41	3. 6
19	9.873223	873232	873242	873251	873260	873270	873279	873288	873298	873307	873316	873326	40	4. 8
20	9.873335	873345	873354	873363	873373	873382	873391	873401	873410	873420	873429	873438	39	1 = 2
21	9.873448	873457	873466	873476	873485	873494	873504	873513	873523	873532	873541	873551	38	2. 4
22	9.873560	873569	873579	873588	873597	873607	873616	873625	873635	873644	873654	873663	37	3. 6
23	9.873672	873682	873691	873700	873710	873719	873728	873738	873747	873756	873766	873775	36	4. 7
24	9.873784	873794	873803	873812	873822	873831	873840	873850	873859	873869	873878	873887	35	1 = 2
25	9.873897	873906	873915	873925	873934	873943	873953	873962	873971	873981	873990	873999	34	2. 4
26	9.874009	874018	874027	874037	874046	874055	874065	874074	874083	874093	874102	874111	33	3. 6
27	9.874121	874130	874139	874149	874158	874167	874177	874186	874195	874205	874214	874223	32	4. 7
28	9.874233	874242	874251	874260	874270	874279	874288	874298	874307	874316	874326	874335	31	1 = 2
29	9.874344	874354	874363	874372	874382	874391	874400	874410	874419	874428	874438	874447	30	2. 4
30	9.874456	874466	874475	874484	874493	874503	874512	874521	874531	874540	874549	874559	29	3. 6
31	9.874568	874577	874587	874596	874605	874614	874624	874633	874642	874652	874661	874670	28	4. 7
32	9.874680	874689	874698	874708	874717	874726	874735	874745	874754	874763	874773	874782	27	1 = 2
33	9.874791	874801	874810	874819	874828	874838	874847	874856	874866	874875	874884	874893	26	2. 4
34	9.874903	874912	874921	874931	874940	874949	874958	874968	874977	874986	874996	875005	25	3. 6
35	9.875014	875024	875033	875042	875051	875061	875070	875079	875088	875098	875107	875116	24	4. 7
36	9.875126	875135	875144	875153	875163	875172	875181	875191	875200	875209	875218	875228	23	1 = 2
37	9.875237	875246	875256	875265	875274	875283	875293	875302	875311	875320	875330	875339	22	2. 4
38	9.875348	875358	875367	875376	875385	875395	875404	875413	875422	875432	875441	875450	21	3. 6
39	9.875459	875469	875478	875487	875497	875506	875515	875524	875534	875543	875552	875561	20	4. 7
40	9.875571	875580	875589	875598	875608	875617	875626	875635	875645	875654	875663	875672	19	1 = 2
41	9.875682	875691	875700	875709	875719	875728	875737	875746	875756	875765	875774	875783	18	2. 4
42	9.875793	875802	875811	875820	875830	875839	875848	875857	875867	875876	875885	875894	17	3. 6
43	9.875904	875913	875922	875931	875941	875950	875959	875968	875978	875987	875996	876005	16	4. 7
44	9.876015	876024	876033	876042	876051	876061	876070	876079	876088	876098	876107	876116	15	1 = 2
45	9.876125	876135	876144	876153	876162	876172	876181	876190	876199	876208	876218	876227	14	2. 4
46	9.876236	876245	876255	876264	876273	876282	876291	876301	876310	876319	876328	876338	13	3. 6
47	9.876347	876356	876365	876374	876384	876393	876402	876411	876421	876430	876439	876448	12	4. 7
48	9.876457	876467	876476	876485	876494	876504	876513	876522	876531	876540	876550	876559	11	1 = 2
49	9.876568	876577	876586	876596	876605	876614	876623	876632	876642	876651	876660	876669	10	2. 4
50	9.876679	876688	876697	876706	876715	876725	876734	876743	876752	876761	876771	876780	9	3. 6
51	9.876789	876798	876807	876817	876826	876835	876844	876853	876863	876872	876881	876890	8	4. 7
52	9.876899	876908	876918	876927	876936	876945	876954	876964	876973	876982	876991	877000	7	1 = 2
53	9.877010	877019	877028	877037	877046	877056	877065	877074	877083	877092	877101	877111	6	2. 4
54	9.877120	877129	877138	877147	877157	877166	877175	877184	877193	877202	877212	877221	5	3. 6
55	9.877230	877239	877248	877258	877267	877276	877285	877294	877303	877313	877322	877331	4	4. 7
56	9.877340	877349	877358	877368	877377	877386	877395	877404	877413	877423	877432	877441	3	1 = 2
57	9.877450	877459	877468	877478	877487	877496	877505	877514	877523	877533	877542	877551	2	2. 4
58	9.877560	877569	877578	877588	877597	877606	877615	877624	877633	877643	877652	877661	1	3. 6
59	9.877670	877679	877688	877698	877707	877716	877725	877734	877743	877752	877762	877771	0	4. 7
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 41 degrees, or Sine of 131 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 49 degrees, or Co-sine of 139 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.877780	877789	877798	877807	877817	877826	877835	877844	877853	877862	877871	877881	59	1″ = 2
1	9.877890	877899	877908	877917	877926	877935	877945	877954	877963	877972	877981	877990	58	2. 4
2	9.877999	878009	878018	878027	878036	878045	878054	878063	878073	878082	878091	878100	57	3. 5
3	9.878109	878118	878127	878136	878146	878155	878164	878173	878182	878191	878200	878210	56	4. 7
4	9.878219	878228	878237	878246	878255	878264	878273	878283	878292	878301	878310	878319	55	1 = 2
5	9.878328	878337	878346	878356	878365	878374	878383	878392	878401	878410	878419	878429	54	2. 4
6	9.878438	878447	878456	878465	878474	878483	878492	878501	878511	878520	878529	878538	53	3. 5
7	9.878547	878556	878565	878574	878584	878593	878602	878611	878620	878629	878638	878647	52	4. 7
8	9.878656	878666	878675	878684	878693	878702	878711	878720	878729	878738	878747	878757	51	1 = 2
9	9.878766	878775	878784	878793	878802	878811	878820	878829	878838	878848	878857	878866	50	2. 4
10	9.878875	878884	878893	878902	878911	878920	878929	878939	878948	878957	878966	878975	49	3. 5
11	9.878984	878993	879002	879011	879020	879029	879039	879048	879057	879066	879075	879084	48	4. 7
12	9.879093	879102	879111	879120	879129	879139	879148	879157	879166	879175	879184	879193	47	1 = 2
13	9.879202	879211	879220	879229	879238	879248	879257	879266	879275	879284	879293	879302	46	2. 4
14	9.879311	879320	879320	879338	879347	879356	879366	879375	879384	879393	879402	879411	45	3. 5
15	9.879420	879429	879438	879447	879456	879465	879474	879483	879492	879502	879511	879520	44	4. 7
16	9.879529	879538	879547	879556	879565	879574	879583	879592	879601	879610	879619	879628	43	1 = 2
17	9.879638	879647	879656	879665	879674	879683	879692	879701	879710	879719	879728	879737	42	2. 4
18	9.879746	879755	879764	879773	879782	879791	879801	879810	879819	879828	879837	879846	41	3. 5
19	9.879855	879864	879873	879882	879891	879900	879909	879918	879927	879936	879945	879954	40	4. 7
20	9.879963	879972	879982	879991	880000	880009	880018	880027	880036	880045	880054	880063	39	1 = 2
21	9.880072	880081	880090	880099	880108	880117	880126	880135	880144	880153	880162	880171	38	2. 4
22	9.880180	880189	880198	880207	880216	880226	880235	880244	880253	880262	880271	880280	37	3. 5
23	9.880289	880298	880307	880316	880325	880334	880343	880352	880361	880370	880379	880388	36	4. 7
24	9.880397	880406	880415	880424	880433	880442	880451	880460	880469	880478	880487	880496	35	1 = 2
25	9.880505	880514	880523	880532	880541	880550	880559	880568	880577	880586	880595	880604	34	2. 4
26	9.880613	880622	880631	880641	880650	880659	880668	880677	880686	880695	880704	880713	33	3. 5
27	9.880722	880731	880740	880749	880758	880767	880776	880785	880794	880803	880812	880821	32	4. 7
28	9.880830	880839	880848	880857	880866	880875	880884	880893	880902	880911	880920	880929	31	1 = 2
29	9.880938	880947	880956	880965	880974	880983	880992	881001	881010	881019	881028	881037	30	2. 4
30	9.881046	881055	881064	881073	881082	881091	881100	881108	881117	881126	881135	881144	29	3. 5
31	9.881153	881162	881171	881180	881189	881198	881207	881216	881225	881234	881243	881252	28	4. 7
32	9.881261	881270	881279	881288	881297	881306	881315	881324	881333	881342	881351	881360	27	1 = 2
33	9.881369	881378	881387	881396	881405	881414	881423	881432	881441	881450	881459	881468	26	2. 4
34	9.881477	881486	881495	881504	881513	881521	881530	881539	881548	881557	881566	881575	25	3. 5
35	9.881584	881593	881602	881611	881620	881629	881638	881647	881656	881665	881674	881683	24	4. 7
36	9.881692	881701	881710	881719	881728	881737	881746	881755	881763	881772	881781	881790	23	1 = 2
37	9.881799	881808	881817	881826	881835	881844	881853	881862	881871	881880	881889	881898	22	2. 4
38	9.881907	881916	881925	881934	881943	881951	881960	881969	881978	881987	881996	882005	21	3. 5
39	9.882014	882023	882032	882041	882050	882059	882068	882077	882086	882095	882103	882112	20	4. 7
40	9.882121	882130	882139	882148	882157	882166	882175	882184	882193	882202	882211	882220	19	1 = 2
41	9.882229	882238	882246	882255	882264	882273	882282	882291	882300	882309	882318	882327	18	2. 4
42	9.882336	882345	882354	882363	882371	882380	882389	882398	882407	882416	882425	882434	17	3. 5
43	9.882443	882452	882461	882470	882479	882487	882496	882505	882514	882523	882532	882541	16	4. 7
44	9.882550	882559	882568	882577	882586	882594	882603	882612	882621	882630	882639	882648	15	1 = 2
45	9.882657	882666	882675	882684	882693	882701	882710	882719	882728	882737	882746	882755	14	2. 4
46	9.882764	882773	882782	882791	882799	882808	882817	882826	882835	882844	882853	882862	13	3. 5
47	9.882871	882880	882888	882897	882906	882915	882924	882933	882942	882951	882960	882969	12	4. 7
48	9.882977	882986	882995	883004	883013	883022	883031	883040	883049	883057	883066	883075	11	1 = 2
49	9.883084	883093	883102	883111	883120	883129	883138	883146	883155	883164	883173	883182	10	2. 4
50	9.883191	883200	883209	883217	883226	883235	883244	883253	883262	883271	883280	883289	9	3. 5
51	9.883297	883306	883315	883324	883333	883342	883351	883360	883368	883377	883386	883395	8	4. 7
52	9.883404	883413	883422	883431	883439	883448	883457	883466	883475	883484	883493	883502	7	1 = 2
53	9.883510	883519	883528	883537	883546	883555	883564	883573	883581	883590	883599	883608	6	2. 4
54	9.883617	883626	883635	883643	883652	883661	883670	883679	883688	883697	883705	883714	5	3. 5
55	9.883723	883732	883741	883750	883759	883768	883776	883785	883794	883803	883812	883821	4	4. 7
56	9.883829	883838	883847	883856	883865	883874	883883	883891	883900	883909	883918	883927	3	1 = 2
57	9.883936	883945	883953	883962	883971	883980	883989	883998	884007	884015	884024	884033	2	2. 4
58	9.884042	884051	884060	884068	884077	884086	884095	884104	884113	884121	884130	884139	1	3. 5
59	9.884148	884157	884166	884174	884183	884192	884201	884210	884219	884228	884236	884245	0	4. 7
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 40 degrees, or Sine of 130 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 50 degrees, or Co-sine of 140 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30	35″	40″	45″	50″	55″		
0	9. 884254	884263	884272	884281	884289	884298	884307	884316	884325	884334	884342	884351	59	1″ =
1	9. 884360	884369	884378	884386	884395	884404	884413	884422	884431	884439	884448	884457	58	2.
2	9. 884466	884475	884484	884492	884501	884510	884519	884528	884536	884545	884554	884563	57	3.
3	9. 884572	884581	884589	884598	884607	884616	884625	884633	884642	884651	884660	884669	56	4.
4	9. 884678	884686	884695	884704	884713	884722	884730	884739	884748	884757	884766	884774	55	1 =
5	9. 884783	884792	884801	884810	884818	884827	884836	884845	884854	884863	884871	884880	54	2.
6	9. 884889	884898	884907	884915	884924	884933	884942	884951	884959	884968	884977	884986	53	3.
7	9. 884995	885003	885012	885021	885030	885038	885047	885056	885065	885074	885082	885091	52	4.
8	9. 885100	885109	885118	885126	885135	885144	885153	885162	885170	885179	885188	885197	51	1 =
9	9. 885206	885214	885223	885232	885241	885249	885258	885267	885276	885285	885293	885302	50	2.
10	9. 885311	885320	885328	885337	885346	885355	885364	885372	885381	885390	885399	885408	49	3.
11	9. 885416	885425	885434	885443	885451	885460	885469	885478	885486	885495	885504	885513	48	4.
12	9. 885522	885530	885539	885548	885557	885565	885574	885583	885592	885600	885609	885618	47	1 =
13	9. 885627	885636	885644	885653	885662	885671	885679	885688	885697	885706	885714	885723	46	2.
14	9. 885732	885741	885749	885758	885767	885776	885785	885793	885802	885811	885820	885828	45	3.
15	9. 885837	885846	885855	885863	885872	885881	885890	885898	885907	885916	885925	885933	44	4.
16	9. 885942	885951	885960	885968	885977	885986	885995	886003	886012	886021	886030	886038	43	1 =
17	9. 886047	886056	886065	886073	886082	886091	886100	886108	886117	886126	886134	886143	42	2.
18	9. 886152	886161	886169	886178	886187	886196	886204	886213	886222	886231	886239	886248	41	3.
19	9. 886257	886266	886274	886283	886292	886301	886309	886318	886327	886335	886344	886353	40	4.
20	9. 886362	886370	886379	886388	886397	886405	886414	886423	886431	886440	886449	886458	39	1 =
21	9. 886466	886475	886484	886493	886501	886510	886519	886527	886536	886545	886554	886562	38	2.
22	9. 886571	886580	886588	886597	886606	886615	886623	886632	886641	886649	886658	886667	37	3.
23	9. 886676	886684	886693	886702	886710	886719	886728	886737	886745	886754	886763	886771	36	4.
24	9. 886780	886789	886798	886806	886815	886824	886832	886841	886850	886859	886867	886876	35	1 =
25	9. 886885	886893	886902	886911	886919	886928	886937	886946	886954	886963	886972	886980	34	2.
26	9. 886989	886998	887006	887015	887024	887033	887041	887050	887059	887067	887076	887085	33	3.
27	9. 887093	887102	887111	887119	887128	887137	887146	887154	887163	887172	887180	887189	32	4.
28	9. 887198	887206	887215	887224	887232	887241	887250	887259	887267	887276	887285	887293	31	1 =
29	9. 887302	887311	887319	887328	887337	887345	887354	887363	887371	887380	887389	887397	30	2.
30	9. 887406	887415	887423	887432	887441	887449	887458	887467	887476	887484	887493	887502	29	3.
31	9. 887510	887519	887528	887536	887545	887554	887562	887571	887580	887588	887597	887606	28	4.
32	9. 887614	887623	887632	887640	887649	887658	887666	887675	887684	887692	887701	887710	27	1 =
33	9. 887718	887727	887736	887744	887753	887762	887770	887779	887788	887796	887805	887814	26	2.
34	9. 887822	887831	887839	887848	887857	887865	887874	887883	887891	887900	887909	887917	25	3.
35	9. 887926	887935	887943	887952	887961	887969	887978	887987	887995	888004	888013	888021	24	4.
36	9. 888030	888038	888047	888056	888064	888073	888082	888090	888099	888108	888116	888125	23	1 =
37	9. 888134	888142	888151	888159	888168	888177	888185	888194	888203	888211	888220	888229	22	2.
38	9. 888237	888246	888255	888263	888272	888280	888289	888298	888306	888315	888324	888332	21	3.
39	9. 888341	888349	888358	888367	888375	888384	888393	888401	888410	888419	888427	888436	20	4.
40	9. 888444	888453	888462	888470	888479	888488	888496	888505	888513	888522	888531	888539	19	1 =
41	9. 888548	888557	888565	888574	888582	888591	888600	888608	888617	888625	888634	888643	18	2.
42	9. 888651	888660	888669	888677	888686	888694	888703	888712	888720	888729	888737	888746	17	3.
43	9. 888755	888763	888772	888781	888789	888798	888806	888815	888824	888832	888841	888849	16	4.
44	9. 888858	888867	888875	888884	888892	888901	888910	888918	888927	888935	888944	888953	15	1 =
45	9. 888961	888970	888978	888987	888996	889004	889013	889021	889030	889039	889047	889056	14	2.
46	9. 889064	889073	889082	889090	889099	889107	889116	889125	889133	889142	889150	889159	13	3.
47	9. 889168	889176	889185	889193	889202	889211	889219	889228	889236	889245	889253	889262	12	4.
48	9. 889271	889279	889288	889296	889305	889314	889322	889331	889339	889348	889356	889365	11	1 =
49	9. 889374	889382	889391	889399	889408	889417	889425	889434	889442	889451	889459	889468	10	2.
50	9. 889477	889485	889494	889502	889511	889519	889528	889537	889545	889554	889562	889571	9	3.
51	9. 889579	889588	889597	889605	889614	889622	889631	889639	889648	889657	889665	889674	8	4.
52	9. 889682	889691	889699	889708	889717	889725	889734	889742	889751	889759	889768	889776	7	1 =
53	9. 889785	889794	889802	889811	889819	889828	889836	889845	889854	889862	889871	889879	6	2.
54	9. 889888	889896	889905	889913	889922	889931	889939	889948	889956	889965	889973	889982	5	3.
55	9. 889990	889999	890007	890016	890025	890033	890042	890050	890059	890067	890076	890084	4	4.
56	9. 890093	890101	890110	890119	890127	890136	890144	890153	890161	890170	890178	890187	3	1 =
57	9. 890195	890204	890213	890221	890230	890238	890247	890255	890264	890272	890281	890289	2	2.
58	9. 890298	890306	890315	890324	890332	890341	890349	890358	890366	890375	890383	890392	1	3.
59	9. 890400	890409	890417	890426	890434	890443	890451	890460	890469	890477	890486	890494	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 39 degrees, or Sine of 129 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 51 degrees, or Co-sine of 141 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.890503	890511	890520	890528	890537	890545	890554	890562	890571	890579	890588	890596	59	1″ = 2
1	9.890665	890673	890682	890690	890699	890648	890656	890665	890673	890682	890690	890699	58	2. 3
2	9.890707	890716	890724	890733	890741	890750	890758	890767	890775	890784	890792	890801	57	3. 5
3	9.890809	890818	890826	890835	890843	890852	890860	890869	890877	890886	890894	890903	56	4. 7
4	9.890911	890920	890928	890937	890945	890954	890962	890971	890979	890988	890996	891005	55	1 = 2
5	9.891013	891022	891030	891039	891047	891056	891064	891073	891081	891090	891098	891107	54	2. 3
6	9.891115	891124	891132	891141	891149	891158	891166	891175	891183	891192	891200	891209	53	3. 5
7	9.891217	891226	891234	891243	891251	891260	891268	891277	891285	891294	891302	891311	52	4. 7
8	9.891319	891328	891336	891345	891353	891362	891370	891378	891387	891395	891404	891412	51	1 = 2
9	9.891421	891429	891438	891446	891455	891463	891472	891480	891489	891497	891506	891514	50	2. 3
10	9.891523	891531	891540	891548	891557	891565	891573	891582	891590	891599	891607	891616	49	3. 5
11	9.891624	891633	891641	891650	891658	891667	891675	891684	891692	891700	891709	891717	48	4. 7
12	9.891726	891734	891743	891751	891760	891768	891777	891785	891794	891802	891811	891819	47	1 = 2
13	9.891827	891836	891844	891853	891861	891870	891878	891887	891895	891904	891912	891920	46	2. 3
14	9.891929	891937	891946	891954	891963	891971	891980	891988	891997	892005	892013	892022	45	3. 5
15	9.892030	892039	892047	892056	892064	892073	892081	892089	892098	892106	892115	892123	44	4. 7
16	9.892132	892140	892149	892157	892165	892174	892182	892191	892199	892208	892216	892225	43	1 = 2
17	9.892233	892241	892250	892258	892267	892275	892284	892292	892300	892309	892317	892326	42	2. 3
18	9.892334	892343	892351	892360	892368	892376	892385	892393	892402	892410	892419	892427	41	3. 5
19	9.892435	892444	892452	892461	892469	892478	892486	892494	892503	892511	892520	892528	40	4. 7
20	9.892536	892545	892553	892562	892570	892579	892587	892595	892604	892612	892621	892629	39	1 = 2
21	9.892637	892646	892654	892663	892671	892680	892688	892697	892705	892713	892722	892730	38	2. 3
22	9.892738	892747	892755	892764	892772	892781	892789	892797	892806	892814	892823	892831	37	3. 5
23	9.892839	892848	892856	892865	892873	892882	892890	892898	892907	892915	892924	892932	36	4. 7
24	9.892940	892949	892957	892966	892974	892982	892991	892999	893008	893016	893024	893033	35	1 = 2
25	9.893041	893050	893058	893066	893075	893083	893092	893100	893108	893117	893125	893134	34	2. 3
26	9.893142	893150	893159	893167	893176	893184	893192	893201	893209	893218	893226	893234	33	3. 5
27	9.893243	893251	893259	893268	893276	893285	893293	893301	893310	893318	893327	893335	32	4. 7
28	9.893343	893352	893360	893368	893377	893385	893394	893402	893410	893419	893427	893436	31	1 = 2
29	9.893444	893452	893461	893469	893477	893486	893494	893503	893511	893519	893528	893536	30	2. 3
30	9.893544	893553	893561	893570	893578	893586	893595	893603	893611	893620	893628	893637	29	3. 5
31	9.893645	893653	893662	893670	893678	893687	893695	893703	893712	893720	893729	893737	28	4. 7
32	9.893745	893754	893762	893770	893779	893787	893795	893804	893812	893821	893829	893837	27	1 = 2
33	9.893846	893854	893862	893871	893879	893887	893896	893904	893912	893921	893929	893938	26	2. 3
34	9.893946	893954	893963	893971	893979	893988	893996	894004	894013	894021	894029	894038	25	3. 5
35	9.894046	894054	894063	894071	894079	894088	894096	894105	894113	894121	894129	894138	24	4. 7
36	9.894146	894155	894163	894171	894180	894188	894196	894205	894213	894221	894230	894238	23	1 = 2
37	9.894246	894255	894263	894271	894280	894288	894296	894305	894313	894321	894330	894338	22	2. 3
38	9.894346	894355	894363	894371	894380	894388	894396	894405	894413	894421	894430	894438	21	3. 5
39	9.894446	894455	894463	894471	894480	894488	894496	894505	894513	894521	894530	894538	20	4. 7
40	9.894546	894555	894563	894571	894580	894588	894596	894605	894613	894621	894630	894638	19	1 = 2
41	9.894646	894654	894663	894671	894679	894688	894696	894704	894713	894721	894729	894738	18	2. 3
42	9.894746	894754	894763	894771	894779	894788	894796	894804	894812	894821	894829	894837	17	3. 5
43	9.894846	894854	894862	894871	894879	894887	894896	894904	894912	894920	894929	894937	16	4. 7
44	9.894945	894954	894962	894970	894979	894987	894995	895004	895012	895020	895028	895037	15	1 = 2
45	9.895045	895053	895062	895070	895078	895087	895095	895103	895111	895120	895128	895136	14	2. 3
46	9.895145	895153	895161	895169	895178	895186	895194	895203	895211	895219	895227	895236	13	3. 5
47	9.895244	895252	895261	895269	895277	895286	895294	895302	895310	895319	895327	895335	12	4. 7
48	9.895344	895352	895360	895368	895377	895385	895393	895401	895410	895418	895426	895435	11	1 = 2
49	9.895443	895451	895459	895468	895476	895484	895493	895501	895509	895517	895526	895534	10	2. 3
50	9.895542	895550	895559	895567	895575	895584	895592	895600	895608	895617	895625	895633	9	3. 5
51	9.895641	895650	895658	895666	895675	895683	895691	895699	895708	895716	895724	895732	8	4. 7
52	9.895741	895749	895757	895765	895774	895782	895790	895799	895807	895815	895823	895832	7	1 = 2
53	9.895840	895848	895856	895865	895873	895881	895889	895898	895906	895914	895922	895931	6	2. 3
54	9.895939	895947	895955	895964	895972	895980	895988	895997	896005	896013	896021	896030	5	3. 5
55	9.896038	896046	896054	896063	896071	896079	896087	896096	896104	896112	896120	896129	4	4. 7
56	9.896137	896145	896153	896162	896170	896178	896186	896195	896203	896211	896219	896228	3	1 = 2
57	9.896236	896244	896252	896261	896269	896277	896285	896293	896302	896310	896318	896326	2	2. 3
58	9.896335	896343	896351	896359	896368	896376	896384	896392	896401	896409	896417	896425	1	3. 5
59	9.896433	896442	896450	896458	896466	896475	896483	896491	896499	896508	896516	896524	0	4. 7
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 38 degrees, or Sine of 128 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 52 degrees, or Co-sine of 142 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 896532	896540	896549	896557	896565	896573	896582	896590	896598	896606	896614	896623	59	1″ =
1	9. 896631	896639	896647	896656	896664	896672	896680	896688	896697	896705	896713	896721	58	2.
2	9. 896729	896738	896746	896754	896762	896771	896779	896787	896795	896803	896812	896820	57	3.
3	9. 896828	896836	896844	896853	896861	896869	896877	896885	896894	896902	896910	896918	56	4.
4	9. 896927	896935	896943	896951	896959	896968	896976	896984	896992	897000	897009	897017	55	1 =
5	9. 897025	897033	897041	897050	897058	897066	897074	897082	897091	897099	897107	897115	54	2.
6	9. 897123	897132	897140	897148	897156	897164	897172	897181	897189	897197	897205	897213	53	3.
7	9. 897222	897230	897238	897246	897254	897263	897271	897279	897287	897295	897304	897312	52	4.
8	9. 897320	897328	897336	897344	897353	897361	897369	897377	897385	897394	897402	897410	51	1 =
9	9. 897418	897426	897434	897443	897451	897459	897467	897475	897484	897492	897500	897508	50	2.
10	9. 897516	897524	897533	897541	897549	897557	897565	897573	897582	897590	897598	897606	49	3.
11	9. 897614	897622	897631	897639	897647	897655	897663	897672	897680	897688	897696	897704	48	4.
12	9. 897712	897721	897729	897737	897745	897753	897761	897770	897778	897786	897794	897802	47	1 =
13	9. 897810	897818	897827	897835	897843	897851	897859	897867	897876	897884	897892	897900	46	2.
14	9. 897908	897916	897925	897933	897941	897949	897957	897965	897973	897982	897990	897998	45	3.
15	9. 898006	898014	898022	898031	898039	898047	898055	898063	898071	898079	898088	898096	44	4.
16	9. 898104	898112	898120	898128	898136	898145	898153	898161	898169	898177	898185	898193	43	1 =
17	9. 898202	898210	898218	898226	898234	898242	898250	898259	898267	898275	898283	898291	42	2.
18	9. 898299	898307	898316	898324	898332	898340	898348	898356	898364	898372	898381	898389	41	3.
19	9. 898397	898405	898413	898421	898429	898437	898446	898454	898462	898470	898478	898486	40	4.
20	9. 898494	898503	898511	898519	898527	898535	898543	898551	898559	898568	898576	898584	39	1 =
21	9. 898592	898600	898608	898616	898624	898633	898641	898649	898657	898665	898673	898681	38	2.
22	9. 898689	898697	898706	898714	898722	898730	898738	898746	898754	898762	898770	898779	37	3.
23	9. 898787	898795	898803	898811	898819	898827	898835	898843	898852	898860	898868	898876	36	4.
24	9. 898884	898892	898900	898908	898916	898925	898933	898941	898949	898957	898965	898973	35	1 =
25	9. 898981	898989	898997	899006	899014	899022	899030	899038	899046	899054	899062	899070	34	2.
26	9. 899078	899087	899095	899103	899111	899119	899127	899135	899143	899151	899159	899168	33	3.
27	9. 899176	899184	899192	899200	899208	899216	899224	899232	899240	899248	899257	899265	32	4.
28	9. 899273	899281	899289	899297	899305	899313	899321	899329	899337	899345	899354	899362	31	1 =
29	9. 899370	899378	899386	899394	899402	899410	899418	899426	899434	899442	899451	899459	30	2.
30	9. 899467	899475	899483	899491	899499	899507	899515	899523	899531	899539	899547	899556	29	3.
31	9. 899564	899572	899580	899588	899596	899604	899612	899620	899628	899636	899644	899652	28	4.
32	9. 899660	899669	899677	899685	899693	899701	899709	899717	899725	899733	899741	899749	27	1 =
33	9. 899757	899765	899773	899781	899790	899798	899806	899814	899822	899830	899838	899846	26	2.
34	9. 899854	899862	899870	899878	899886	899894	899902	899910	899918	899926	899935	899943	25	3.
35	9. 899951	899959	899967	899975	899983	899991	899999	900007	900015	900023	900031	900039	24	4.
36	9. 900047	900055	900063	900071	900079	900088	900096	900104	900112	900120	900128	900136	23	1 =
37	9. 900144	900152	900160	900168	900176	900184	900192	900200	900208	900216	900224	900232	22	2.
38	9. 900240	900248	900256	900264	900272	900281	900289	900297	900305	900313	900321	900329	21	3.
39	9. 900337	900345	900353	900361	900369	900377	900385	900393	900401	900409	900417	900425	20	4.
40	9. 900433	900441	900449	900457	900465	900473	900481	900489	900497	900505	900513	900521	19	1 =
41	9. 900529	900538	900546	900554	900562	900570	900578	900586	900594	900602	900610	900618	18	2.
42	9. 900626	900634	900642	900650	900658	900666	900674	900682	900690	900698	900706	900714	17	3.
43	9. 900722	900730	900738	900746	900754	900762	900770	900778	900786	900794	900802	900810	16	4.
44	9. 900818	900826	900834	900842	900850	900858	900866	900874	900882	900890	900898	900906	15	1 =
45	9. 900914	900922	900930	900938	900946	900954	900962	900970	900978	900986	900994	901002	14	2.
46	9. 901010	901018	901026	901034	901042	901050	901058	901066	901074	901082	901090	901098	13	3.
47	9. 901106	901114	901122	901130	901138	901146	901154	901162	901170	901178	901186	901194	12	4.
48	9. 901202	901210	901218	901226	901234	901242	901250	901258	901266	901274	901282	901290	11	1 =
49	9. 901298	901306	901314	901322	901330	901338	901346	901354	901362	901370	901378	901386	10	2.
50	9. 901394	901402	901410	901418	901426	901434	901442	901450	901458	901466	901474	901482	9	3.
51	9. 901490	901498	901506	901513	901521	901529	901537	901545	901553	901561	901569	901577	8	4.
52	9. 901585	901593	901601	901609	901617	901625	901633	901641	901649	901657	901665	901673	7	1 =
53	9. 901681	901689	901697	901705	901713	901721	901729	901737	901745	901753	901761	901768	6	2.
54	9. 901776	901784	901792	901800	901808	901816	901824	901832	901840	901848	901856	901864	5	3.
55	9. 901872	901880	901888	901896	901904	901912	901920	901928	901936	901944	901952	901959	4	4.
56	9. 901967	901975	901983	901991	901999	902007	902015	902023	902031	902039	902047	902055	3	1 =
57	9. 902063	902071	902079	902087	902095	902103	902110	902118	902126	902134	902142	902150	2	2.
58	9. 902158	902166	902174	902182	902190	902198	902206	902214	902222	902230	902238	902246	1	3.
59	9. 902253	902261	902269	902277	902285	902293	902301	902309	902317	902325	902333	902341	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 37 degrees, or Sine of 127 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 53 degrees, or Co-sine of 143 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.902349	902357	902365	902372	902380	902388	902396	902404	902412	902420	902428	902436	59	1″ = 2
1	9.902444	902452	902460	902468	902476	902483	902491	902499	902507	902515	902523	902531	58	2. 3
2	9.902539	902547	902555	902563	902571	902579	902586	902594	902602	902610	902618	902626	57	3. 5
3	9.902634	902642	902650	902658	902666	902674	902682	902689	902697	902705	902713	902721	56	4. 6
4	9.902729	902737	902745	902753	902761	902769	902776	902784	902792	902800	902808	902816	55	1 = 2
5	9.902824	902832	902840	902848	902856	902863	902871	902879	902887	902895	902903	902911	54	2. 3
6	9.902919	902927	902935	902943	902950	902958	902966	902974	902982	902990	902998	903006	53	3. 5
7	9.903014	903022	903029	903037	903045	903053	903061	903069	903077	903085	903093	903101	52	4. 6
8	9.903108	903116	903124	903132	903140	903148	903156	903164	903172	903179	903187	903195	51	1 = 2
9	9.903203	903211	903219	903227	903235	903243	903250	903258	903266	903274	903282	903290	50	2. 3
10	9.903298	903306	903314	903321	903329	903337	903345	903353	903361	903369	903377	903384	49	3. 5
11	9.903392	903400	903408	903416	903424	903432	903440	903448	903455	903463	903471	903479	48	4. 6
12	9.903487	903495	903503	903511	903518	903526	903534	903542	903550	903558	903566	903574	47	1 = 2
13	9.903581	903589	903597	903605	903613	903621	903629	903636	903644	903652	903660	903668	46	2. 3
14	9.903676	903684	903692	903699	903707	903715	903723	903731	903739	903747	903754	903762	45	3. 5
15	9.903770	903778	903786	903794	903802	903809	903817	903825	903833	903841	903849	903857	44	4. 6
16	9.903864	903872	903880	903888	903896	903904	903912	903919	903927	903935	903943	903951	43	1 = 2
17	9.903959	903967	903974	903982	903990	903998	904006	904014	904022	904029	904037	904045	42	2. 3
18	9.904053	904061	904069	904076	904084	904092	904100	904108	904116	904124	904131	904139	41	3. 5
19	9.904147	904155	904163	904171	904178	904186	904194	904202	904210	904218	904225	904233	40	4. 6
20	9.904241	904249	904257	904265	904272	904280	904288	904296	904304	904312	904319	904327	39	1 = 2
21	9.904335	904343	904351	904359	904366	904374	904382	904390	904398	904406	904413	904421	38	2. 3
22	9.904429	904437	904445	904453	904460	904468	904476	904484	904492	904500	904507	904515	37	3. 5
23	9.904523	904531	904539	904546	904554	904562	904570	904578	904586	904593	904601	904609	36	4. 6
24	9.904617	904625	904633	904640	904648	904656	904664	904672	904679	904687	904695	904703	35	1 = 2
25	9.904711	904718	904726	904734	904742	904750	904758	904765	904773	904781	904789	904797	34	2. 3
26	9.904804	904812	904820	904828	904836	904843	904851	904859	904867	904875	904882	904890	33	3. 5
27	9.904898	904906	904914	904921	904929	904937	904945	904953	904960	904968	904976	904984	32	4. 6
28	9.904992	904999	905007	905015	905023	905031	905038	905046	905054	905062	905070	905077	31	1 = 2
29	9.905085	905093	905101	905109	905116	905124	905132	905140	905148	905155	905163	905171	30	2. 3
30	9.905179	905187	905194	905202	905210	905218	905226	905233	905241	905249	905257	905264	29	3. 5
31	9.905272	905280	905288	905296	905303	905311	905319	905327	905334	905342	905350	905358	28	4. 6
32	9.905366	905373	905381	905389	905397	905405	905412	905420	905428	905436	905443	905451	27	1 = 2
33	9.905459	905467	905475	905482	905490	905498	905506	905513	905521	905529	905537	905544	26	2. 3
34	9.905552	905560	905568	905576	905583	905591	905599	905607	905614	905622	905630	905638	25	3. 5
35	9.905645	905653	905661	905669	905677	905684	905692	905700	905708	905715	905723	905731	24	4. 6
36	9.905739	905746	905754	905762	905770	905777	905785	905793	905801	905808	905816	905824	23	1 = 2
37	9.905832	905839	905847	905855	905863	905871	905878	905886	905894	905902	905909	905917	22	2. 3
38	9.905925	905933	905940	905948	905956	905964	905971	905979	905987	905995	906002	906010	21	3. 5
39	9.906018	906026	906033	906041	906049	906057	906064	906072	906080	906088	906095	906103	20	4. 6
40	9.906111	906118	906126	906134	906142	906149	906157	906165	906173	906180	906188	906196	19	1 = 2
41	9.906204	906211	906219	906227	906235	906242	906250	906258	906266	906273	906281	906289	18	2. 3
42	9.906296	906304	906312	906320	906327	906335	906343	906351	906358	906366	906374	906381	17	3. 5
43	9.906389	906397	906405	906412	906420	906428	906436	906443	906451	906459	906466	906474	16	4. 6
44	9.906482	906490	906497	906505	906513	906521	906528	906536	906544	906551	906559	906567	15	1 = 2
45	9.906575	906582	906590	906598	906605	906613	906621	906629	906636	906644	906652	906659	14	2. 3
46	9.906667	906675	906683	906690	906698	906706	906713	906721	906729	906737	906744	906752	13	3. 5
47	9.906760	906767	906775	906783	906791	906798	906806	906814	906821	906829	906837	906845	12	4. 6
48	9.906852	906860	906868	906875	906883	906891	906898	906906	906914	906922	906929	906937	11	1 = 2
49	9.906945	906952	906960	906968	906975	906983	906991	906999	907006	907014	907022	907029	10	2. 3
50	9.907037	907045	907052	907060	907068	907076	907083	907091	907099	907106	907114	907122	9	3. 5
51	9.907129	907137	907145	907152	907160	907168	907175	907183	907191	907199	907206	907214	8	4. 6
52	9.907222	907229	907237	907245	907252	907260	907268	907275	907283	907291	907298	907306	7	1 = 2
53	9.907314	907322	907329	907337	907345	907352	907360	907368	907375	907383	907391	907398	6	2. 3
54	9.907406	907414	907421	907429	907437	907444	907452	907460	907467	907475	907483	907490	5	3. 5
55	9.907498	907506	907513	907521	907529	907536	907544	907552	907559	907567	907575	907582	4	4. 6
56	9.907590	907598	907605	907613	907621	907628	907636	907644	907651	907659	907667	907674	3	1 = 2
57	9.907682	907690	907697	907705	907713	907720	907728	907736	907743	907751	907759	907766	2	2. 3
58	9.907774	907782	907789	907797	907805	907812	907820	907828	907835	907843	907851	907858	1	3. 5
59	9.907866	907874	907881	907889	907896	907904	907912	907919	907927	907935	907942	907950	0	4. 6
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 36 degrees, or Sine of 126 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 54 degrees, or Co-sine of 144 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 907958	907965	907973	907981	907988	907996	908004	908011	908019	908027	908034	908042	59	1″ = 2
1	9. 908049	908057	908065	908072	908080	908088	908095	908103	908111	908118	908126	908134	58	2. 3
2	9. 908141	908149	908156	908164	908172	908179	908187	908195	908202	908210	908218	908225	57	3. 5
3	9. 908233	908240	908248	908256	908263	908271	908279	908286	908294	908301	908309	908317	56	4. 6
4	9. 908324	908332	908340	908347	908355	908363	908370	908378	908385	908393	908401	908408	55	1 = 2
5	9. 908416	908424	908431	908439	908446	908454	908462	908469	908477	908485	908492	908500	54	2. 3
6	9. 908507	908515	908523	908530	908538	908545	908553	908561	908568	908576	908584	908591	53	3. 5
7	9. 908599	908606	908614	908622	908629	908637	908645	908652	908660	908667	908675	908683	52	4. 6
8	9. 908690	908698	908705	908713	908721	908728	908736	908743	908751	908759	908766	908774	51	1 = 2
9	9. 908781	908789	908797	908804	908812	908820	908827	908835	908842	908850	908858	908865	50	2. 3
10	9. 908873	908880	908888	908896	908903	908911	908918	908926	908934	908941	908949	908956	49	3. 5
11	9. 908964	908972	908979	908987	908994	909002	909010	909017	909025	909032	909040	909047	48	4. 6
12	9. 909055	909063	909070	909078	909085	909093	909101	909108	909116	909123	909131	909139	47	1 = 2
13	9. 909146	909154	909161	909169	909177	909184	909192	909199	909207	909214	909222	909230	46	2. 3
14	9. 909237	909245	909252	909260	909268	909275	909283	909290	909298	909305	909313	909321	45	3. 5
15	9. 909328	909336	909343	909351	909358	909366	909374	909381	909389	909396	909404	909412	44	4. 6
16	9. 909419	909427	909434	909442	909449	909457	909465	909472	909480	909487	909495	909502	43	1 = 2
17	9. 909510	909518	909525	909533	909540	909548	909555	909563	909570	909578	909586	909593	42	2. 3
18	9. 909601	909608	909616	909623	909631	909639	909646	909654	909661	909669	909676	909684	41	3. 5
19	9. 909692	909699	909707	909714	909722	909729	909737	909744	909752	909760	909767	909775	40	4. 6
20	9. 909782	909790	909797	909805	909812	909820	909828	909835	909843	909850	909858	909865	39	1 = 2
21	9. 909873	909880	909888	909895	909903	909911	909918	909926	909933	909941	909948	909956	38	2. 3
22	9. 909963	909971	909979	909986	909994	910001	910009	910016	910024	910031	910039	910046	37	3. 5
23	9. 910054	910061	910069	910077	910084	910092	910099	910107	910114	910122	910129	910137	36	4. 6
24	9. 910144	910152	910159	910167	910175	910182	910190	910197	910205	910212	910220	910227	35	1 = 2
25	9. 910235	910242	910250	910257	910265	910272	910280	910288	910295	910303	910310	910318	34	2. 3
26	9. 910325	910333	910340	910348	910355	910363	910370	910378	910385	910393	910400	910408	33	3. 5
27	9. 910416	910423	910431	910438	910446	910453	910461	910468	910476	910483	910491	910498	32	4. 6
28	9. 910506	910513	910521	910528	910536	910543	910551	910558	910566	910573	910581	910588	31	1 = 2
29	9. 910596	910603	910611	910618	910626	910634	910641	910649	910656	910664	910671	910679	30	2. 3
30	9. 910686	910694	910701	910709	910716	910724	910731	910739	910746	910754	910761	910769	29	3. 5
31	9. 910776	910784	910791	910799	910806	910814	910821	910829	910836	910844	910851	910859	28	4. 6
32	9. 910866	910874	910881	910889	910896	910904	910911	910919	910926	910934	910941	910949	27	1 = 2
33	9. 910956	910964	910971	910979	910986	910994	911001	911009	911016	911024	911031	911039	26	2. 3
34	9. 911046	911054	911061	911069	911076	911084	911091	911099	911106	911113	911121	911128	25	3. 5
35	9. 911136	911143	911151	911158	911166	911173	911181	911188	911196	911203	911211	911218	24	4. 6
36	9. 911226	911233	911241	911248	911256	911263	911271	911278	911286	911293	911301	911308	23	1 = 1
37	9. 911316	911323	911330	911338	911345	911353	911360	911368	911375	911383	911390	911398	22	2. 3
38	9. 911405	911413	911420	911428	911435	911443	911450	911457	911465	911472	911480	911487	21	3. 5
39	9. 911495	911502	911510	911517	911525	911532	911540	911547	911555	911562	911569	911577	20	4. 6
40	9. 911584	911592	911599	911607	911614	911622	911629	911637	911644	911652	911659	911666	19	1 = 1
41	9. 911674	911681	911689	911696	911704	911711	911719	911726	911734	911741	911749	911756	18	2. 3
42	9. 911763	911771	911778	911786	911793	911801	911808	911816	911823	911831	911838	911845	17	3. 4
43	9. 911853	911860	911868	911875	911883	911890	911898	911905	911912	911920	911927	911935	16	4. 6
44	9. 911942	911950	911957	911965	911972	911979	911987	911994	912002	912009	912017	912024	15	1 = 1
45	9. 912032	912039	912046	912054	912061	912069	912076	912084	912091	912098	912106	912113	14	2. 3
46	9. 912121	912128	912136	912143	912151	912158	912165	912173	912180	912188	912195	912203	13	3. 4
47	9. 912210	912217	912225	912232	912240	912247	912255	912262	912269	912277	912284	912292	12	4. 6
48	9. 912299	912307	912314	912321	912329	912336	912344	912351	912359	912366	912373	912381	11	1 = 1
49	9. 912388	912396	912403	912410	912418	912425	912433	912440	912448	912455	912462	912470	10	2. 3
50	9. 912477	912485	912492	912499	912507	912514	912522	912529	912537	912544	912551	912559	9	3. 4
51	9. 912566	912574	912581	912588	912596	912603	912611	912618	912626	912633	912640	912648	8	4. 6
52	9. 912655	912663	912670	912677	912685	912692	912700	912707	912714	912722	912729	912737	7	1 = 1
53	9. 912744	912751	912759	912766	912774	912781	912788	912796	912803	912811	912818	912825	6	2. 3
54	9. 912833	912840	912848	912855	912862	912870	912877	912885	912892	912899	912907	912914	5	3. 4
55	9. 912922	912929	912936	912944	912951	912959	912966	912973	912981	912988	912996	913003	4	4. 6
56	9. 913010	913018	913025	913032	913040	913047	913055	913062	913069	913077	913084	913092	3	1 = 1
57	9. 913099	913106	913114	913121	913128	913136	913143	913151	913158	913165	913173	913180	2	2. 3
58	9. 913188	913195	913202	913210	913217	913224	913232	913239	913247	913254	913261	913269	1	3. 4
59	9. 913276	913283	913291	913298	913306	913313	913320	913328	913335	913342	913350	913357	0	4. 6
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 35 degrees, or Sine of 125 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 55 degrees, or Co-sine of 145 degrees.												Minutes
	0″	5″	10″	15″	20″	25″	30″	35″	40	45″	50″	55″	
0	9.913365	913372	913379	913387	913394	913401	913409	913416	913424	913431	913438	913446	59
1	9.913453	913460	913468	913475	913482	913490	913497	913505	913512	913519	913527	913534	58
2	9.913541	913549	913556	913563	913571	913578	913586	913593	913600	913608	913615	913622	57
3	9.913630	913637	913644	913652	913659	913666	913674	913681	913689	913696	913703	913711	56
4	9.913718	913725	913733	913740	913747	913755	913762	913769	913777	913784	913791	913799	55
5	9.913806	913814	913821	913828	913836	913843	913850	913858	913865	913872	913880	913887	54
6	9.913894	913902	913909	913916	913924	913931	913938	913946	913953	913960	913968	913975	53
7	9.913982	913990	913997	914004	914012	914019	914026	914034	914041	914048	914056	914063	52
8	9.914070	914078	914085	914092	914100	914107	914114	914122	914129	914136	914144	914151	51
9	9.914158	914166	914173	914180	914188	914195	914202	914210	914217	914224	914232	914239	50
10	9.914246	914254	914261	914268	914276	914283	914290	914298	914305	914312	914320	914327	49
11	9.914334	914342	914349	914356	914364	914371	914378	914386	914393	914400	914407	914415	48
12	9.914422	914429	914437	914444	914451	914459	914466	914473	914481	914488	914495	914503	47
13	9.914510	914517	914525	914532	914539	914546	914554	914561	914568	914576	914583	914590	46
14	9.914598	914605	914612	914620	914627	914634	914641	914649	914656	914663	914671	914678	45
15	9.914685	914693	914700	914707	914715	914722	914729	914736	914744	914751	914758	914766	44
16	9.914773	914780	914787	914795	914802	914809	914817	914824	914831	914839	914846	914853	43
17	9.914860	914868	914875	914882	914890	914897	914904	914912	914919	914926	914933	914941	42
18	9.914948	914955	914963	914970	914977	914984	914992	914999	915006	915014	915021	915028	41
19	9.915035	915043	915050	915057	915065	915072	915079	915086	915094	915101	915108	915116	40
20	9.915123	915130	915137	915145	915152	915159	915166	915174	915181	915188	915196	915203	39
21	9.915210	915217	915225	915232	915239	915247	915254	915261	915268	915276	915283	915290	38
22	9.915297	915305	915312	915319	915327	915334	915341	915348	915356	915363	915370	915377	37
23	9.915385	915392	915399	915406	915414	915421	915428	915436	915443	915450	915457	915465	36
24	9.915472	915479	915486	915494	915501	915508	915515	915523	915530	915537	915544	915552	35
25	9.915559	915566	915573	915581	915588	915595	915603	915610	915617	915624	915632	915639	34
26	9.915646	915653	915661	915668	915675	915682	915690	915697	915704	915711	915719	915726	33
27	9.915733	915740	915748	915755	915762	915769	915777	915784	915791	915798	915806	915813	32
28	9.915820	915827	915834	915842	915849	915856	915863	915871	915878	915885	915892	915900	31
29	9.915907	915914	915921	915929	915936	915943	915950	915958	915965	915972	915979	915987	30
30	9.915994	916001	916008	916015	916023	916030	916037	916044	916052	916059	916066	916073	29
31	9.916081	916088	916095	916102	916109	916117	916124	916131	916138	916146	916153	916160	28
32	9.916167	916175	916182	916189	916196	916203	916211	916218	916225	916232	916240	916247	27
33	9.916254	916261	916268	916276	916283	916290	916297	916305	916312	916319	916326	916333	26
34	9.916341	916348	916355	916362	916369	916377	916384	916391	916398	916406	916413	916420	25
35	9.916427	916434	916442	916449	916456	916463	916470	916478	916485	916492	916499	916507	24
36	9.916514	916521	916528	916535	916543	916550	916557	916564	916571	916579	916586	916593	23
37	9.916600	916607	916615	916622	916629	916636	916643	916651	916658	916665	916672	916679	22
38	9.916687	916694	916701	916708	916715	916723	916730	916737	916744	916751	916759	916766	21
39	9.916773	916780	916787	916795	916802	916809	916816	916823	916831	916838	916845	916852	20
40	9.916859	916867	916874	916881	916888	916895	916902	916910	916917	916924	916931	916938	19
41	9.916946	916953	916960	916967	916974	916981	916989	916996	917003	917010	917017	917025	18
42	9.917032	917039	917046	917053	917060	917068	917075	917082	917089	917096	917104	917111	17
43	9.917118	917125	917132	917139	917147	917154	917161	917168	917175	917183	917190	917197	16
44	9.917204	917211	917218	917226	917233	917240	917247	917254	917261	917269	917276	917283	15
45	9.917290	917297	917304	917312	917319	917326	917333	917340	917347	917355	917362	917369	14
46	9.917376	917383	917390	917398	917405	917412	917419	917426	917433	917441	917448	917455	13
47	9.917462	917469	917476	917483	917491	917498	917505	917512	917519	917526	917534	917541	12
48	9.917548	917555	917562	917569	917576	917584	917591	917598	917605	917612	917619	917627	11
49	9.917634	917641	917648	917655	917662	917669	917677	917684	917691	917698	917705	917712	10
50	9.917719	917727	917734	917741	917748	917755	917762	917769	917777	917784	917791	917798	9
51	9.917805	917812	917819	917827	917834	917841	917848	917855	917862	917869	917877	917884	8
52	9.917891	917898	917905	917912	917919	917927	917934	917941	917948	917955	917962	917969	7
53	9.917976	917984	917991	917998	918005	918012	918019	918026	918034	918041	918048	918055	6
54	9.918062	918069	918076	918083	918091	918098	918105	918112	918119	918126	918133	918140	5
55	9.918148	918155	918162	918169	918176	918183	918190	918197	918205	918212	918219	918226	4
56	9.918233	918240	918247	918254	918261	918269	918276	918283	918290	918297	918304	918311	3
57	9.918318	918326	918333	918340	918347	918354	918361	918368	918375	918382	918390	918397	2
58	9.918404	918411	918418	918425	918432	918439	918446	918453	918461	918468	918475	918482	1
59	9.918489	918496	918503	918510	918517	918525	918532	918539	918546	918553	918560	918567	0
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes
	Co-sine of 34 degrees, or Sine of 124 degrees.												

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LOGARITHMIC SINES.

Sine of 56 degrees, or Co-sine of 146 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.918574	918581	918588	918596	918603	918610	918617	918624	918631	918638	918645	918652	59	1″ =
1	9.918659	918667	918674	918681	918688	918695	918702	918709	918716	918723	918730	918737	58	2.
2	9.918745	918752	918759	918766	918773	918780	918787	918794	918801	918808	918815	918823	57	3.
3	9.918830	918837	918844	918851	918858	918865	918872	918879	918886	918893	918901	918908	56	4.
4	9.918915	918922	918929	918936	918943	918950	918957	918964	918971	918978	918985	918993	55	1 =
5	9.919000	919007	919014	919021	919028	919035	919042	919049	919056	919063	919070	919077	54	2.
6	9.919085	919092	919099	919106	919113	919120	919127	919134	919141	919148	919155	919162	53	3.
7	9.919169	919177	919184	919191	919198	919205	919212	919219	919226	919233	919240	919247	52	4.
8	9.919254	919261	919268	919275	919283	919290	919297	919304	919311	919318	919325	919332	51	1 =
9	9.919339	919346	919353	919360	919367	919374	919381	919388	919395	919403	919410	919417	50	2.
10	9.919424	919431	919438	919445	919452	919459	919466	919473	919480	919487	919494	919501	49	3.
11	9.919508	919515	919522	919530	919537	919544	919551	919558	919565	919572	919579	919586	48	4.
12	9.919593	919600	919607	919614	919621	919628	919635	919642	919649	919656	919663	919670	47	1 =
13	9.919678	919685	919692	919699	919706	919713	919720	919727	919734	919741	919748	919755	46	2.
14	9.919762	919769	919776	919783	919790	919797	919804	919811	919818	919825	919832	919839	45	3.
15	9.919846	919853	919860	919868	919875	919882	919889	919896	919903	919910	919917	919924	44	4.
16	9.919931	919938	919945	919952	919959	919966	919973	919980	919987	919994	920001	920008	43	1 =
17	9.920015	920022	920029	920036	920043	920050	920057	920064	920071	920078	920085	920092	42	2.
18	9.920099	920106	920113	920120	920128	920135	920142	920149	920156	920163	920170	920177	41	3.
19	9.920184	920191	920198	920205	920212	920219	920226	920233	920240	920247	920254	920261	40	4.
20	9.920268	920275	920282	920289	920296	920303	920310	920317	920324	920331	920338	920345	39	1 =
21	9.920352	920359	920366	920373	920380	920387	920394	920401	920408	920415	920422	920429	38	2.
22	9.920436	920443	920450	920457	920464	920471	920478	920485	920492	920499	920506	920513	37	3.
23	9.920520	920527	920534	920541	920548	920555	920562	920569	920576	920583	920590	920597	36	4.
24	9.920604	920611	920618	920625	920632	920639	920646	920653	920660	920667	920674	920681	35	1 =
25	9.920688	920695	920702	920709	920716	920723	920730	920737	920744	920751	920758	920765	34	2.
26	9.920772	920779	920786	920793	920800	920807	920814	920821	920828	920835	920842	920849	33	3.
27	9.920856	920863	920870	920876	920883	920890	920897	920904	920911	920918	920925	920932	32	4.
28	9.920939	920946	920953	920960	920967	920974	920981	920988	920995	921002	921009	921016	31	1 =
29	9.921023	921030	921037	921044	921051	921058	921065	921072	921079	921086	921093	921100	30	2.
30	9.921107	921114	921121	921128	921135	921141	921148	921155	921162	921169	921176	921183	29	3.
31	9.921190	921197	921204	921211	921218	921225	921232	921239	921246	921253	921260	921267	28	4.
32	9.921274	921281	921288	921295	921302	921309	921316	921322	921329	921336	921343	921350	27	1 =
33	9.921357	921364	921371	921378	921385	921392	921399	921406	921413	921420	921427	921434	26	2.
34	9.921441	921448	921455	921462	921468	921475	921482	921489	921496	921503	921510	921517	25	3.
35	9.921524	921531	921538	921545	921552	921559	921566	921573	921580	921587	921594	921600	24	4.
36	9.921607	921614	921621	921628	921635	921642	921649	921656	921663	921670	921677	921684	23	1 =
37	9.921691	921698	921705	921711	921718	921725	921732	921739	921746	921753	921760	921767	22	2.
38	9.921774	921781	921788	921795	921802	921809	921815	921822	921829	921836	921843	921850	21	3.
39	9.921857	921864	921871	921878	921885	921892	921899	921906	921912	921919	921926	921933	20	4.
40	9.921940	921947	921954	921961	921968	921975	921982	921989	921996	922002	922009	922016	19	1 =
41	9.922023	922030	922037	922044	922051	922058	922065	922072	922079	922085	922092	922099	18	2.
42	9.922106	922113	922120	922127	922134	922141	922148	922155	922162	922168	922175	922182	17	3.
43	9.922189	922196	922203	922210	922217	922224	922231	922238	922244	922251	922258	922265	16	4.
44	9.922272	922279	922286	922293	922300	922307	922314	922320	922327	922334	922341	922348	15	1 =
45	9.922355	922362	922369	922376	922383	922389	922396	922403	922410	922417	922424	922431	14	2.
46	9.922438	922445	922452	922458	922465	922472	922479	922486	922493	922500	922507	922514	13	3.
47	9.922521	922527	922534	922541	922548	922555	922562	922569	922576	922583	922589	922596	12	4.
48	9.922603	922610	922617	922624	922631	922638	922645	922651	922658	922665	922672	922679	11	1 =
49	9.922686	922693	922700	922706	922713	922720	922727	922734	922741	922748	922755	922762	10	2.
50	9.922768	922775	922782	922789	922796	922803	922810	922817	922823	922830	922837	922844	9	3.
51	9.922851	922858	922865	922872	922878	922885	922892	922899	922906	922913	922920	922927	8	4.
52	9.922933	922940	922947	922954	922961	922968	922975	922982	922988	922995	923002	923009	7	1 =
53	9.923016	923023	923030	923036	923043	923050	923057	923064	923071	923078	923085	923091	6	2.
54	9.923098	923105	923112	923119	923126	923133	923139	923146	923153	923160	923167	923174	5	3.
55	9.923181	923187	923194	923201	923208	923215	923222	923229	923235	923242	923249	923256	4	4.
56	9.923263	923270	923277	923283	923290	923297	923304	923311	923318	923325	923331	923338	3	1 =
57	9.923345	923352	923359	923366	923372	923379	923386	923393	923400	923407	923414	923420	2	2.
58	9.923427	923434	923441	923448	923455	923461	923468	923475	923482	923489	923496	923503	1	3.
59	9.923509	923516	923523	923530	923537	923544	923550	923557	923564	923571	923578	923585	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 33 degrees, or Sine of 123 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 57 degrees, or Co-sine of 147 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.923591	923598	923605	923612	923619	923626	923632	923639	923646	923653	923660	923667	59	1″ = 1
1	9.923673	923680	923687	923694	923701	923708	923714	923721	923728	923735	923742	923749	58	2. 3
2	9.923755	923762	923769	923776	923783	923790	923796	923803	923810	923817	923824	923831	57	3. 4
3	9.923837	923844	923851	923858	923865	923871	923878	923885	923892	923899	923906	923912	56	4. 5
4	9.923919	923926	923933	923940	923946	923953	923960	923967	923974	923981	923987	923994	55	1 = 1
5	9.924001	924008	924015	924021	924028	924035	924042	924049	924056	924062	924069	924076	54	2. 3
6	9.924083	924090	924096	924103	924110	924117	924124	924130	924137	924144	924151	924158	53	3. 4
7	9.924164	924171	924178	924185	924192	924198	924205	924212	924219	924226	924233	924239	52	4. 5
8	9.924246	924253	924260	924267	924273	924280	924287	924294	924301	924307	924314	924321	51	1 = 1
9	9.924328	924334	924341	924348	924355	924362	924368	924375	924382	924389	924396	924402	50	2. 3
10	9.924409	924416	924423	924430	924436	924443	924450	924457	924464	924470	924477	924484	49	3. 4
11	9.924491	924498	924504	924511	924518	924525	924531	924538	924545	924552	924559	924565	48	4. 5
12	9.924572	924579	924586	924593	924599	924606	924613	924620	924626	924633	924640	924647	47	1 = 1
13	9.924654	924660	924667	924674	924681	924687	924694	924701	924708	924715	924721	924728	46	2. 3
14	9.924735	924742	924748	924755	924762	924769	924776	924782	924789	924796	924803	924809	45	3. 4
15	9.924816	924823	924830	924837	924843	924850	924857	924864	924870	924877	924884	924891	44	4. 5
16	9.924897	924904	924911	924918	924924	924931	924938	924945	924952	924958	924965	924972	43	1 = 1
17	9.924979	924985	924992	924999	925006	925012	925019	925026	925033	925039	925046	925053	42	2. 3
18	9.925060	925066	925073	925080	925087	925094	925100	925107	925114	925121	925127	925134	41	3. 4
19	9.925141	925148	925154	925161	925168	925175	925181	925188	925195	925202	925208	925215	40	4. 5
20	9.925222	925229	925235	925242	925249	925256	925262	925269	925276	925283	925289	925296	39	1 = 1
21	9.925303	925310	925316	925323	925330	925337	925343	925350	925357	925364	925370	925377	38	2. 3
22	9.925384	925390	925397	925404	925411	925417	925424	925431	925438	925444	925451	925458	37	3. 4
23	9.925465	925471	925478	925485	925492	925498	925505	925512	925518	925525	925532	925539	36	4. 5
24	9.925545	925552	925559	925566	925572	925579	925586	925593	925599	925606	925613	925619	35	1 = 1
25	9.925626	925633	925640	925646	925653	925660	925667	925673	925680	925687	925693	925700	34	2. 3
26	9.925707	925714	925720	925727	925734	925741	925747	925754	925761	925767	925774	925781	33	3. 4
27	9.925788	925794	925801	925808	925814	925821	925828	925835	925841	925848	925855	925861	32	4. 5
28	9.925868	925875	925882	925888	925895	925902	925908	925915	925922	925929	925935	925942	31	1 = 1
29	9.925949	925955	925962	925969	925976	925982	925989	925996	926002	926009	926016	926023	30	2. 3
30	9.926029	926036	926043	926049	926056	926063	926069	926076	926083	926090	926096	926103	29	3. 4
31	9.926110	926116	926123	926130	926137	926143	926150	926157	926163	926170	926177	926183	28	4. 5
32	9.926190	926197	926203	926210	926217	926224	926230	926237	926244	926250	926257	926264	27	1 = 1
33	9.926270	926277	926284	926291	926297	926304	926311	926317	926324	926331	926337	926344	26	2. 3
34	9.926351	926357	926364	926371	926378	926384	926391	926398	926404	926411	926418	926424	25	3. 4
35	9.926431	926438	926444	926451	926458	926464	926471	926478	926484	926491	926498	926505	24	4. 5
36	9.926511	926518	926525	926531	926538	926545	926551	926558	926565	926571	926578	926585	23	1 = 1
37	9.926591	926598	926605	926611	926618	926625	926631	926638	926645	926651	926658	926665	22	2. 3
38	9.926671	926678	926685	926691	926698	926705	926711	926718	926725	926731	926738	926745	21	3. 4
39	9.926751	926758	926765	926771	926778	926785	926791	926798	926805	926811	926818	926825	20	4. 5
40	9.926831	926838	926845	926851	926858	926865	926871	926878	926885	926891	926898	926905	19	1 = 1
41	9.926911	926918	926925	926931	926938	926945	926951	926958	926965	926971	926978	926985	18	2. 3
42	9.926991	926998	927005	927011	927018	927025	927031	927038	927045	927051	927058	927064	17	3. 4
43	9.927071	927078	927084	927091	927098	927104	927111	927118	927124	927131	927138	927144	16	4. 5
44	9.927151	927158	927164	927171	927178	927184	927191	927197	927204	927211	927217	927224	15	1 = 1
45	9.927231	927237	927244	927251	927257	927264	927271	927277	927284	927290	927297	927304	14	2. 3
46	9.927310	927317	927324	927330	927337	927344	927350	927357	927363	927370	927377	927383	13	3. 4
47	9.927390	927397	927403	927410	927417	927423	927430	927436	927443	927450	927456	927463	12	4. 5
48	9.927470	927476	927483	927489	927496	927503	927509	927516	927523	927529	927536	927542	11	1 = 1
49	9.927549	927556	927562	927569	927576	927582	927589	927595	927602	927609	927615	927622	10	2. 3
50	9.927629	927635	927642	927648	927655	927662	927668	927675	927682	927688	927695	927701	9	3. 4
51	9.927708	927715	927721	927728	927734	927741	927748	927754	927761	927768	927774	927781	8	4. 5
52	9.927787	927794	927801	927807	927814	927820	927827	927834	927840	927847	927853	927860	7	1 = 1
53	9.927867	927873	927880	927887	927893	927900	927906	927913	927920	927926	927933	927939	6	2. 3
54	9.927946	927953	927959	927966	927972	927979	927986	927992	927999	928005	928012	928019	5	3. 4
55	9.928025	928032	928038	928045	928052	928058	928065	928071	928078	928085	928091	928098	4	4. 5
56	9.928104	928111	928118	928124	928131	928137	928144	928151	928157	928164	928170	928177	3	1 = 1
57	9.928183	928190	928197	928203	928210	928216	928223	928230	928236	928243	928249	928256	2	2. 3
58	9.928263	928269	928276	928282	928289	928295	928302	928309	928315	928322	928328	928335	1	3. 4
59	9.928342	928348	928355	928361	928368	928374	928381	928388	928394	928401	928407	928414	0	4. 5
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 32 degrees, or Sine of 122 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 58 degrees, or Co-sine of 148 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.928421	928427	928434	928440	928447	928453	928460	928467	928473	928480	928486	928493	59	1″ = 1
1	9.928499	928506	928513	928519	928526	928532	928539	928545	928552	928559	928565	928572	58	2. 3
2	9.928578	928585	928591	928598	928605	928611	928618	928624	928631	928637	928644	928651	57	3. 4
3	9.928657	928664	928670	928677	928683	928690	928697	928703	928710	928716	928723	928729	56	4. 5
4	9.928736	928742	928749	928756	928762	928769	928775	928782	928788	928795	928801	928808	55	1 = 1
5	9.928815	928821	928828	928834	928841	928847	928854	928860	928867	928874	928880	928887	54	2. 3
6	9.928893	928900	928906	928913	928919	928926	928933	928939	928946	928952	928959	928965	53	3. 4
7	9.928972	928978	928985	928992	928998	929005	929011	929018	929024	929031	929037	929044	52	4. 5
8	9.929050	929057	929064	929070	929077	929083	929090	929096	929103	929109	929116	929122	51	1 = 1
9	9.929129	929135	929142	929149	929155	929162	929168	929175	929181	929188	929194	929201	50	2. 3
10	9.929207	929214	929220	929227	929234	929240	929247	929253	929260	929266	929273	929279	49	3. 4
11	9.929286	929292	929299	929305	929312	929318	929325	929332	929338	929345	929351	929358	48	4. 5
12	9.929364	929371	929377	929384	929390	929397	929403	929410	929416	929423	929429	929436	47	1 = 1
13	9.929442	929449	929455	929462	929469	929475	929482	929488	929495	929501	929508	929514	46	2. 3
14	9.929521	929527	929534	929540	929547	929553	929560	929566	929573	929579	929586	929592	45	3. 4
15	9.929599	929605	929612	929618	929625	929631	929638	929644	929651	929658	929664	929671	44	4. 5
16	9.929677	929684	929690	929697	929703	929710	929716	929723	929729	929736	929742	929749	43	1 = 1
17	9.929755	929762	929768	929775	929781	929788	929794	929801	929807	929814	929820	929827	42	2. 3
18	9.929833	929840	929846	929853	929859	929866	929872	929879	929885	929892	929898	929905	41	3. 4
19	9.929911	929918	929924	929931	929937	929944	929950	929957	929963	929970	929976	929983	40	4. 5
20	9.929989	929996	930002	930009	930015	930022	930028	930035	930041	930048	930054	930061	39	1 = 1
21	9.930067	930074	930080	930087	930093	930099	930106	930112	930119	930125	930132	930138	38	2. 3
22	9.930145	930151	930158	930164	930171	930177	930184	930190	930197	930203	930210	930216	37	3. 4
23	9.930223	930229	930236	930242	930249	930255	930262	930268	930275	930281	930287	930294	36	4. 5
24	9.930300	930307	930313	930320	930326	930333	930339	930346	930352	930359	930365	930372	35	1 = 1
25	9.930378	930385	930391	930398	930404	930410	930417	930423	930430	930436	930443	930449	34	2. 3
26	9.930456	930462	930469	930475	930482	930488	930495	930501	930508	930514	930520	930527	33	3. 4
27	9.930533	930540	930546	930553	930559	930566	930572	930579	930585	930592	930598	930604	32	4. 5
28	9.930611	930617	930624	930630	930637	930643	930650	930656	930663	930669	930675	930682	31	1 = 1
29	9.930688	930695	930701	930708	930714	930721	930727	930734	930740	930746	930753	930759	30	2. 3
30	9.930766	930772	930779	930785	930792	930798	930805	930811	930817	930824	930830	930837	29	3. 4
31	9.930843	930850	930856	930863	930869	930875	930882	930888	930895	930901	930908	930914	28	4. 5
32	9.930921	930927	930933	930940	930946	930953	930959	930966	930972	930979	930985	930991	27	1 = 1
33	9.930998	931004	931011	931017	931024	931030	931036	931043	931049	931056	931062	931069	26	2. 3
34	9.931075	931082	931088	931094	931101	931107	931114	931120	931127	931133	931139	931146	25	3. 4
35	9.931152	931159	931165	931172	931178	931184	931191	931197	931204	931210	931217	931223	24	4. 5
36	9.931229	931236	931242	931249	931255	931262	931268	931274	931281	931287	931294	931300	23	1 = 1
37	9.931307	931313	931319	931326	931332	931339	931345	931351	931358	931364	931371	931377	22	2. 3
38	9.931384	931390	931396	931403	931409	931416	931422	931428	931435	931441	931448	931454	21	3. 4
39	9.931461	931467	931473	931480	931486	931493	931499	931505	931512	931518	931525	931531	20	4. 5
40	9.931537	931544	931550	931557	931563	931570	931576	931582	931589	931595	931602	931608	19	1 = 1
41	9.931614	931621	931627	931634	931640	931646	931653	931659	931666	931672	931678	931685	18	2. 3
42	9.931691	931698	931704	931710	931717	931723	931730	931736	931742	931749	931755	931762	17	3. 4
43	9.931768	931774	931781	931787	931794	931800	931806	931813	931819	931826	931832	931838	16	4. 5
44	9.931845	931851	931857	931864	931870	931877	931883	931889	931896	931902	931909	931915	15	1 = 1
45	9.931921	931928	931934	931941	931947	931953	931960	931966	931972	931979	931985	931992	14	2. 3
46	9.931998	932004	932011	932017	932024	932030	932036	932043	932049	932055	932062	932068	13	3. 4
47	9.932075	932081	932087	932094	932100	932107	932113	932119	932126	932132	932138	932145	12	4. 5
48	9.932151	932158	932164	932170	932177	932183	932189	932196	932202	932209	932215	932221	11	1 = 1
49	9.932228	932234	932240	932247	932253	932259	932266	932272	932279	932285	932291	932298	10	2. 3
50	9.932304	932310	932317	932323	932330	932336	932342	932349	932355	932361	932368	932374	9	3. 4
51	9.932380	932387	932393	932400	932406	932412	932419	932425	932431	932438	932444	932450	8	4. 5
52	9.932457	932463	932470	932476	932482	932489	932495	932501	932508	932514	932520	932527	7	1 = 1
53	9.932533	932539	932546	932552	932558	932565	932571	932578	932584	932590	932597	932603	6	2. 3
54	9.932609	932616	932622	932628	932635	932641	932647	932654	932660	932666	932673	932679	5	3. 4
55	9.932685	932692	932698	932705	932711	932717	932724	932730	932736	932743	932749	932755	4	4. 5
56	9.932762	932768	932774	932781	932787	932793	932800	932806	932812	932819	932825	932831	3	1 = 1
57	9.932838	932844	932850	932857	932863	932869	932876	932882	932888	932895	932901	932907	2	2. 3
58	9.932914	932920	932926	932933	932939	932945	932952	932958	932964	932971	932977	932983	1	3. 4
59	9.932990	932996	933002	933009	933015	933021	933028	933034	933040	933047	933053	933059	0	4. 5
Minutes	60″	55″	50	45″	40	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 31 degrees, or Sine of 121 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 59 degrees, or Co-sine of 149 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.933066	933072	933078	933085	933091	933097	933104	933110	933116	933123	933129	933135	59	1″ = 1
1	9.933142	933148	933154	933160	933167	933173	933179	933186	933192	933198	933205	933211	58	2. 3
2	9.933217	933224	933230	933236	933243	933249	933255	933262	933268	933274	933281	933287	57	3. 4
3	9.933293	933299	933306	933312	933318	933325	933331	933337	933344	933350	933356	933363	56	4. 5
4	9.933369	933375	933381	933388	933394	933400	933407	933413	933419	933426	933432	933438	55	1 = 1
5	9.933445	933451	933457	933463	933470	933476	933482	933489	933495	933501	933508	933514	54	2. 3
6	9.933520	933526	933533	933539	933545	933552	933558	933564	933571	933577	933583	933589	53	3. 4
7	9.933596	933602	933608	933615	933621	933627	933634	933640	933646	933652	933659	933665	52	4. 5
8	9.933671	933678	933684	933690	933696	933703	933709	933715	933722	933728	933734	933740	51	1 = 1
9	9.933747	933753	933759	933766	933772	933778	933785	933791	933797	933803	933810	933816	50	2. 3
10	9.933822	933829	933835	933841	933847	933854	933860	933866	933872	933879	933885	933891	49	3. 4
11	9.933898	933904	933910	933916	933923	933929	933935	933942	933948	933954	933960	933967	48	4. 5
12	9.933973	933979	933985	933992	933998	934004	934011	934017	934023	934029	934036	934042	47	1 = 1
13	9.934048	934054	934061	934067	934073	934080	934086	934092	934098	934105	934111	934117	46	2. 3
14	9.934123	934130	934136	934142	934149	934155	934161	934167	934174	934180	934186	934192	45	3. 4
15	9.934199	934205	934211	934217	934224	934230	934236	934242	934249	934255	934261	934268	44	4. 5
16	9.934274	934280	934286	934293	934299	934305	934311	934318	934324	934330	934336	934343	43	1 = 1
17	9.934349	934355	934361	934368	934374	934380	934386	934393	934399	934405	934411	934418	42	2. 3
18	9.934424	934430	934436	934443	934449	934455	934461	934468	934474	934480	934486	934493	41	3. 4
19	9.934499	934505	934511	934518	934524	934530	934536	934543	934549	934555	934561	934568	40	4. 5
20	9.934574	934580	934586	934593	934599	934605	934611	934618	934624	934630	934636	934642	39	1 = 1
21	9.934649	934655	934661	934667	934674	934680	934686	934692	934699	934705	934711	934717	38	2. 3
22	9.934724	934730	934736	934742	934748	934755	934761	934767	934773	934780	934786	934792	37	3. 4
23	9.934798	934805	934811	934817	934823	934829	934836	934842	934848	934854	934861	934867	36	4. 5
24	9.934873	934879	934886	934892	934898	934904	934910	934917	934923	934929	934935	934942	35	1 = 1
25	9.934948	934954	934960	934966	934973	934979	934985	934991	934998	935004	935010	935016	34	2. 2
26	9.935022	935029	935035	935041	935047	935053	935060	935066	935072	935078	935085	935091	33	3. 4
27	9.935097	935103	935109	935116	935122	935128	935134	935140	935147	935153	935159	935165	32	4. 5
28	9.935172	935178	935184	935190	935196	935203	935209	935215	935221	935227	935234	935240	31	1 = 1
29	9.935246	935252	935258	935265	935271	935277	935283	935289	935296	935302	935308	935314	30	2. 2
30	9.935320	935327	935333	935339	935345	935351	935358	935364	935370	935376	935382	935389	29	3. 4
31	9.935395	935401	935407	935413	935420	935426	935432	935438	935444	935451	935457	935463	28	4. 5
32	9.935469	935475	935482	935488	935494	935500	935506	935513	935519	935525	935531	935537	27	1 1
33	9.935543	935550	935556	935562	935568	935574	935581	935587	935593	935599	935605	935612	26	2. 2
34	9.935618	935624	935630	935636	935642	935649	935655	935661	935667	935673	935680	935686	25	3. 4
35	9.935692	935698	935704	935710	935717	935723	935729	935735	935741	935748	935754	935760	24	4. 5
36	9.935766	935772	935778	935785	935791	935797	935803	935809	935815	935822	935828	935834	23	1 = 1
37	9.935840	935846	935852	935859	935865	935871	935877	935883	935889	935896	935902	935908	22	2. 2
38	9.935914	935920	935927	935933	935939	935945	935951	935957	935964	935970	935976	935982	21	3. 4
39	9.935988	935994	936000	936007	936013	936019	936025	936031	936037	936044	936050	936056	20	4. 5
40	9.936062	936068	936074	936081	936087	936093	936099	936105	936111	936118	936124	936130	19	1 = 1
41	9.936136	936142	936148	936154	936161	936167	936173	936179	936185	936191	936198	936204	18	2. 2
42	9.936210	936216	936222	936228	936234	936241	936247	936253	936259	936265	936271	936278	17	3. 4
43	9.936284	936290	936296	936302	936308	936314	936321	936327	936333	936339	936345	936351	16	4. 5
44	9.936357	936364	936370	936376	936382	936388	936394	936400	936407	936413	936419	936425	15	1 = 1
45	9.936431	936437	936443	936450	936456	936462	936468	936474	936480	936486	936492	936499	14	2. 2
46	9.936505	936511	936517	936523	936529	936535	936542	936548	936554	936560	936566	936572	13	3. 4
47	9.936578	936584	936591	936597	936603	936609	936615	936621	936627	936634	936640	936646	12	4. 5
48	9.936652	936658	936664	936670	936676	936683	936689	936695	936701	936707	936713	936719	11	1 = 1
49	9.936725	936732	936738	936744	936750	936756	936762	936768	936774	936780	936787	936793	10	2. 2
50	9.936799	936805	936811	936817	936823	936829	936836	936842	936848	936854	936860	936866	9	3. 4
51	9.936872	936878	936884	936891	936897	936903	936909	936915	936921	936927	936933	936940	8	4. 5
52	9.936946	936952	936958	936964	936970	936976	936982	936988	936994	937001	937007	937013	7	1 = 1
53	9.937019	937025	937031	937037	937043	937049	937056	937062	937068	937074	937080	937086	6	2. 2
54	9.937092	937098	937104	937110	937117	937123	937129	937135	937141	937147	937153	937159	5	3. 4
55	9.937165	937171	937178	937184	937190	937196	937202	937208	937214	937220	937226	937232	4	4. 5
56	9.937239	937245	937251	937257	937263	937269	937275	937281	937287	937293	937299	937306	3	1 = 1
57	9.937312	937318	937324	937330	937336	937342	937348	937354	937360	937366	937373	937379	2	2. 2
58	9.937385	937391	937397	937403	937409	937415	937421	937427	937433	937439	937446	937452	1	3. 4
59	9.937458	937464	937470	937476	937482	937488	937494	937500	937506	937512	937519	937525	0	4. 5
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts
	Co-sine of 30 degrees, or Sine of 120 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 60 degrees, or Co-sine of 150 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 937531	937537	937543	937549	937555	937561	937567	937573	937579	937585	937591	937598	59	1″ = 1
1	9. 937604	937610	937616	937622	937628	937634	937640	937646	937652	937658	937664	937670	58	2. 2
2	9. 937676	937683	937689	937695	937701	937707	937713	937719	937725	937731	937737	937743	57	3. 4
3	9. 937749	937755	937761	937767	937774	937780	937786	937792	937798	937804	937810	937816	56	4. 5
4	9. 937822	937828	937834	937840	937846	937852	937858	937864	937871	937877	937883	937889	55	1″ = 1
5	9. 937895	937901	937907	937913	937919	937925	937931	937937	937943	937949	937955	937961	54	2. 2
6	9. 937967	937973	937980	937986	937992	937998	938004	938010	938016	938022	938028	938034	53	3. 4
7	9. 938040	938046	938052	938058	938064	938070	938076	938082	938088	938094	938101	938107	52	4. 5
8	9. 938113	938119	938125	938131	938137	938143	938149	938155	938161	938167	938173	938179	51	1″ = 1
9	9. 938185	938191	938197	938203	938209	938215	938221	938227	938233	938239	938246	938252	50	2. 2
10	9. 938258	938264	938270	938276	938282	938288	938294	938300	938306	938312	938318	938324	49	3. 4
11	9. 938330	938336	938342	938348	938354	938360	938366	938372	938378	938384	938390	938396	48	4. 5
12	9. 938402	938408	938414	938420	938427	938433	938439	938445	938451	938457	938463	938469	47	1″ = 1
13	9. 938475	938481	938487	938493	938499	938505	938511	938517	938523	938529	938535	938541	46	2. 2
14	9. 938547	938553	938559	938565	938571	938577	938583	938589	938595	938601	938607	938613	45	3. 4
15	9. 938619	938625	938631	938637	938643	938649	938655	938661	938667	938673	938679	938685	44	4. 5
16	9. 938691	938697	938703	938709	938715	938721	938727	938734	938740	938746	938752	938758	43	1″ = 1
17	9. 938764	938770	938776	938782	938788	938794	938800	938806	938812	938818	938824	938830	42	2. 2
18	9. 938836	938842	938848	938854	938860	938866	938872	938878	938884	938890	938896	938902	41	3. 4
19	9. 938908	938914	938920	938926	938932	938938	938944	938950	938956	938962	938968	938974	40	4. 5
20	9. 938980	938986	938992	938998	939004	939010	939016	939022	939028	939034	939040	939046	39	1″ = 1
21	9. 939052	939058	939064	939070	939076	939082	939088	939094	939100	939106	939111	939117	38	2. 2
22	9. 939123	939129	939135	939141	939147	939153	939159	939165	939171	939177	939183	939189	37	3. 4
23	9. 939195	939201	939207	939213	939219	939225	939231	939237	939243	939249	939255	939261	36	4. 5
24	9. 939267	939273	939279	939285	939291	939297	939303	939309	939315	939321	939327	939333	35	1″ = 1
25	9. 939339	939345	939351	939357	939363	939369	939375	939381	939387	939393	939399	939405	34	2. 2
26	9. 939411	939417	939422	939428	939434	939440	939446	939452	939458	939464	939470	939476	33	3. 4
27	9. 939482	939488	939494	939500	939506	939512	939518	939524	939530	939536	939542	939548	32	4. 5
28	9. 939554	939560	939566	939572	939578	939584	939590	939596	939601	939607	939613	939619	31	1″ = 1
29	9. 939625	939631	939637	939643	939649	939655	939661	939667	939673	939679	939685	939691	30	2. 2
30	9. 939697	939703	939709	939715	939721	939727	939733	939739	939744	939750	939756	939762	29	3. 4
31	9. 939768	939774	939780	939786	939792	939798	939804	939810	939816	939822	939828	939834	28	4. 5
32	9. 939840	939846	939852	939858	939863	939869	939875	939881	939887	939893	939899	939905	27	1″ = 1
33	9. 939911	939917	939923	939929	939935	939941	939947	939953	939959	939965	939970	939976	26	2. 2
34	9. 939982	939988	939994	940000	940006	940012	940018	940024	940030	940036	940042	940048	25	3. 4
35	9. 940054	940060	940065	940071	940077	940083	940089	940095	940101	940107	940113	940119	24	4. 5
36	9. 940125	940131	940137	940143	940149	940154	940160	940166	940172	940178	940184	940190	23	1″ = 1
37	9. 940196	940202	940208	940214	940220	940226	940232	940237	940243	940249	940255	940261	22	2. 2
38	9. 940267	940273	940279	940285	940291	940297	940303	940309	940314	940320	940326	940332	21	3. 4
39	9. 940338	940344	940350	940356	940362	940368	940374	940380	940385	940391	940397	940403	20	4. 5
40	9. 940409	940415	940421	940427	940433	940439	940445	940451	940456	940462	940468	940474	19	1″ = 1
41	9. 940480	940486	940492	940498	940504	940510	940516	940521	940527	940533	940539	940545	18	2. 2
42	9. 940551	940557	940563	940569	940575	940581	940586	940592	940598	940604	940610	940616	17	3. 4
43	9. 940622	940628	940634	940640	940646	940651	940657	940663	940669	940675	940681	940687	16	4. 5
44	9. 940693	940699	940705	940710	940716	940722	940728	940734	940740	940746	940752	940758	15	1″ = 1
45	9. 940763	940769	940775	940781	940787	940793	940799	940805	940811	940817	940822	940828	14	2. 2
46	9. 940834	940840	940846	940852	940858	940864	940870	940875	940881	940887	940893	940899	13	3. 4
47	9. 940905	940911	940917	940923	940928	940934	940940	940946	940952	940958	940964	940970	12	4. 5
48	9. 940976	940981	940987	940993	940999	941005	941011	941017	941023	941028	941034	941040	11	1″ = 1
49	9. 941046	941052	941058	941064	941070	941076	941081	941087	941093	941099	941105	941111	10	2. 2
50	9. 941117	941122	941128	941134	941140	941146	941152	941158	941164	941170	941175	941181	9	3. 4
51	9. 941187	941193	941199	941205	941211	941216	941222	941228	941234	941240	941246	941252	8	4. 5
52	9. 941258	941263	941269	941275	941281	941287	941293	941299	941304	941310	941316	941322	7	1″ = 1
53	9. 941328	941334	941340	941346	941351	941357	941363	941369	941375	941381	941387	941392	6	2. 2
54	9. 941398	941404	941410	941416	941422	941428	941433	941439	941445	941451	941457	941463	5	3. 4
55	9. 941469	941474	941480	941486	941492	941498	941504	941510	941515	941521	941527	941533	4	4. 5
56	9. 941539	941545	941551	941556	941562	941568	941574	941580	941586	941591	941597	941603	3	1″ = 1
57	9. 941609	941615	941621	941627	941632	941638	941644	941650	941656	941662	941667	941673	2	2. 2
58	9. 941679	941685	941691	941697	941703	941708	941714	941720	941726	941732	941738	941743	1	3. 4
59	9. 941749	941755	941761	941767	941773	941778	941784	941790	941796	941802	941808	941813	0	4. 5
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 29 degrees, or Sine of 119 degrees.													

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LOGARITHMIC SINES.

Sine of 61 degrees, or Co-sine of 151 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.941819	941825	941831	941837	941843	941848	941854	941860	941866	941872	941878	941883	59	1″ = 1
1	9.941889	941895	941901	941907	941913	941918	941924	941930	941936	941942	941948	941953	58	2. 2
2	9.941959	941965	941971	941977	941983	941988	941994	942000	942006	942012	942018	942023	57	3. 4
3	9.942029	942035	942041	942047	942052	942058	942064	942070	942076	942082	942087	942093	56	4. 5
4	9.942099	942105	942111	942116	942122	942128	942134	942140	942146	942151	942157	942163	55	1 = 1
5	9.942169	942175	942180	942186	942192	942198	942204	942210	942215	942221	942227	942233	54	2. 2
6	9.942239	942244	942250	942256	942262	942268	942273	942279	942285	942291	942297	942303	53	3. 3
7	9.942308	942314	942320	942326	942332	942337	942343	942349	942355	942361	942366	942372	52	4. 5
8	9.942378	942384	942390	942395	942401	942407	942413	942419	942424	942430	942436	942442	51	1 = 1
9	9.942448	942453	942459	942465	942471	942477	942482	942488	942494	942500	942506	942511	50	2. 2
10	9.942517	942523	942529	942535	942540	942546	942552	942558	942564	942569	942575	942581	49	3. 3
11	9.942587	942592	942598	942604	942610	942616	942621	942627	942633	942639	942645	942650	48	4. 5
12	9.942656	942662	942668	942674	942679	942685	942691	942697	942702	942708	942714	942720	47	1 = 1
13	9.942726	942731	942737	942743	942749	942755	942760	942766	942772	942778	942783	942789	46	2. 2
14	9.942795	942801	942807	942812	942818	942824	942830	942835	942841	942847	942853	942859	45	3. 3
15	9.942864	942870	942876	942882	942887	942893	942899	942905	942911	942916	942922	942928	44	4. 5
16	9.942934	942939	942945	942951	942957	942962	942968	942974	942980	942986	942991	942997	43	1 = 1
17	9.943003	943009	943014	943020	943026	943032	943037	943043	943049	943055	943060	943066	42	2. 2
18	9.943072	943078	943084	943089	943095	943101	943107	943112	943118	943124	943130	943135	41	3. 3
19	9.943141	943147	943153	943158	943164	943170	943176	943181	943187	943193	943199	943204	40	4. 5
20	9.943210	943216	943222	943228	943233	943239	943245	943251	943256	943262	943268	943274	39	1 = 1
21	9.943279	943285	943291	943297	943302	943308	943314	943320	943325	943331	943337	943343	38	2. 2
22	9.943348	943354	943360	943366	943371	943377	943383	943389	943394	943400	943406	943411	37	3. 3
23	9.943417	943423	943429	943434	943440	943446	943452	943457	943463	943469	943475	943480	36	4. 5
24	9.943486	943492	943498	943503	943509	943515	943521	943526	943532	943538	943544	943549	35	1 = 1
25	9.943555	943561	943566	943572	943578	943584	943589	943595	943601	943607	943612	943618	34	2. 2
26	9.943624	943630	943635	943641	943647	943652	943658	943664	943670	943675	943681	943687	33	3. 3
27	9.943693	943698	943704	943710	943715	943721	943727	943733	943738	943744	943750	943756	32	4. 5
28	9.943761	943767	943773	943778	943784	943790	943796	943801	943807	943813	943818	943824	31	1 = 1
29	9.943830	943836	943841	943847	943853	943859	943864	943870	943876	943881	943887	943893	30	2. 2
30	9.943899	943904	943910	943916	943921	943927	943933	943939	943944	943950	943956	943961	29	3. 3
31	9.943967	943973	943979	943984	943990	943996	944001	944007	944013	944019	944024	944030	28	4. 5
32	9.944036	944041	944047	944053	944058	944064	944070	944076	944081	944087	944093	944098	27	1 = 1
33	9.944104	944110	944116	944121	944127	944133	944138	944144	944150	944155	944161	944167	26	2. 2
34	9.944173	944178	944184	944190	944195	944201	944207	944212	944218	944224	944230	944235	25	3. 3
35	9.944241	944247	944252	944258	944264	944269	944275	944281	944286	944292	944298	944304	24	4. 5
36	9.944309	944315	944321	944326	944332	944338	944343	944349	944355	944360	944366	944372	23	1 = 1
37	9.944378	944383	944389	944395	944400	944406	944412	944417	944423	944429	944434	944440	22	2. 2
38	9.944446	944451	944457	944463	944469	944474	944480	944486	944491	944497	944503	944508	21	3. 3
39	9.944514	944520	944525	944531	944537	944542	944548	944554	944559	944565	944571	944576	20	4. 5
40	9.944582	944588	944593	944599	944605	944610	944616	944622	944628	944633	944639	944645	19	1 = 1
41	9.944650	944656	944662	944667	944673	944679	944684	944690	944696	944701	944707	944713	18	2. 2
42	9.944718	944724	944730	944735	944741	944747	944752	944758	944764	944769	944775	944781	17	3. 3
43	9.944786	944792	944798	944803	944809	944815	944820	944826	944832	944837	944843	944849	16	4. 5
44	9.944854	944860	944866	944871	944877	944882	944888	944894	944899	944905	944911	944916	15	1 = 1
45	9.944922	944928	944933	944939	944945	944950	944956	944962	944967	944973	944979	944984	14	2. 2
46	9.944990	944996	945001	945007	945013	945018	945024	945030	945035	945041	945046	945052	13	3. 3
47	9.945058	945063	945069	945075	945080	945086	945092	945097	945103	945109	945114	945120	12	4. 5
48	9.945126	945131	945137	945142	945148	945154	945159	945165	945171	945176	945182	945188	11	1 = 1
49	9.945193	945199	945205	945210	945216	945221	945227	945233	945238	945244	945250	945255	10	2. 2
50	9.945261	945267	945272	945278	945283	945289	945295	945300	945306	945312	945317	945323	9	3. 3
51	9.945329	945334	945340	945345	945351	945357	945362	945368	945374	945379	945385	945390	8	4. 5
52	9.945396	945402	945407	945413	945419	945424	945430	945435	945441	945447	945452	945458	7	1 = 1
53	9.945464	945469	945475	945480	945486	945492	945497	945503	945509	945514	945520	945525	6	2. 2
54	9.945531	945537	945542	945548	945554	945559	945565	945570	945576	945582	945587	945593	5	3. 3
55	9.945599	945604	945610	945615	945621	945627	945632	945638	945643	945649	945655	945660	4	4. 5
56	9.945666	945672	945677	945683	945688	945694	945700	945705	945711	945716	945722	945728	3	1 = 1
57	9.945733	945739	945744	945750	945756	945761	945767	945773	945778	945784	945789	945795	2	2. 2
58	9.945801	945806	945812	945817	945823	945829	945834	945840	945845	945851	945857	945862	1	3. 3
59	9.945868	945873	945879	945885	945890	945896	945901	945907	945913	945918	945924	945929	0	4. 4
Minutes	60′	55″	50′	45″	40′	35″	30′	25″	20′	15″	10′	5″	Minutes	Propor. parts.

Co-sine of 28 degrees, or Sine of 118 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 62 degrees, or Co-sine of 152 degrees.												Minutes	Proportionals
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.945935	945941	945946	945952	945957	945963	945969	945974	945980	945985	945991	945997	59	1″ =
1	9.946002	946008	946013	946019	946024	946030	946036	946041	946047	946052	946058	946064	58	2.
2	9.946069	946075	946080	946086	946092	946097	946103	946108	946114	946120	946125	946131	57	3.
3	9.946136	946142	946147	946153	946159	946164	946170	946175	946181	946187	946192	946198	56	4.
4	9.946203	946209	946214	946220	946226	946231	946237	946242	946248	946254	946259	946265	55	1 =
5	9.946270	946276	946281	946287	946293	946298	946304	946309	946315	946320	946326	946332	54	2.
6	9.946337	946343	946348	946354	946359	946365	946371	946376	946382	946387	946393	946398	53	3.
7	9.946404	946410	946415	946421	946426	946432	946437	946443	946449	946454	946460	946465	52	4.
8	9.946471	946476	946482	946488	946493	946499	946504	946510	946515	946521	946526	946532	51	1 =
9	9.946538	946543	946549	946554	946560	946565	946571	946577	946582	946588	946593	946599	50	2.
10	9.946604	946610	946615	946621	946627	946632	946638	946643	946649	946654	946660	946665	49	3.
11	9.946671	946677	946682	946688	946693	946699	946704	946710	946715	946721	946727	946732	48	4.
12	9.946738	946743	946749	946754	946760	946765	946771	946776	946782	946788	946793	946799	47	1 =
13	9.946804	946810	946815	946821	946826	946832	946838	946843	946849	946854	946860	946865	46	2.
14	9.946871	946876	946882	946887	946893	946898	946904	946910	946915	946921	946926	946932	45	3.
15	9.946937	946943	946948	946954	946959	946965	946970	946976	946982	946987	946993	946998	44	4.
16	9.947004	947009	947015	947020	947026	947031	947037	947042	947048	947053	947059	947065	43	1 =
17	9.947070	947076	947081	947087	947092	947098	947103	947109	947114	947120	947125	947131	42	2.
18	9.947136	947142	947147	947153	947159	947164	947170	947175	947181	947186	947192	947197	41	3.
19	9.947203	947208	947214	947219	947225	947230	947236	947241	947247	947252	947258	947263	40	4.
20	9.947269	947275	947280	947286	947291	947297	947302	947308	947313	947319	947324	947330	39	1 =
21	9.947335	947341	947346	947352	947357	947363	947368	947374	947379	947385	947390	947396	38	2.
22	9.947401	947407	947412	947418	947423	947429	947434	947440	947445	947451	947456	947462	37	3.
23	9.947467	947473	947478	947484	947490	947495	947501	947506	947512	947517	947523	947528	36	4.
24	9.947534	947539	947545	947550	947556	947561	947567	947572	947578	947583	947589	947594	35	1 =
25	9.947600	947605	947611	947616	947622	947627	947633	947638	947644	947649	947655	947660	34	2.
26	9.947666	947671	947677	947682	947688	947693	947699	947704	947710	947715	947720	947726	33	3
27	9.947731	947737	947742	947748	947753	947759	947764	947770	947775	947781	947786	947792	32	4.
28	9.947797	947803	947808	947814	947819	947825	947830	947836	947841	947847	947852	947858	31	1 =
29	9.947863	947869	947874	947880	947885	947891	947896	947902	947907	947913	947918	947923	30	2.
30	9.947929	947934	947940	947945	947951	947956	947962	947967	947973	947978	947984	947989	29	3.
31	9.947995	948000	948006	948011	948017	948022	948028	948033	948039	948044	948049	948055	28	4.
32	9.948060	948066	948071	948077	948082	948088	948093	948099	948104	948110	948115	948121	27	1 =
33	9.948126	948132	948137	948142	948148	948153	948159	948164	948170	948175	948181	948186	26	2.
34	9.948192	948197	948203	948208	948214	948219	948224	948230	948235	948241	948246	948252	25	3.
35	9.948257	948263	948268	948274	948279	948285	948290	948295	948301	948306	948312	948317	24	4.
36	9.948323	948328	948334	948339	948345	948350	948355	948361	948366	948372	948377	948383	23	1 =
37	9.948388	948394	948399	948405	948410	948415	948421	948426	948432	948437	948443	948448	22	2.
38	9.948454	948459	948464	948470	948475	948481	948486	948492	948497	948503	948508	948514	21	3.
39	9.948519	948524	948530	948535	948541	948546	948552	948557	948563	948568	948573	948579	20	4.
40	9.948584	948590	948595	948601	948606	948611	948617	948622	948628	948633	948639	948644	19	1 =
41	9.948650	948655	948660	948666	948671	948677	948682	948688	948693	948698	948704	948709	18	2.
42	9.948715	948720	948726	948731	948737	948742	948747	948753	948758	948764	948769	948775	17	3.
43	9.948780	948785	948791	948796	948802	948807	948813	948818	948823	948829	948834	948840	16	4.
44	9.948845	948851	948856	948861	948867	948872	948878	948883	948888	948894	948899	948905	15	1 =
45	9.948910	948916	948921	948926	948932	948937	948943	948948	948954	948959	948964	948970	14	2.
46	9.948975	948981	948986	948991	948997	949002	949008	949013	949019	949024	949029	949035	13	3.
47	9.949040	949046	949051	949056	949062	949067	949073	949078	949084	949089	949094	949100	12	4.
48	9.949105	949111	949116	949121	949127	949132	949138	949143	949148	949154	949159	949165	11	1 =
49	9.949170	949175	949181	949186	949192	949197	949203	949208	949213	949219	949224	949230	10	2.
50	9.949235	949240	949246	949251	949257	949262	949267	949273	949278	949284	949289	949294	9	3.
51	9.949300	949305	949311	949316	949321	949327	949332	949338	949343	949348	949354	949359	8	4.
52	9.949365	949370	949375	949381	949386	949391	949397	949402	949408	949413	949418	949424	7	1 =
53	9.949429	949435	949440	949445	949451	949456	949462	949467	949472	949478	949483	949488	6	2.
54	9.949494	949499	949505	949510	949515	949521	949526	949532	949537	949542	949548	949553	5	3.
55	9.949559	949564	949569	949575	949580	949585	949591	949596	949602	949607	949612	949618	4	4.
56	9.949623	949628	949634	949639	949645	949650	949655	949661	949666	949671	949677	949682	3	1 =
57	9.949688	949693	949698	949704	949709	949714	949720	949725	949731	949736	949741	949747	2	2.
58	9.949752	949757	949763	949768	949774	949779	949784	949790	949795	949800	949806	949811	1	3.
59	9.949817	949822	949827	949833	949838	949843	949849	949854	949859	949865	949870	949876	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportionals
	Co-sine of 27 degrees, or Sine of 117 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 63 degrees, or Co-sine of 153 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25	30″	35″	40″	45″	50″	55″		
0	9.949881	949886	949892	949897	949902	949908	949913	949918	949924	949929	949935	949940	59	1″ = 1
1	9.949945	949951	949956	949961	949967	949972	949977	949983	949988	949994	949999	950004	58	2. 2
2	9.950010	950015	950020	950026	950031	950036	950042	950047	950052	950058	950063	950068	57	3. 3
3	9.950074	950079	950085	950090	950095	950101	950106	950111	950117	950122	950127	950133	56	4. 4
4	9.950138	950143	950149	950154	950159	950165	950170	950175	950181	950186	950192	950197	55	1 = 1
5	9.950202	950208	950213	950218	950224	950229	950234	950240	950245	950250	950256	950261	54	2. 2
6	9.950266	950272	950277	950282	950288	950293	950298	950304	950309	950314	950320	950325	53	3. 3
7	9.950330	950336	950341	950346	950352	950357	950362	950368	950373	950378	950384	950389	52	4. 4
8	9.950394	950400	950405	950410	950416	950421	950426	950432	950437	950442	950448	950453	51	1 = 1
9	9.950458	950464	950469	950474	950480	950485	950490	950496	950501	950506	950512	950517	50	2. 2
10	9.950522	950528	950533	950538	950544	950549	950554	950560	950565	950570	950576	950581	49	3. 3
11	9.950586	950592	950597	950602	950607	950613	950618	950623	950629	950634	950639	950645	48	4. 4
12	9.950650	950655	950661	950666	950671	950677	950682	950687	950693	950698	950703	950709	47	1 = 1
13	9.950714	950719	950724	950730	950735	950740	950746	950751	950756	950762	950767	950772	46	2. 2
14	9.950778	950783	950788	950793	950799	950804	950809	950815	950820	950825	950831	950836	45	3. 3
15	9.950841	950847	950852	950857	950862	950868	950873	950878	950884	950889	950894	950900	44	4. 4
16	9.950905	950910	950916	950921	950926	950931	950937	950942	950947	950953	950958	950963	43	1 = 1
17	9.950969	950974	950979	950984	950990	950995	951000	951006	951011	951016	951021	951027	42	2. 2
18	9.951032	951037	951043	951048	951053	951059	951064	951069	951074	951080	951085	951090	41	3. 3
19	9.951096	951101	951106	951111	951117	951122	951127	951133	951138	951143	951148	951154	40	4. 4
20	9.951159	951164	951170	951175	951180	951186	951191	951196	951201	951207	951212	951217	39	1 = 1
21	9.951222	951228	951233	951238	951244	951249	951254	951259	951265	951270	951275	951281	38	2. 2
22	9.951286	951291	951296	951302	951307	951312	951318	951323	951328	951333	951339	951344	37	3. 3
23	9.951349	951354	951360	951365	951370	951376	951381	951386	951391	951397	951402	951407	36	4. 4
24	9.951412	951418	951423	951428	951434	951439	951444	951449	951455	951460	951465	951470	35	1 = 1
25	9.951476	951481	951486	951492	951497	951502	951507	951513	951518	951523	951528	951534	34	2. 2
26	9.951539	951544	951549	951555	951560	951565	951570	951576	951581	951586	951592	951597	33	3. 3
27	9.951602	951607	951613	951618	951623	951628	951634	951639	951644	951649	951655	951660	32	4. 4
28	9.951665	951670	951676	951681	951686	951691	951697	951702	951707	951712	951718	951723	31	1 = 1
29	9.951728	951733	951739	951744	951749	951754	951760	951765	951770	951775	951781	951786	30	2. 2
30	9.951791	951796	951802	951807	951812	951817	951823	951828	951833	951838	951844	951849	29	3. 3
31	9.951854	951859	951865	951870	951875	951880	951886	951891	951896	951901	951907	951912	28	4. 4
32	9.951917	951922	951928	951933	951938	951943	951949	951954	951959	951964	951970	951975	27	1 = 1
33	9.951980	951985	951990	951996	952001	952006	952011	952017	952022	952027	952032	952038	26	2. 2
34	9.952043	952048	952053	952059	952064	952069	952074	952079	952085	952090	952095	952100	25	3. 3
35	9.952106	952111	952116	952121	952127	952132	952137	952142	952147	952153	952158	952163	24	4. 4
36	9.952168	952174	952179	952184	952189	952194	952200	952205	952210	952215	952221	952226	23	1 = 1
37	9.952231	952236	952241	952247	952252	952257	952262	952268	952273	952278	952283	952288	22	2. 2
38	9.952294	952299	952304	952309	952315	952320	952325	952330	952335	952341	952346	952351	21	3. 3
39	9.952356	952361	952367	952372	952377	952382	952388	952393	952398	952403	952408	952414	20	4. 4
40	9.952419	952424	952429	952434	952440	952445	952450	952455	952460	952466	952471	952476	19	1 = 1
41	9.952481	952487	952492	952497	952502	952507	952513	952518	952523	952528	952533	952539	18	2. 2
42	9.952544	952549	952554	952559	952565	952570	952575	952580	952585	952591	952596	952601	17	3. 3
43	9.952606	952611	952617	952622	952627	952632	952637	952643	952648	952653	952658	952663	16	4. 4
44	9.952669	952674	952679	952684	952689	952695	952700	952705	952710	952715	952720	952726	15	1 = 1
45	9.952731	952736	952741	952746	952752	952757	952762	952767	952772	952778	952783	952788	14	2. 2
46	9.952793	952798	952804	952809	952814	952819	952824	952829	952835	952840	952845	952850	13	3. 3
47	9.952855	952861	952866	952871	952876	952881	952886	952892	952897	952902	952907	952912	12	4. 4
48	9.952918	952923	952928	952933	952938	952943	952949	952954	952959	952964	952969	952975	11	1 = 1
49	9.952980	952985	952990	952995	953000	953006	953011	953016	953021	953026	953031	953037	10	2. 2
50	9.953042	953047	953052	953057	953062	953068	953073	953078	953083	953088	953094	953099	9	3. 3
51	9.953104	953109	953114	953119	953125	953130	953135	953140	953145	953150	953156	953161	8	4. 4
52	9.953166	953171	953176	953181	953187	953192	953197	953202	953207	953212	953217	953223	7	1 = 1
53	9.953228	953233	953238	953243	953248	953254	953259	953264	953269	953274	953279	953285	6	2. 2
54	9.953290	953295	953300	953305	953310	953316	953321	953326	953331	953336	953341	953346	5	3. 3
55	9.953352	953357	953362	953367	953372	953377	953383	953388	953393	953398	953403	953408	4	4. 4
56	9.953413	953419	953424	953429	953434	953439	953444	953449	953455	953460	953465	953470	3	1 = 1
57	9.953475	953480	953485	953491	953496	953501	953506	953511	953516	953521	953527	953532	2	2. 2
58	9.953537	953542	953547	953552	953557	953563	953568	953573	953578	953583	953588	953593	1	3. 3
59	9.953599	953604	953609	953614	953619	953624	953629	953635	953640	953645	953650	953655	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 26 degrees, or Sine of 116 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 64 degrees, or Co-sine of 154 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.953660	953665	953671	953676	953681	953686	953691	953696	953701	953706	953712	953717	59	1″ =
1	9.953722	953727	953732	953737	953742	953747	953753	953758	953763	953768	953773	953778	58	2.
2	9.953783	953789	953794	953799	953804	953809	953814	953819	953824	953830	953835	953840	57	3.
3	9.953845	953850	953855	953860	953865	953870	953876	953881	953886	953891	953896	953901	56	4.
4	9.953906	953911	953917	953922	953927	953932	953937	953942	953947	953952	953958	953963	55	1 =
5	9.953968	953973	953978	953983	953988	953993	953998	954004	954009	954014	954019	954024	54	2.
6	9.954029	954034	954039	954044	954050	954055	954060	954065	954070	954075	954080	954085	53	3.
7	9.954090	954096	954101	954106	954111	954116	954121	954126	954131	954136	954141	954147	52	4.
8	9.954152	954157	954162	954167	954172	954177	954182	954187	954193	954198	954203	954208	51	1 =
9	9.954213	954218	954223	954228	954233	954238	954244	954249	954254	954259	954264	954269	50	2.
10	9.954274	954279	954284	954289	954295	954300	954305	954310	954315	954320	954325	954330	49	3.
11	9.954335	954340	954345	954351	954356	954361	954366	954371	954376	954381	954386	954391	48	4.
12	9.954396	954401	954407	954412	954417	954422	954427	954432	954437	954442	954447	954452	47	1 =
13	9.954457	954462	954468	954473	954478	954483	954488	954493	954498	954503	954508	954513	46	2.
14	9.954518	954523	954529	954534	954539	954544	954549	954554	954559	954564	954569	954574	45	3.
15	9.954579	954584	954590	954595	954600	954605	954610	954615	954620	954625	954630	954635	44	4.
16	9.954640	954645	954650	954655	954661	954666	954671	954676	954681	954686	954691	954696	43	1 =
17	9.954701	954706	954711	954716	954721	954726	954732	954737	954742	954747	954752	954757	42	2.
18	9.954762	954767	954772	954777	954782	954787	954792	954797	954802	954808	954813	954818	41	3.
19	9.954823	954828	954833	954838	954843	954848	954853	954858	954863	954868	954873	954878	40	4.
20	9.954883	954889	954894	954899	954904	954909	954914	954919	954924	954929	954934	954939	39	1 =
21	9.954944	954949	954954	954959	954964	954969	954974	954980	954985	954990	954995	955000	38	2.
22	9.955005	955010	955015	955020	955025	955030	955035	955040	955045	955050	955055	955060	37	3.
23	9.955065	955070	955075	955081	955086	955091	955096	955101	955106	955111	955116	955121	36	4.
24	9.955126	955131	955136	955141	955146	955151	955156	955161	955166	955171	955176	955181	35	1 =
25	9.955186	955191	955197	955202	955207	955212	955217	955222	955227	955232	955237	955242	34	2.
26	9.955247	955252	955257	955262	955267	955272	955277	955282	955287	955292	955297	955302	33	3.
27	9.955307	955312	955317	955322	955327	955332	955338	955343	955348	955353	955358	955363	32	4.
28	9.955368	955373	955378	955383	955388	955393	955398	955403	955408	955413	955418	955423	31	1 =
29	9.955428	955433	955438	955443	955448	955453	955458	955463	955468	955473	955478	955483	30	2.
30	9.955488	955493	955498	955503	955508	955513	955518	955523	955528	955533	955538	955544	29	3.
31	9.955549	955554	955559	955564	955569	955574	955579	955584	955589	955594	955599	955604	28	4.
32	9.955609	955614	955619	955624	955629	955634	955639	955644	955649	955654	955659	955664	27	1 =
33	9.955669	955674	955679	955684	955689	955694	955699	955704	955709	955714	955719	955724	26	2.
34	9.955729	955734	955739	955744	955749	955754	955759	955764	955769	955774	955779	955784	25	3.
35	9.955789	955794	955799	955804	955809	955814	955819	955824	955829	955834	955839	955844	24	4.
36	9.955849	955854	955859	955864	955869	955874	955879	955884	955889	955894	955899	955904	23	1 =
37	9.955909	955914	955919	955924	955929	955934	955939	955944	955949	955954	955959	955964	22	2.
38	9.955969	955974	955979	955984	955989	955994	955999	956004	956009	956014	956019	956024	21	3.
39	9.956029	956034	956039	956044	956049	956054	956059	956064	956069	956074	956079	956084	20	4.
40	9.956089	956094	956099	956104	956109	956114	956119	956123	956128	956133	956138	956143	19	1 =
41	9.956148	956153	956158	956163	956168	956173	956178	956183	956188	956193	956198	956203	18	2.
42	9.956208	956213	956218	956223	956228	956233	956238	956243	956248	956253	956258	956263	17	3.
43	9.956268	956273	956278	956283	956288	956293	956298	956303	956308	956313	956318	956323	16	4.
44	9.956327	956332	956337	956342	956347	956352	956357	956362	956367	956372	956377	956382	15	1 =
45	9.956387	956392	956397	956402	956407	956412	956417	956422	956427	956432	956437	956442	14	2.
46	9.956447	956452	956457	956462	956466	956471	956476	956481	956486	956491	956496	956501	13	3.
47	9.956506	956511	956516	956521	956526	956531	956536	956541	956546	956551	956556	956561	12	4.
48	9.956566	956571	956576	956580	956585	956590	956595	956600	956605	956610	956615	956620	11	1 =
49	9.956625	956630	956635	956640	956645	956650	956655	956660	956665	956670	956675	956679	10	2.
50	9.956684	956689	956694	956699	956704	956709	956714	956719	956724	956729	956734	956739	9	3.
51	9.956744	956749	956754	956759	956764	956768	956773	956778	956783	956788	956793	956798	8	4.
52	9.956803	956808	956813	956818	956823	956828	956833	956838	956843	956847	956852	956857	7	1 =
53	9.956862	956867	956872	956877	956882	956887	956892	956897	956902	956907	956912	956917	6	2.
54	9.956922	956926	956931	956936	956941	956946	956951	956956	956961	956966	956971	956976	5	3.
55	9.956981	956986	956991	956995	957000	957005	957010	957015	957020	957025	957030	957035	4	4.
56	9.957040	957045	957050	957055	957059	957064	957069	957074	957079	957084	957089	957094	3	1 =
57	9.957099	957104	957109	957114	957119	957123	957128	957133	957138	957143	957148	957153	2	2.
58	9.957158	957163	957168	957173	957178	957182	957187	957192	957197	957202	957207	957212	1	3.
59	9.957217	957222	957227	957232	957236	957241	957246	957251	957256	957261	957266	957271	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 25 degrees, or Sine of 115 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 65 degrees, or Co-sine of 155 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9·957276	957281	957286	957290	957295	957300	957305	957310	957315	957320	957325	957330	59	1″ = 1
1	9·957335	957340	957344	957349	957354	957359	957364	957369	957374	957379	957384	957389	58	2. 2
2	9·957393	957398	957403	957408	957413	957418	957423	957428	957433	957438	957442	957447	57	3. 3
3	9·957452	957457	957462	957467	957472	957477	957482	957487	957491	957496	957501	957506	56	4. 4
4	9·957511	957516	957521	957526	957531	957536	957540	957545	957550	957555	957560	957565	55	1 = 1
5	9·957570	957575	957580	957584	957589	957594	957599	957604	957609	957614	957619	957624	54	2. 2
6	9·957628	957633	957638	957643	957648	957653	957658	957663	957667	957672	957677	957682	53	3. 3
7	9·957687	957692	957697	957702	957707	957711	957716	957721	957726	957731	957736	957741	52	4. 4
8	9·957746	957750	957755	957760	957765	957770	957775	957780	957785	957790	957794	957799	51	1 = 1
9	9·957804	957809	957814	957819	957824	957829	957833	957838	957843	957848	957853	957858	50	2. 2
10	9·957863	957867	957872	957877	957882	957887	957892	957897	957902	957906	957911	957916	49	3. 3
11	9·957921	957926	957931	957936	957941	957945	957950	957955	957960	957965	957970	957975	48	4. 4
12	9·957979	957984	957989	957994	957999	958004	958009	958013	958018	958023	958028	958033	47	1 = 1
13	9·958038	958043	958048	958052	958057	958062	958067	958072	958077	958082	958086	958091	46	2. 2
14	9·958096	958101	958106	958111	958116	958120	958125	958130	958135	958140	958145	958150	45	3. 3
15	9·958154	958159	958164	958169	958174	958179	958183	958188	958193	958198	958203	958208	44	4. 4
16	9·958213	958217	958222	958227	958232	958237	958242	958247	958251	958256	958261	958266	43	1 = 1
17	9·958271	958276	958280	958285	958290	958295	958300	958305	958310	958314	958319	958324	42	2. 2
18	9·958329	958334	958339	958343	958348	958353	958358	958363	958368	958372	958377	958382	41	3. 3
19	9·958387	958392	958397	958401	958406	958411	958416	958421	958426	958431	958435	958440	40	4. 4
20	9·958445	958450	958455	958460	958464	958469	958474	958479	958484	958489	958493	958498	39	1 = 1
21	9·958503	958508	958513	958517	958522	958527	958532	958537	958542	958546	958551	958556	38	2. 2
22	9·958561	958566	958571	958575	958580	958585	958590	958595	958600	958604	958609	958614	37	3. 3
23	9·958619	958624	958629	958633	958638	958643	958648	958653	958657	958662	958667	958672	36	4. 4
24	9·958677	958682	958686	958691	958696	958701	958706	958710	958715	958720	958725	958730	35	1 = 1
25	9·958735	958739	958744	958749	958754	958759	958763	958768	958773	958778	958783	958788	34	2. 2
26	9·958792	958797	958802	958807	958812	958816	958821	958826	958831	958836	958840	958845	33	3. 3
27	9·958850	958855	958860	958864	958869	958874	958879	958884	958889	958893	958898	958903	32	4. 4
28	9·958908	958913	958917	958922	958927	958932	958937	958941	958946	958951	958956	958961	31	1 = 1
29	9·958965	958970	958975	958980	958985	958989	958994	958999	959004	959009	959013	959018	30	2. 2
30	9·959023	959028	959033	959037	959042	959047	959052	959057	959061	959066	959071	959076	29	3. 3
31	9·959081	959085	959090	959095	959100	959104	959109	959114	959119	959124	959128	959133	28	4. 4
32	9·959138	959143	959148	959152	959157	959162	959167	959172	959176	959181	959186	959191	27	1 = 1
33	9·959195	959200	959205	959210	959215	959219	959224	959229	959234	959239	959243	959248	26	2. 2
34	9·959253	959258	959262	959267	959272	959277	959282	959286	959291	959296	959301	959305	25	3. 3
35	9·959310	959315	959320	959325	959329	959334	959339	959344	959348	959353	959358	959363	24	4. 4
36	9·959368	959372	959377	959382	959387	959391	959396	959401	959406	959411	959415	959420	23	1 = 1
37	9·959425	959430	959434	959439	959444	959449	959454	959458	959463	959468	959473	959477	22	2. 2
38	9·959482	959487	959492	959496	959501	959506	959511	959515	959520	959525	959530	959535	21	3. 3
39	9·959539	959544	959549	959554	959558	959563	959568	959573	959577	959582	959587	959592	20	4. 4
40	9·959596	959601	959606	959611	959616	959620	959625	959630	959635	959639	959644	959649	19	1 = 1
41	9·959654	959658	959663	959668	959673	959677	959682	959687	959692	959696	959701	959706	18	2. 2
42	9·959711	959715	959720	959725	959730	959734	959739	959744	959749	959753	959758	959763	17	3. 3
43	9·959768	959772	959777	959782	959787	959791	959796	959801	959806	959810	959815	959820	16	4. 4
44	9·959825	959829	959834	959839	959844	959848	959853	959858	959863	959867	959872	959877	15	1 = 1
45	9·959882	959886	959891	959896	959901	959905	959910	959915	959919	959924	959929	959934	14	2. 2
46	9·959938	959943	959948	959953	959957	959962	959967	959972	959976	959981	959986	959991	13	3. 3
47	9·959995	960000	960005	960009	960014	960019	960024	960028	960033	960038	960043	960047	12	4. 4
48	9·960052	960057	960062	960066	960071	960076	960080	960085	960090	960095	960099	960104	11	1 = 1
49	9·960109	960114	960118	960123	960128	960132	960137	960142	960147	960151	960156	960161	10	2. 2
50	9·960166	960170	960175	960180	960184	960189	960194	960199	960203	960208	960213	960217	9	3. 3
51	9·960222	960227	960232	960236	960241	960246	960251	960255	960260	960265	960269	960274	8	4. 4
52	9·960279	960284	960288	960293	960298	960302	960307	960312	960317	960321	960326	960331	7	1 = 1
53	9·960335	960340	960345	960350	960354	960359	960364	960368	960373	960378	960383	960387	6	2. 2
54	9·960392	960397	960401	960406	960411	960415	960420	960425	960430	960434	960439	960444	5	3. 3
55	9·960448	960453	960458	960463	960467	960472	960477	960481	960486	960491	960495	960500	4	4. 4
56	9·960505	960510	960514	960519	960524	960528	960533	960538	960542	960547	960552	960557	3	1 = 1
57	9·960561	960566	960571	960575	960580	960585	960589	960594	960599	960604	960608	960613	2	2. 2
58	9·960618	960622	960627	960632	960636	960641	960646	960650	960655	960660	960665	960669	1	3. 3
59	9·960674	960679	960683	960688	960693	960697	960702	960707	960711	960716	960721	960726	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 24 degrees, or Sine of 114 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 66 degrees, or Co-sine of 156 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.960730	960735	960740	960744	960749	960754	960758	960763	960768	960772	960777	960782	59	1″ = 1
1	9.960786	960791	960796	960800	960805	960810	960815	960819	960824	960829	960833	960838	58	2. 2
2	9.960843	960847	960852	960857	960861	960866	960871	960875	960880	960885	960889	960894	57	3. 3
3	9.960899	960903	960908	960913	960917	960922	960927	960931	960936	960941	960945	960950	56	4. 4
4	9.960955	960960	960964	960969	960974	960978	960983	960988	960992	960997	961001	961006	55	1 = 1
5	9.961011	961016	961020	961025	961030	961034	961039	961044	961048	961053	961058	961062	54	2. 2
6	9.961067	961072	961076	961081	961086	961090	961095	961100	961104	961109	961114	961118	53	3. 3
7	9.961123	961128	961132	961137	961142	961146	961151	961155	961160	961165	961169	961174	52	4. 4
8	9.961179	961183	961188	961193	961197	961202	961207	961211	961216	961221	961225	961230	51	1 = 1
9	9.961235	961239	961244	961249	961253	961258	961263	961267	961272	961277	961281	961286	50	2. 2
10	9.961290	961295	961300	961304	961309	961314	961318	961323	961328	961332	961337	961342	49	3. 3
11	9.961346	961351	961356	961360	961365	961369	961374	961379	961383	961388	961393	961397	48	4. 4
12	9.961402	961407	961411	961416	961421	961425	961430	961434	961439	961444	961448	961453	47	1 = 1
13	9.961458	961462	961467	961472	961476	961481	961486	961490	961495	961499	961504	961509	46	2. 2
14	9.961513	961518	961523	961527	961532	961537	961541	961546	961550	961555	961560	961564	45	3. 3
15	9.961569	961574	961578	961583	961587	961592	961597	961601	961606	961611	961615	961620	44	4. 4
16	9.961625	961629	961634	961638	961643	961648	961652	961657	961662	961666	961671	961675	43	1 = 1
17	9.961680	961685	961689	961694	961699	961703	961708	961712	961717	961722	961726	961731	42	2. 2
18	9.961736	961740	961745	961749	961754	961759	961763	961768	961772	961777	961782	961786	41	3. 3
19	9.961791	961796	961800	961805	961809	961814	961819	961823	961828	961833	961837	961842	40	4. 4
20	9.961846	961851	961856	961860	961865	961869	961874	961879	961883	961888	961892	961897	39	1 = 1
21	9.961902	961906	961911	961916	961920	961925	961929	961934	961939	961943	961948	961952	38	2. 2
22	9.961957	961962	961966	961971	961975	961980	961985	961989	961994	961998	962003	962008	37	3. 3
23	9.962012	962017	962021	962026	962031	962035	962040	962044	962049	962054	962058	962063	36	4. 4
24	9.962067	962072	962077	962081	962086	962090	962095	962100	962104	962109	962113	962118	35	1 = 1
25	9.962123	962127	962132	962136	962141	962146	962150	962155	962159	962164	962169	962173	34	2. 2
26	9.962178	962182	962187	962192	962196	962201	962205	962210	962214	962219	962224	962228	33	3. 3
27	9.962233	962237	962242	962247	962251	962256	962260	962265	962270	962274	962279	962283	32	4. 4
28	9.962288	962292	962297	962302	962306	962311	962315	962320	962325	962329	962334	962338	31	1 = 1
29	9.962343	962347	962352	962357	962361	962366	962370	962375	962380	962384	962389	962393	30	2. 2
30	9.962398	962402	962407	962412	962416	962421	962425	962430	962434	962439	962444	962448	29	3. 3
31	9.962453	962457	962462	962466	962471	962476	962480	962485	962489	962494	962498	962503	28	4. 4
32	9.962508	962512	962517	962521	962526	962530	962535	962540	962544	962549	962553	962558	27	1 = 1
33	9.962562	962567	962572	962576	962581	962585	962590	962594	962599	962604	962608	962613	26	2. 2
34	9.962617	962622	962626	962631	962635	962640	962645	962649	962654	962658	962663	962667	25	3. 3
35	9.962672	962676	962681	962686	962690	962695	962699	962704	962708	962713	962718	962722	24	4. 4
36	9.962727	962731	962736	962740	962745	962749	962754	962759	962763	962768	962772	962777	23	1 = 1
37	9.962781	962786	962790	962795	962799	962804	962809	962813	962818	962822	962827	962831	22	2. 2
38	9.962836	962840	962845	962850	962854	962859	962863	962868	962872	962877	962881	962886	21	3. 3
39	9.962890	962895	962900	962904	962909	962913	962918	962922	962927	962931	962936	962940	20	4. 4
40	9.962945	962949	962954	962959	962963	962968	962972	962977	962981	962986	962990	962995	19	1 = 1
41	9.962999	963004	963009	963013	963018	963022	963027	963031	963036	963040	963045	963049	18	2. 2
42	9.963054	963058	963063	963067	963072	963077	963081	963086	963090	963095	963099	963104	17	3. 3
43	9.963108	963113	963117	963122	963126	963131	963135	963140	963144	963149	963154	963158	16	4. 4
44	9.963163	963167	963172	963176	963181	963185	963190	963194	963199	963203	963208	963212	15	1 = 1
45	9.963217	963221	963226	963230	963235	963239	963244	963249	963253	963258	963262	963267	14	2. 2
46	9.963271	963276	963280	963285	963289	963294	963298	963303	963307	963312	963316	963321	13	3. 3
47	9.963325	963330	963334	963339	963343	963348	963352	963357	963361	963366	963370	963375	12	4. 4
48	9.963380	963384	963389	963393	963398	963402	963407	963411	963416	963420	963425	963429	11	1 = 1
49	9.963434	963438	963443	963447	963452	963456	963461	963465	963470	963474	963479	963483	10	2. 2
50	9.963488	963492	963497	963501	963506	963510	963515	963519	963524	963528	963533	963537	9	3. 3
51	9.963542	963546	963551	963555	963560	963564	963569	963573	963578	963582	963587	963591	8	4. 4
52	9.963596	963600	963605	963609	963614	963618	963623	963627	963632	963636	963641	963645	7	1 = 1
53	9.963650	963654	963659	963663	963668	963672	963677	963681	963686	963690	963695	963699	6	2. 2
54	9.963704	963708	963713	963717	963722	963726	963731	963735	963740	963744	963748	963753	5	3. 3
55	9.963757	963762	963766	963771	963775	963780	963784	963789	963793	963798	963802	963807	4	4. 4
56	9.963811	963816	963820	963825	963829	963834	963838	963843	963847	963852	963856	963861	3	1 = 1
57	9.963865	963870	963874	963879	963883	963887	963892	963896	963901	963905	963910	963914	2	2. 2
58	9.963919	963923	963928	963932	963937	963941	963946	963950	963955	963959	963964	963968	1	3. 3
59	9.963972	963977	963981	963986	963990	963995	963999	964004	964008	964013	964017	964022	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 23 degrees, or Sine of 113 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 67 degrees, or Co-sine of 157 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.964026	964031	964035	964040	964044	964048	964053	964057	964062	964066	964071	964075	59	1″ = 1
1	9.964080	964084	964089	964093	964098	964102	964107	964111	964115	964120	964124	964129	58	2. 2
2	9.964133	964138	964142	964147	964151	964156	964160	964165	964169	964173	964178	964182	57	3. 3
3	9.964187	964191	964196	964200	964205	964209	964214	964218	964222	964227	964231	964236	56	4. 4
4	9.964240	964245	964249	964254	964258	964263	964267	964271	964276	964280	964285	964289	55	1 = 1
5	9.964294	964298	964303	964307	964312	964316	964320	964325	964329	964334	964338	964343	54	2. 2
6	9.964347	964352	964356	964360	964365	964369	964374	964378	964383	964387	964392	964396	53	3. 3
7	9.964400	964405	964409	964414	964418	964423	964427	964432	964436	964440	964445	964449	52	4. 4
8	9.964454	964458	964463	964467	964471	964476	964480	964485	964489	964494	964498	964503	51	1 = 1
9	9.964507	964511	964516	964520	964525	964529	964534	964538	964542	964547	964551	964556	50	2. 2
10	9.964560	964565	964569	964574	964578	964582	964587	964591	964596	964600	964605	964609	49	3. 3
11	9.964613	964618	964622	964627	964631	964636	964640	964644	964649	964653	964658	964662	48	4. 4
12	9.964667	964671	964675	964680	964684	964689	964693	964697	964702	964706	964711	964715	47	1 = 1
13	9.964720	964724	964728	964733	964737	964742	964746	964751	964755	964759	964764	964768	46	2. 2
14	9.964773	964777	964781	964786	964790	964795	964799	964804	964808	964812	964817	964821	45	3. 3
15	9.964826	964830	964834	964839	964843	964848	964852	964857	964861	964865	964870	964874	44	4. 4
16	9.964879	964883	964887	964892	964896	964901	964905	964909	964914	964918	964923	964927	43	1 = 1
17	9.964931	964936	964940	964945	964949	964954	964958	964962	964967	964971	964976	964980	42	2. 2
18	9.964984	964989	964993	964998	965002	965006	965011	965015	965020	965024	965028	965033	41	3. 3
19	9.965037	965042	965046	965050	965055	965059	965064	965068	965072	965077	965081	965086	40	4. 4
20	9.965090	965094	965099	965103	965108	965112	965116	965121	965125	965130	965134	965138	39	1 = 1
21	9.965143	965147	965151	965156	965160	965165	965169	965173	965178	965182	965187	965191	38	2. 2
22	9.965195	965200	965204	965209	965213	965217	965222	965226	965230	965235	965239	965244	37	3. 3
23	9.965248	965252	965257	965261	965266	965270	965274	965279	965283	965288	965292	965296	36	4. 4
24	9.965301	965305	965309	965314	965318	965323	965327	965331	965336	965340	965344	965349	35	1 = 1
25	9.965353	965358	965362	965366	965371	965375	965379	965384	965388	965393	965397	965401	34	2. 2
26	9.965406	965410	965414	965419	965423	965428	965432	965436	965441	965445	965449	965454	33	3. 3
27	9.965458	965463	965467	965471	965476	965480	965484	965489	965493	965498	965502	965506	32	4. 4
28	9.965511	965515	965519	965524	965528	965532	965537	965541	965546	965550	965554	965559	31	1 = 1
29	9.965563	965567	965572	965576	965581	965585	965589	965594	965598	965602	965607	965611	30	2. 2
30	9.965615	965620	965624	965628	965633	965637	965642	965646	965650	965655	965659	965663	29	3. 3
31	9.965668	965672	965676	965681	965685	965689	965694	965698	965703	965707	965711	965716	28	4. 4
32	9.965720	965724	965729	965733	965737	965742	965746	965750	965755	965759	965763	965768	27	1 = 1
33	9.965772	965777	965781	965785	965790	965794	965798	965803	965807	965811	965816	965820	26	2. 2
34	9.965824	965829	965833	965837	965842	965846	965850	965855	965859	965863	965868	965872	25	3. 3
35	9.965876	965881	965885	965890	965894	965898	965903	965907	965911	965916	965920	965924	24	4. 3
36	9.965929	965933	965937	965942	965946	965950	965955	965959	965963	965968	965972	965976	23	1 = 1
37	9.965981	965985	965989	965994	965998	966002	966007	966011	966015	966020	966024	966028	22	2. 2
38	9.966033	966037	966041	966046	966050	966054	966059	966063	966067	966072	966076	966080	21	3. 3
39	9.966085	966089	966093	966098	966102	966106	966111	966115	966119	966124	966128	966132	20	4. 3
40	9.966137	966141	966145	966149	966154	966158	966162	966167	966171	966175	966180	966184	19	1 = 1
41	9.966188	966193	966197	966201	966206	966210	966214	966219	966223	966227	966232	966236	18	2. 2
42	9.966240	966245	966249	966253	966258	966262	966266	966270	966275	966279	966283	966288	17	3. 3
43	9.966292	966296	966301	966305	966309	966314	966318	966322	966327	966331	966335	966339	16	4. 3
44	9.966344	966348	966352	966357	966361	966365	966370	966374	966378	966383	966387	966391	15	1 = 1
45	9.966395	966400	966404	966408	966413	966417	966421	966426	966430	966434	966439	966443	14	2. 2
46	9.966447	966451	966456	966460	966464	966469	966473	966477	966482	966486	966490	966494	13	3. 3
47	9.966499	966503	966507	966512	966516	966520	966525	966529	966533	966537	966542	966546	12	4. 3
48	9.966550	966555	966559	966563	966568	966572	966576	966580	966585	966589	966593	966598	11	1 = 1
49	9.966602	966606	966610	966615	966619	966623	966628	966632	966636	966640	966645	966649	10	2. 2
50	9.966653	966658	966662	966666	966671	966675	966679	966683	966688	966692	966696	966701	9	3. 3
51	9.966705	966709	966713	966718	966722	966726	966731	966735	966739	966743	966748	966752	8	4. 3
52	9.966756	966760	966765	966769	966773	966778	966782	966786	966790	966795	966799	966803	7	1 = 1
53	9.966808	966812	966816	966820	966825	966829	966833	966838	966842	966846	966850	966855	6	2. 2
54	9.966859	966863	966867	966872	966876	966880	966885	966889	966893	966897	966902	966906	5	3. 3
55	9.966910	966914	966919	966923	966927	966932	966936	966940	966944	966949	966953	966957	4	4. 3
56	9.966961	966966	966970	966974	966978	966983	966987	966991	966996	967000	967004	967008	3	1 = 1
57	9.967013	967017	967021	967025	967030	967034	967038	967042	967047	967051	967055	967059	2	2. 2
58	9.967064	967068	967072	967077	967081	967085	967089	967094	967098	967102	967106	967111	1	3. 3
59	9.967115	967119	967123	967128	967132	967136	967140	967145	967149	967153	967157	967162	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 22 degrees, or Sine of 112 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 68 degrees, or Co-sine of 158 degrees.												Minutes	Proportional parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.967166	967170	967174	967179	967183	967187	967191	967196	967200	967204	967208	967213	59	1″ =
1	9.967217	967221	967225	967230	967234	967238	967242	967247	967251	967255	967259	967264	58	2.
2	9.967268	967272	967276	967281	967285	967289	967293	967298	967302	967306	967310	967315	57	3.
3	9.967319	967323	967327	967332	967336	967340	967344	967349	967353	967357	967361	967365	56	4.
4	9.967370	967374	967378	967382	967387	967391	967395	967399	967404	967408	967412	967416	55	1 =
5	9.967421	967425	967429	967433	967438	967442	967446	967450	967454	967459	967463	967467	54	2.
6	9.967471	967476	967480	967484	967488	967493	967497	967501	967505	967509	967514	967518	53	3.
7	9.967522	967526	967531	967535	967539	967543	967548	967552	967556	967560	967564	967569	52	4.
8	9.967573	967577	967581	967586	967590	967594	967598	967602	967607	967611	967615	967619	51	1 =
9	9.967624	967628	967632	967636	967640	967645	967649	967653	967657	967662	967666	967670	50	2.
10	9.967674	967678	967683	967687	967691	967695	967699	967704	967708	967712	967716	967721	49	3.
11	9.967725	967729	967733	967737	967742	967746	967750	967754	967758	967763	967767	967771	48	4.
12	9.967775	967780	967784	967788	967792	967796	967801	967805	967809	967813	967817	967822	47	1 =
13	9.967826	967830	967834	967838	967843	967847	967851	967855	967859	967864	967868	967872	46	2.
14	9.967876	967881	967885	967889	967893	967897	967902	967906	967910	967914	967918	967923	45	3.
15	9.967927	967931	967935	967939	967944	967948	967952	967956	967960	967965	967969	967973	44	4.
16	9.967977	967981	967985	967990	967994	967998	968002	968006	968011	968015	968019	968023	43	1 =
17	9.968027	968032	968036	968040	968044	968048	968053	968057	968061	968065	968069	968074	42	2.
18	9.968078	968082	968086	968090	968094	968099	968103	968107	968111	968115	968120	968124	41	3.
19	9.968128	968132	968136	968141	968145	968149	968153	968157	968161	968166	968170	968174	40	4.
20	9.968178	968182	968187	968191	968195	968199	968203	968207	968212	968216	968220	968224	39	1 =
21	9.968228	968233	968237	968241	968245	968249	968253	968258	968262	968266	968270	968274	38	2.
22	9.968278	968283	968287	968291	968295	968299	968304	968308	968312	968316	968320	968324	37	3.
23	9.968329	968333	968337	968341	968345	968349	968354	968358	968362	968366	968370	968374	36	4.
24	9.968379	968383	968387	968391	968395	968399	968404	968408	968412	968416	968420	968424	35	1 =
25	9.968429	968433	968437	968441	968445	968449	968454	968458	968462	968466	968470	968474	34	2.
26	9.968479	968483	968487	968491	968495	968499	968504	968508	968512	968516	968520	968524	33	3.
27	9.968528	968533	968537	968541	968545	968549	968553	968558	968562	968566	968570	968574	32	4.
28	9.968578	968582	968587	968591	968595	968599	968603	968607	968612	968616	968620	968624	31	1 =
29	9.968628	968632	968636	968641	968645	968649	968653	968657	968661	968666	968670	968674	30	2.
30	9.968678	968682	968686	968690	968695	968699	968703	968707	968711	968715	968719	968724	29	3.
31	9.968728	968732	968736	968740	968744	968748	968753	968757	968761	968765	968769	968773	28	4.
32	9.968777	968782	968786	968790	968794	968798	968802	968806	968811	968815	968819	968823	27	1 =
33	9.968827	968831	968835	968839	968844	968848	968852	968856	968860	968864	968868	968873	26	2.
34	9.968877	968881	968885	968889	968893	968897	968901	968906	968910	968914	968918	968922	25	3.
35	9.968926	968930	968934	968939	968943	968947	968951	968955	968959	968963	968968	968972	24	4.
36	9.968976	968980	968984	968988	968992	968996	969001	969005	969009	969013	969017	969021	23	1 =
37	9.969025	969029	969033	969038	969042	969046	969050	969054	969058	969062	969066	969071	22	2.
38	9.969075	969079	969083	969087	969091	969095	969099	969104	969108	969112	969116	969120	21	3.
39	9.969124	969128	969132	969136	969141	969145	969149	969153	969157	969161	969165	969169	20	4.
40	9.969173	969178	969182	969186	969190	969194	969198	969202	969206	969210	969215	969219	19	1 =
41	9.969223	969227	969231	969235	969239	969243	969247	969252	969256	969260	969264	969268	18	2.
42	9.969272	969276	969280	969284	969288	969293	969297	969301	969305	969309	969313	969317	17	3.
43	9.969321	969325	969329	969334	969338	969342	969346	969350	969354	969358	969362	969366	16	4.
44	9.969370	969375	969379	969383	969387	969391	969395	969399	969403	969407	969411	969416	15	1 =
45	9.969420	969424	969428	969432	969436	969440	969444	969448	969452	969456	969461	969465	14	2.
46	9.969469	969473	969477	969481	969485	969489	969493	969497	969501	969506	969510	969514	13	3.
47	9.969518	969522	969526	969530	969534	969538	969542	969546	969550	969555	969559	969563	12	4.
48	9.969567	969571	969575	969579	969583	969587	969591	969595	969599	969604	969608	969612	11	1 =
49	9.969616	969620	969624	969628	969632	969636	969640	969644	969648	969653	969657	969661	10	2.
50	9.969665	969669	969673	969677	969681	969685	969689	969693	969697	969701	969705	969710	9	3.
51	9.969714	969718	969722	969726	969730	969734	969738	969742	969746	969750	969754	969758	8	4.
52	9.969762	969767	969771	969775	969779	969783	969787	969791	969795	969799	969803	969807	7	1 =
53	9.969811	969815	969819	969823	969828	969832	969836	969840	969844	969848	969852	969856	6	2.
54	9.969860	969864	969868	969872	969876	969880	969884	969888	969893	969897	969901	969905	5	3.
55	9.969909	969913	969917	969921	969925	969929	969933	969937	969941	969945	969949	969953	4	4.
56	9.969957	969962	969966	969970	969974	969978	969982	969986	969990	969994	969998	970002	3	1 =
57	9.970006	970010	970014	970018	970022	970026	970030	970034	970039	970043	970047	970051	2	2.
58	9.970055	970059	970063	970067	970071	970075	970079	970083	970087	970091	970095	970099	1	3.
59	9.970103	970107	970111	970115	970119	970123	970128	970132	970136	970140	970144	970148	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts
	Co-sine of 21 degrees, or Sine of 111 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 69 degrees, or Co-sine of 159 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.970152	970156	970160	970164	970168	970172	970176	970180	970184	970188	970192	970196	59	1″ = 1
1	9.970200	970204	970208	970212	970216	970220	970224	970229	970233	970237	970241	970245	58	2. 2
2	9.970249	970253	970257	970261	970265	970269	970273	970277	970281	970285	970289	970293	57	3. 2
3	9.970297	970301	970305	970309	970313	970317	970321	970325	970329	970333	970337	970341	56	4. 3
4	9.970345	970349	970353	970358	970362	970366	970370	970374	970378	970382	970386	970390	55	1 = 1
5	9.970394	970398	970402	970406	970410	970414	970418	970422	970426	970430	970434	970438	54	2. 2
6	9.970442	970446	970450	970454	970458	970462	970466	970470	970474	970478	970482	970486	53	3. 2
7	9.970490	970494	970498	970502	970506	970510	970514	970518	970522	970526	970530	970534	52	4. 3
8	9.970538	970542	970546	970550	970554	970558	970562	970566	970570	970574	970579	970583	51	1 = 1
9	9.970587	970591	970595	970599	970603	970607	970611	970615	970619	970623	970627	970631	50	2. 2
10	9.970635	970639	970643	970647	970651	970655	970659	970663	970667	970671	970675	970679	49	3. 2
11	9.970683	970687	970691	970695	970699	970703	970707	970711	970715	970719	970723	970727	48	4. 3
12	9.970731	970735	970739	970743	970747	970751	970755	970759	970763	970767	970771	970775	47	1 = 1
13	9.970779	970783	970787	970791	970795	970799	970803	970807	970811	970815	970819	970823	46	2. 2
14	9.970827	970831	970835	970839	970843	970847	970851	970855	970859	970862	970866	970870	45	3. 2
15	9.970874	970878	970882	970886	970890	970894	970898	970902	970906	970910	970914	970918	44	4. 3
16	9.970922	970926	970930	970934	970938	970942	970946	970950	970954	970958	970962	970966	43	1 = 1
17	9.970970	970974	970978	970982	970986	970990	970994	970998	971002	971006	971010	971014	42	2. 2
18	9.971018	971022	971026	971030	971034	971038	971042	971046	971050	971054	971058	971062	41	3. 2
19	9.971066	971070	971074	971077	971081	971085	971089	971093	971097	971101	971105	971109	40	4. 3
20	9.971113	971117	971121	971125	971129	971133	971137	971141	971145	971149	971153	971157	39	1 = 1
21	9.971161	971165	971169	971173	971177	971181	971185	971189	971193	971197	971201	971205	38	2. 2
22	9.971208	971212	971216	971220	971224	971228	971232	971236	971240	971244	971248	971252	37	3. 2
23	9.971256	971260	971264	971268	971272	971276	971280	971284	971288	971292	971296	971300	36	4. 3
24	9.971304	971307	971311	971315	971319	971323	971327	971331	971335	971339	971343	971347	35	1 = 1
25	9.971351	971355	971359	971363	971367	971371	971375	971379	971383	971387	971391	971394	34	2. 2
26	9.971398	971402	971406	971410	971414	971418	971422	971426	971430	971434	971438	971442	33	3. 2
27	9.971446	971450	971454	971458	971462	971466	971469	971473	971477	971481	971485	971489	32	4. 3
28	9.971493	971497	971501	971505	971509	971513	971517	971521	971525	971529	971533	971536	31	1 = 1
29	9.971540	971544	971548	971552	971556	971560	971564	971568	971572	971576	971580	971584	30	2. 2
30	9.971588	971592	971596	971599	971603	971607	971611	971615	971619	971623	971627	971631	29	3. 2
31	9.971635	971639	971643	971647	971651	971655	971658	971662	971666	971670	971674	971678	28	4. 3
32	9.971682	971686	971690	971694	971698	971702	971706	971710	971713	971717	971721	971725	27	1 = 1
33	9.971729	971733	971737	971741	971745	971749	971753	971757	971761	971765	971768	971772	26	2. 2
34	9.971776	971780	971784	971788	971792	971796	971800	971804	971808	971812	971815	971819	25	3. 2
35	9.971823	971827	971831	971835	971839	971843	971847	971851	971855	971859	971862	971866	24	4. 3
36	9.971870	971874	971878	971882	971886	971890	971894	971898	971902	971906	971909	971913	23	1 = 1
37	9.971917	971921	971925	971929	971933	971937	971941	971945	971949	971952	971956	971960	22	2. 2
38	9.971964	971968	971972	971976	971980	971984	971988	971992	971995	971999	972003	972007	21	3. 2
39	9.972011	972015	972019	972023	972027	972031	972035	972038	972042	972046	972050	972054	20	4. 3
40	9.972058	972062	972066	972070	972074	972077	972081	972085	972089	972093	972097	972101	19	1 = 1
41	9.972105	972109	972113	972116	972120	972124	972128	972132	972136	972140	972144	972148	18	2. 2
42	9.972151	972155	972159	972163	972167	972171	972175	972179	972183	972186	972190	972194	17	3. 2
43	9.972198	972202	972206	972210	972214	972218	972222	972225	972229	972233	972237	972241	16	4. 3
44	9.972245	972249	972253	972257	972260	972264	972268	972272	972276	972280	972284	972288	15	1 = 1
45	9.972291	972295	972299	972303	972307	972311	972315	972319	972323	972326	972330	972334	14	2. 2
46	9.972338	972342	972346	972350	972354	972357	972361	972365	972369	972373	972377	972381	13	3. 2
47	9.972385	972388	972392	972396	972400	972404	972408	972412	972416	972419	972423	972427	12	4. 3
48	9.972431	972435	972439	972443	972447	972450	972454	972458	972462	972466	972470	972474	11	1 = 1
49	9.972478	972481	972485	972489	972493	972497	972501	972505	972509	972512	972516	972520	10	2. 2
50	9.972524	972528	972532	972536	972539	972543	972547	972551	972555	972559	972563	972566	9	3. 2
51	9.972570	972574	972578	972582	972586	972590	972594	972597	972601	972605	972609	972613	8	4. 3
52	9.972617	972621	972624	972628	972632	972636	972640	972644	972648	972651	972655	972659	7	1 = 1
53	9.972663	972667	972671	972675	972678	972682	972686	972690	972694	972698	972702	972705	6	2. 2
54	9.972709	972713	972717	972721	972725	972728	972732	972736	972740	972744	972748	972752	5	3. 2
55	9.972755	972759	972763	972767	972771	972775	972779	972782	972786	972790	972794	972798	4	4. 3
56	9.972802	972805	972809	972813	972817	972821	972825	972829	972832	972836	972840	972844	3	1 = 1
57	9.972848	972852	972855	972859	972863	972867	972871	972875	972878	972882	972886	972890	2	2. 2
58	9.972894	972898	972901	972905	972909	972913	972917	972921	972925	972928	972932	972936	1	3. 2
59	9.972940	972944	972948	972951	972955	972959	972963	972967	972971	972974	972978	972982	0	4. 3
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 20 degrees, or Sine of 110 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 70 degrees, or Co-sine of 160 degrees.												Minutes	Proportionals
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.972986	972990	972994	972997	973001	973005	973009	973013	973017	973020	973024	973028	59	1″ = 1
1	9.973032	973036	973039	973043	973047	973051	973055	973059	973062	973066	973070	973074	58	2. 2
2	9.973078	973082	973085	973089	973093	973097	973101	973105	973108	973112	973116	973120	57	3. 2
3	9.973124	973127	973131	973135	973139	973143	973147	973150	973154	973158	973162	973166	56	4. 3
4	9.973169	973173	973177	973181	973185	973189	973192	973196	973200	973204	973208	973211	55	1 = 1
5	9.973215	973219	973223	973227	973231	973234	973238	973242	973246	973250	973253	973257	54	2. 2
6	9.973261	973265	973269	973272	973276	973280	973284	973288	973291	973295	973299	973303	53	3. 2
7	9.973307	973311	973314	973318	973322	973326	973330	973333	973337	973341	973345	973349	52	4. 3
8	9.973352	973356	973360	973364	973368	973371	973375	973379	973383	973387	973390	973394	51	1 = 1
9	9.973398	973402	973406	973409	973413	973417	973421	973425	973428	973432	973436	973440	50	2. 2
10	9.973444	973447	973451	973455	973459	973463	973466	973470	973474	973478	973482	973485	49	3. 2
11	9.973489	973493	973497	973501	973504	973508	973512	973516	973519	973523	973527	973531	48	4. 3
12	9.973535	973538	973542	973546	973550	973554	973557	973561	973565	973569	973573	973576	47	1 = 1
13	9.973580	973584	973588	973591	973595	973599	973603	973607	973610	973614	973618	973622	46	2. 1
14	9.973626	973629	973633	973637	973641	973644	973648	973652	973656	973660	973663	973667	45	3. 2
15	9.973671	973675	973678	973682	973686	973690	973694	973697	973701	973705	973709	973712	44	4. 2
16	9.973716	973720	973724	973728	973731	973755	973739	973743	973746	973750	973754	973758	43	1 = 1
17	9.973762	973765	973769	973773	973777	973780	973784	973788	973792	973795	973799	973803	42	2. 1
18	9.973807	973811	973814	973818	973822	973826	973829	973833	973837	973841	973844	973848	41	3. 2
19	9.973852	973856	973860	973863	973867	973871	973875	973878	973882	973886	973890	973893	40	4. 2
20	9.973897	973901	973905	973908	973912	973916	973920	973924	973927	973931	973935	973939	39	1 = 1
21	9.973942	973946	973950	973954	973957	973961	973965	973969	973972	973976	973980	973984	38	2. 1
22	9.973987	973991	973995	973999	974002	974006	974010	974014	974017	974021	974025	974029	37	3. 1
23	9.974032	974036	974040	974044	974047	974051	974055	974059	974062	974066	974070	974074	36	4. 2
24	9.974077	974081	974085	974089	974092	974096	974100	974104	974107	974111	974115	974119	35	1 = 1
25	9.974122	974126	974130	974134	974137	974141	974145	974149	974152	974156	974160	974164	34	2. 1
26	9.974167	974171	974175	974179	974182	974186	974190	974194	974197	974201	974205	974208	33	3. 1
27	9.974212	974216	974220	974223	974227	974231	974235	974238	974242	974246	974250	974253	32	4. 2
28	9.974257	974261	974265	974268	974272	974276	974279	974283	974287	974291	974294	974298	31	1 = 1
29	9.974302	974306	974309	974313	974317	974320	974324	974328	974332	974335	974339	974343	30	2. 1
30	9.974347	974350	974354	974358	974362	974365	974369	974373	974376	974380	974384	974388	29	3. 1
31	9.974391	974395	974399	974402	974406	974410	974414	974417	974421	974425	974429	974432	28	4. 2
32	9.974436	974440	974443	974447	974451	974455	974458	974462	974466	974469	974473	974477	27	1 = 1
33	9.974481	974484	974488	974492	974495	974499	974503	974507	974510	974514	974518	974522	26	2. 1
34	9.974525	974529	974533	974536	974540	974544	974547	974551	974555	974559	974562	974566	25	3. 1
35	9.974570	974573	974577	974581	974585	974588	974592	974596	974599	974603	974607	974611	24	4. 2
36	9.974614	974618	974622	974625	974629	974633	974637	974640	974644	974648	974651	974655	23	1 = 1
37	9.974659	974662	974666	974670	974674	974677	974681	974685	974688	974692	974696	974699	22	2. 1
38	9.974703	974707	974711	974714	974718	974722	974725	974729	974733	974736	974740	974744	21	3. 1
39	9.974748	974751	974755	974759	974762	974766	974770	974773	974777	974781	974785	974788	20	4. 2
40	9.974792	974796	974799	974803	974807	974810	974814	974818	974821	974825	974829	974833	19	1 = 1
41	9.974836	974840	974844	974847	974851	974855	974858	974862	974866	974869	974873	974877	18	2. 1
42	9.974880	974884	974888	974892	974895	974899	974903	974906	974910	974914	974917	974921	17	3. 1
43	9.974925	974928	974932	974936	974939	974943	974947	974950	974954	974958	974961	974965	16	4. 2
44	9.974969	974973	974976	974980	974984	974987	974991	974995	974998	975002	975006	975009	15	1 = 1
45	9.975013	975017	975020	975024	975028	975031	975035	975039	975042	975046	975050	975053	14	2. 1
46	9.975057	975061	975064	975068	975072	975075	975079	975083	975086	975090	975094	975097	13	3. 1
47	9.975101	975105	975108	975112	975116	975119	975123	975127	975130	975134	975138	975141	12	4. 2
48	9.975145	975149	975152	975156	975160	975163	975167	975171	975174	975178	975182	975185	11	1 = 1
49	9.975189	975193	975196	975200	975204	975207	975211	975215	975218	975222	975226	975229	10	2. 1
50	9.975233	975237	975240	975244	975248	975251	975255	975259	975262	975266	975270	975273	9	3. 1
51	9.975277	975281	975284	975288	975292	975295	975299	975303	975306	975310	975313	975317	8	4. 2
52	9.975321	975324	975328	975332	975335	975339	975343	975346	975350	975354	975357	975361	7	1 = 1
53	9.975365	975368	975372	975376	975379	975383	975387	975390	975394	975397	975401	975405	6	2. 1
54	9.975408	975412	975416	975419	975423	975427	975430	975434	975438	975441	975445	975448	5	3. 1
55	9.975452	975456	975459	975463	975467	975470	975474	975478	975481	975485	975489	975492	4	4. 2
56	9.975496	975499	975503	975507	975510	975514	975518	975521	975525	975529	975532	975536	3	1 = 1
57	9.975539	975543	975547	975550	975554	975558	975561	975565	975569	975572	975576	975579	2	2. 1
58	9.975583	975587	975590	975594	975598	975601	975605	975608	975612	975616	975619	975623	1	3. 1
59	9.975627	975630	975634	975637	975641	975645	975648	975652	975656	975659	975663	975666	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportionals
	Co-sine of 19 degrees, or Sine of 109 degrees.													

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LOGARITHMIC SINES

Minutes	Sine of 71 degrees, or Co-sine of 161 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.975670	975674	975677	975681	975685	975688	975692	975695	975699	975703	975706	975710	59	1″ = 1
1	9.975714	975717	975721	975724	975728	975732	975735	975739	975743	975746	975750	975753	58	2. 1
2	9.975757	975761	975764	975768	975772	975775	975779	975782	975786	975790	975793	975797	57	3. 2
3	9.975800	975804	975808	975811	975815	975818	975822	975826	975829	975833	975837	975840	56	4. 3
4	9.975844	975847	975851	975855	975858	975862	975865	975869	975873	975876	975880	975883	55	1 = 1
5	9.975887	975891	975894	975898	975902	975905	975909	975912	975916	975920	975923	975927	54	2. 1
6	9.975930	975934	975938	975941	975945	975948	975952	975956	975959	975963	975966	975970	53	3. 2
7	9.975974	975977	975981	975984	975988	975992	975995	975999	976002	976006	976010	976013	52	4. 3
8	9.976017	976020	976024	976028	976031	976035	976038	976042	976046	976049	976053	976056	51	1 = 1
9	9.976060	976064	976067	976071	976074	976078	976082	976085	976089	976092	976096	976099	50	2. 1
10	9.976103	976107	976110	976114	976117	976121	976125	976128	976132	976135	976139	976143	49	3. 2
11	9.976146	976150	976153	976157	976160	976164	976168	976171	976175	976178	976182	976186	48	4. 3
12	9.976189	976193	976196	976200	976203	976207	976211	976214	976218	976221	976225	976229	47	1 = 1
13	9.976232	976236	976239	976243	976246	976250	976254	976257	976261	976264	976268	976272	46	2. 1
14	9.976275	976279	976282	976286	976289	976293	976297	976300	976304	976307	976311	976314	45	3. 2
15	9.976318	976322	976325	976329	976332	976336	976339	976343	976347	976350	976354	976357	44	4. 3
16	9.976361	976364	976368	976372	976375	976379	976382	976386	976389	976393	976397	976400	43	1 = 1
17	9.976404	976407	976411	976414	976418	976422	976425	976429	976432	976436	976439	976443	42	2. 1
18	9.976446	976450	976454	976457	976461	976464	976468	976471	976475	976479	976482	976486	41	3. 2
19	9.976489	976493	976496	976500	976503	976507	976511	976514	976518	976521	976525	976528	40	4. 3
20	9.976532	976535	976539	976543	976546	976550	976553	976557	976560	976564	976567	976571	39	1 = 1
21	9.976575	976578	976582	976585	976589	976592	976596	976599	976603	976607	976610	976614	38	2. 1
22	9.976617	976621	976624	976628	976631	976635	976638	976642	976646	976649	976653	976656	37	3. 2
23	9.976660	976663	976667	976670	976674	976677	976681	976685	976688	976692	976695	976699	36	4. 3
24	9.976702	976706	976709	976713	976716	976720	976724	976727	976731	976734	976738	976741	35	1 = 1
25	9.976745	976748	976752	976755	976759	976762	976766	976770	976773	976777	976780	976784	34	2. 1
26	9.976787	976791	976794	976798	976801	976805	976808	976812	976816	976819	976823	976826	33	3. 2
27	9.976830	976833	976837	976840	976844	976847	976851	976854	976858	976861	976865	976868	32	4. 3
28	9.976872	976876	976879	976883	976886	976890	976893	976897	976900	976904	976907	976911	31	1 = 1
29	9.976914	976918	976921	976925	976928	976932	976935	976939	976943	976946	976950	976953	30	2. 1
30	9.976957	976960	976964	976967	976971	976974	976978	976981	976985	976988	976992	976995	29	3. 2
31	9.976999	977002	977006	977009	977013	977016	977020	977024	977027	977031	977034	977038	28	4. 3
32	9.977041	977045	977048	977052	977055	977059	977062	977066	977069	977073	977076	977080	27	1 = 1
33	9.977083	977087	977090	977094	977097	977101	977104	977108	977111	977115	977118	977122	26	2. 1
34	9.977125	977129	977132	977136	977139	977143	977146	977150	977153	977157	977160	977164	25	3. 2
35	9.977167	977171	977174	977178	977181	977185	977188	977192	977195	977199	977202	977206	24	4. 3
36	9.977209	977213	977216	977220	977223	977227	977230	977234	977237	977241	977244	977248	23	1 = 1
37	9.977251	977255	977258	977262	977265	977269	977272	977276	977279	977283	977286	977290	22	2. 1
38	9.977293	977297	977300	977304	977307	977311	977314	977318	977321	977325	977328	977332	21	3. 2
39	9.977335	977339	977342	977346	977349	977353	977356	977360	977363	977367	977370	977374	20	4. 3
40	9.977377	977381	977384	977388	977391	977395	977398	977402	977405	977409	977412	977416	19	1 = 1
41	9.977419	977423	977426	977430	977433	977437	977440	977444	977447	977450	977454	977457	18	2. 1
42	9.977461	977464	977468	977471	977475	977478	977482	977485	977489	977492	977496	977499	17	3. 2
43	9.977503	977506	977510	977513	977517	977520	977524	977527	977531	977534	977537	977541	16	4. 3
44	9.977544	977548	977551	977555	977558	977562	977565	977569	977572	977576	977579	977583	15	1 = 1
45	9.977586	977590	977593	977597	977600	977603	977607	977610	977614	977617	977621	977624	14	2. 1
46	9.977628	977631	977635	977638	977642	977645	977649	977652	977655	977659	977662	977666	13	3. 2
47	9.977669	977673	977676	977680	977683	977687	977690	977694	977697	977700	977704	977707	12	4. 3
48	9.977711	977714	977718	977721	977725	977728	977732	977735	977739	977742	977745	977749	11	1 = 1
49	9.977752	977756	977759	977763	977766	977770	977773	977777	977780	977784	977787	977790	10	2. 1
50	9.977794	977797	977801	977804	977808	977811	977815	977818	977821	977825	977828	977832	9	3. 2
51	9.977835	977839	977842	977846	977849	977853	977856	977859	977863	977866	977870	977873	8	4. 3
52	9.977877	977880	977884	977887	977890	977894	977897	977901	977904	977908	977911	977915	7	1 = 1
53	9.977918	977921	977925	977928	977932	977935	977939	977942	977946	977949	977952	977956	6	2. 1
54	9.977959	977963	977966	977970	977973	977977	977980	977983	977987	977990	977994	977997	5	3. 2
55	9.978001	978004	978008	978011	978014	978018	978021	978025	978028	978032	978035	978038	4	4. 3
56	9.978042	978045	978049	978052	978056	978059	978062	978066	978069	978073	978076	978080	3	1 = 1
57	9.978083	978086	978090	978093	978097	978100	978104	978107	978110	978114	978117	978121	2	2. 1
58	9.978124	978128	978131	978134	978138	978141	978145	978148	978152	978155	978158	978162	1	3. 2
59	9.978165	978169	978172	978176	978179	978182	978186	978189	978193	978196	978200	978203	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 18 degrees, or Sine of 108 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 62 degrees, or Co-sine of 152 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 945935	945941	945946	945952	945957	945963	945969	945974	945980	945985	945991	945997	59	1″ =
1	9. 946002	946008	946013	946019	946024	946030	946036	946041	946047	946052	946058	946064	58	2.
2	9. 946069	946075	946080	946086	946092	946097	946103	946108	946114	946120	946125	946131	57	3.
3	9. 946136	946142	946147	946153	946159	946164	946170	946175	946181	946187	946192	946198	56	4.
4	9. 946203	946209	946214	946220	946226	946231	946237	946242	946248	946254	946259	946265	55	1 =
5	9. 946270	946276	946281	946287	946293	946298	946304	946309	946315	946320	946326	946332	54	2.
6	9. 946337	946343	946348	946354	946359	946365	946371	946376	946382	946387	946393	946398	53	3.
7	9. 946404	946410	946415	946421	946426	946432	946437	946443	946449	946454	946460	946465	52	4.
8	9. 946471	946476	946482	946488	946493	946499	946504	946510	946515	946521	946526	946532	51	1 =
9	9. 946538	946543	946549	946554	946560	946565	946571	946577	946582	946588	946593	946599	50	2.
10	9. 946604	946610	946615	946621	946627	946632	946638	946643	946649	946654	946660	946665	49	3.
11	9. 946671	946677	946682	946688	946693	946699	946704	946710	946715	946721	946727	946732	48	4.
12	9. 946738	946743	946749	946754	946760	946765	946771	946776	946782	946788	946793	946799	47	1 =
13	9. 946804	946810	946815	946821	946826	946832	946838	946843	946849	946854	946860	946865	46	2.
14	9. 946871	946876	946882	946887	946893	946898	946904	946910	946915	946921	946926	946932	45	3.
15	9. 946937	946943	946948	946954	946959	946965	946970	946976	946982	946987	946993	946998	44	4.
16	9. 947004	947009	947015	947020	947026	947031	947037	947042	947048	947053	947059	947065	43	1 =
17	9. 947070	947076	947081	947087	947092	947098	947103	947109	947114	947120	947125	947131	42	2.
18	9. 947136	947142	947147	947153	947159	947164	947170	947175	947181	947186	947192	947197	41	3.
19	9. 947203	947208	947214	947219	947225	947230	947236	947241	947247	947252	947258	947263	40	4.
20	9. 947269	947275	947280	947286	947291	947297	947302	947308	947313	947319	947324	947330	39	1 =
21	9. 947335	947341	947346	947352	947357	947363	947368	947374	947379	947385	947390	947396	38	2.
22	9. 947401	947407	947412	947418	947423	947429	947434	947440	947445	947451	947456	947462	37	3.
23	9. 947467	947473	947478	947484	947490	947495	947501	947506	947512	947517	947523	947528	36	4.
24	9. 947534	947539	947545	947550	947556	947561	947567	947572	947578	947583	947589	947594	35	1 =
25	9. 947600	947605	947611	947616	947622	947627	947633	947638	947644	947649	947655	947660	34	2.
26	9. 947666	947671	947677	947682	947688	947693	947699	947704	947710	947715	947720	947726	33	3.
27	9. 947731	947737	947742	947748	947753	947759	947764	947770	947775	947781	947786	947792	32	4.
28	9. 947797	947803	947808	947814	947819	947825	947830	947836	947841	947847	947852	947858	31	1 =
29	9. 947863	947869	947874	947880	947885	947891	947896	947902	947907	947913	947918	947923	30	2.
30	9. 947929	947934	947940	947945	947951	947956	947962	947967	947973	947978	947984	947989	29	3.
31	9. 947995	948000	948006	948011	948017	948022	948028	948033	948039	948044	948049	948055	28	4.
32	9. 948060	948066	948071	948077	948082	948088	948093	948099	948104	948110	948115	948121	27	1 =
33	9. 948126	948132	948137	948142	948148	948153	948159	948164	948170	948175	948181	948186	26	2.
34	9. 948192	948197	948203	948208	948214	948219	948224	948230	948235	948241	948246	948252	25	3.
35	9. 948257	948263	948268	948274	948279	948285	948290	948295	948301	948306	948312	948317	24	4.
36	9. 948323	948328	948334	948339	948345	948350	948355	948361	948366	948372	948377	948383	23	1 =
37	9. 948388	948394	948399	948405	948410	948415	948421	948426	948432	948437	948443	948448	22	2.
38	9. 948454	948459	948464	948470	948475	948481	948486	948492	948497	948503	948508	948514	21	3.
39	9. 948519	948524	948530	948535	948541	948546	948552	948557	948563	948568	948573	948579	20	4.
40	9. 948584	948590	948595	948601	948606	948611	948617	948622	948628	948633	948639	948644	19	1 =
41	9. 948650	948655	948660	948666	948671	948677	948682	948688	948693	948698	948704	948709	18	2.
42	9. 948715	948720	948726	948731	948737	948742	948747	948753	948758	948764	948769	948775	17	3.
43	9. 948780	948785	948791	948796	948802	948807	948813	948818	948823	948829	948834	948840	16	4.
44	9. 948845	948851	948856	948861	948867	948872	948878	948883	948888	948894	948899	948905	15	1 =
45	9. 948910	948916	948921	948926	948932	948937	948943	948948	948954	948959	948964	948970	14	2.
46	9. 948975	948981	948986	948991	948997	949002	949008	949013	949019	949024	949029	949035	13	3.
47	9. 949040	949046	949051	949056	949062	949067	949073	949078	949084	949089	949094	949100	12	4.
48	9. 949105	949111	949116	949121	949127	949132	949138	949143	949148	949154	949159	949165	11	1 =
49	9. 949170	949175	949181	949186	949192	949197	949203	949208	949213	949219	949224	949230	10	2.
50	9. 949235	949240	949246	949251	949257	949262	949267	949273	949278	949284	949289	949294	9	3.
51	9. 949300	949305	949311	949316	949321	949327	949332	949338	949343	949348	949354	949359	8	4.
52	9. 949365	949370	949375	949381	949386	949391	949397	949402	949408	949413	949418	949424	7	1 =
53	9 949429	949435	949440	949445	949451	949456	949462	949467	949472	949478	949483	949488	6	2.
54	9. 949494	949499	949505	949510	949515	949521	949526	949532	949537	949542	949548	949553	5	3.
55	9. 949559	949564	949569	949575	949580	949585	949591	949596	949602	949607	949612	949618	4	4.
56	9. 949623	949628	949634	949639	949645	949650	949655	949661	949666	949671	949677	949682	3	1 =
57	9. 949688	949693	949698	949704	949709	949714	949720	949725	949731	949736	949741	949747	2	2.
58	9. 949752	949757	949763	949768	949774	949779	949784	949790	949795	949800	949806	949811	1	3.
59	9. 949817	949822	949827	949833	949838	949843	949849	949854	949859	949865	949870	949876	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 27 degrees, or Sine of 117 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 63 degrees, or Co-sine of 153 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.949881	949886	949892	949897	949902	949908	949913	949918	949924	949929	949935	949940	59	1″ = 1
1	9.949945	949951	949956	949961	949967	949972	949977	949983	949988	949994	949999	950004	58	2. 2
2	9.950010	950015	950020	950026	950031	950036	950042	950047	950052	950058	950063	950068	57	3. 3
3	9.950074	950079	950085	950090	950095	950101	950106	950111	950117	950122	950127	950133	56	4. 4
4	9.950138	950143	950149	950154	950159	950165	950170	950175	950181	950186	950192	950197	55	1 = 1
5	9.950202	950208	950213	950218	950224	950229	950234	950240	950245	950250	950256	950261	54	2. 2
6	9.950266	950272	950277	950282	950288	950293	950298	950304	950309	950314	950320	950325	53	3. 3
7	9.950330	950336	950341	950346	950352	950357	950362	950368	950373	950378	950384	950389	52	4. 4
8	9.950394	950400	950405	950410	950416	950421	950426	950432	950437	950442	950448	950453	51	1 = 1
9	9.950458	950464	950469	950474	950480	950485	950490	950496	950501	950506	950512	950517	50	2. 2
10	9.950522	950528	950533	950538	950544	950549	950554	950560	950565	950570	950576	950581	49	3. 3
11	9.950586	950592	950597	950602	950607	950613	950618	950623	950629	950634	950639	950645	48	4. 4
12	9.950650	950655	950661	950666	950671	950677	950682	950687	950693	950698	950703	950709	47	1 = 1
13	9.950714	950719	950724	950730	950735	950740	950746	950751	950756	950762	950767	950772	46	2. 2
14	9.950778	950783	950788	950793	950799	950804	950809	950815	950820	950825	950831	950836	45	3. 3
15	9.950841	950847	950852	950857	950862	950868	950873	950878	950884	950889	950894	950900	44	4. 4
16	9.950905	950910	950916	950921	950926	950931	950937	950942	950947	950953	950958	950963	43	1 = 1
17	9.950969	950974	950979	950984	950990	950995	951000	951006	951011	951016	951021	951027	42	2. 2
18	9.951032	951037	951043	951048	951053	951059	951064	951069	951074	951080	951085	951090	41	3. 3
19	9.951096	951101	951106	951111	951117	951122	951127	951133	951138	951143	951148	951154	40	4. 4
20	9.951159	951164	951170	951175	951180	951186	951191	951196	951201	951207	951212	951217	39	1 = 1
21	9.951222	951228	951233	951238	951244	951249	951254	951259	951265	951270	951275	951281	38	2. 2
22	9.951286	951291	951296	951302	951307	951312	951318	951323	951328	951333	951339	951344	37	3. 3
23	9.951349	951354	951360	951365	951370	951376	951381	951386	951391	951397	951402	951407	36	4. 4
24	9.951412	951418	951423	951428	951434	951439	951444	951449	951455	951460	951465	951470	35	1 = 1
25	9.951476	951481	951486	951492	951497	951502	951507	951513	951518	951523	951528	951534	34	2. 2
26	9.951539	951544	951549	951555	951560	951565	951570	951576	951581	951586	951592	951597	33	3. 3
27	9.951602	951607	951613	951618	951623	951628	951634	951639	951644	951649	951655	951660	32	4. 4
28	9.951665	951670	951676	951681	951686	951691	951697	951702	951707	951712	951718	951723	31	1 = 1
29	9.951728	951733	951739	951744	951749	951754	951760	951765	951770	951775	951781	951786	30	2. 2
30	9.951791	951796	951802	951807	951812	951817	951823	951828	951833	951838	951844	951849	29	3. 3
31	9.951854	951859	951865	951870	951875	951880	951886	951891	951896	951901	951907	951912	28	4. 4
32	9.951917	951922	951928	951933	951938	951943	951949	951954	951959	951964	951970	951975	27	1 = 1
33	9.951980	951985	951990	951996	952001	952006	952011	952017	952022	952027	952032	952038	26	2. 2
34	9.952043	952048	952053	952059	952064	952069	952074	952079	952085	952090	952095	952100	25	3. 3
35	9.952106	952111	952116	952121	952127	952132	952137	952142	952147	952153	952158	952163	24	4. 4
36	9.952168	952174	952179	952184	952189	952194	952200	952205	952210	952215	952221	952226	23	1 = 1
37	9.952231	952236	952241	952247	952252	952257	952262	952268	952273	952278	952283	952288	22	2. 2
38	9.952294	952299	952304	952309	952315	952320	952325	952330	952335	952341	952346	952351	21	3. 3
39	9.952356	952361	952367	952372	952377	952382	952388	952393	952398	952403	952408	952414	20	4. 4
40	9.952419	952424	952429	952434	952440	952445	952450	952455	952460	952466	952471	952476	19	1 = 1
41	9.952481	952487	952492	952497	952502	952507	952513	952518	952523	952528	952533	952539	18	2. 2
42	9.952544	952549	952554	952559	952565	952570	952575	952580	952585	952591	952596	952601	17	3. 3
43	9.952606	952611	952617	952622	952627	952632	952637	952643	952648	952653	952658	952663	16	4. 4
44	9.952669	952674	952679	952684	952689	952695	952700	952705	952710	952715	952720	952726	15	1 = 1
45	9.952731	952736	952741	952746	952752	952757	952762	952767	952772	952778	952783	952788	14	2. 2
46	9.952793	952798	952804	952809	952814	952819	952824	952829	952835	952840	952845	952850	13	3. 3
47	9.952855	952861	952866	952871	952876	952881	952886	952892	952897	952902	952907	952912	12	4. 4
48	9.952918	952923	952928	952933	952938	952943	952949	952954	952959	952964	952969	952975	11	1 = 1
49	9.952980	952985	952990	952995	953000	953006	953011	953016	953021	953026	953031	953037	10	2. 2
50	9.953042	953047	953052	953057	953062	953068	953073	953078	953083	953088	953094	953099	9	3. 3
51	9.953104	953109	953114	953119	953125	953130	953135	953140	953145	953150	953156	953161	8	4. 4
52	9.953166	953171	953176	953181	953187	953192	953197	953202	953207	953212	953217	953223	7	1 = 1
53	9.953228	953233	953238	953243	953248	953254	953259	953264	953269	953274	953279	953285	6	2. 2
54	9.953290	953295	953300	953305	953310	953316	953321	953326	953331	953336	953341	953346	5	3. 3
55	9.953352	953357	953362	953367	953372	953377	953383	953388	953393	953398	953403	953408	4	4. 4
56	9.953413	953419	953424	953429	953434	953439	953444	953449	953455	953460	953465	953470	3	1 = 1
57	9.953475	953480	953485	953491	953496	953501	953506	953511	953516	953521	953527	953532	2	2. 2
58	9.953537	953542	953547	953552	953557	953563	953568	953573	953578	953583	953588	953593	1	3. 3
59	9.953599	953604	953609	953614	953619	953624	953629	953635	953640	953645	953650	953655	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 26 degrees, or Sine of 116 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 64 degrees, or Co-sine of 154 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.953660	953665	953671	953676	953681	953686	953691	953696	953701	953706	953712	953717	59	1″= 1
1	9.953722	953727	953732	953737	953742	953747	953753	953758	953763	953768	953773	953778	58	2. 2
2	9.953783	953789	953794	953799	953804	953809	953814	953819	953824	953830	953835	953840	57	3. 3
3	9.953845	953850	953855	953860	953865	953870	953876	953881	953886	953891	953896	953901	56	4. 4
4	9.953906	953911	953917	953922	953927	953932	953937	953942	953947	953952	953958	953963	55	1″= 1
5	9.953968	953973	953978	953983	953988	953993	953998	954004	954009	954014	954019	954024	54	2. 2
6	9.954029	954034	954039	954044	954050	954055	954060	954065	954070	954075	954080	954085	53	3. 3
7	9.954090	954096	954101	954106	954111	954116	954121	954126	954131	954136	954141	954147	52	4. 4
8	9.954152	954157	954162	954167	954172	954177	954182	954187	954193	954198	954203	954208	51	1″= 1
9	9.954213	954218	954223	954228	954233	954238	954244	954249	954254	954259	954264	954269	50	2. 2
10	9.954274	954279	954284	954289	954295	954300	954305	954310	954315	954320	954325	954330	49	3. 3
11	9.954335	954340	954345	954351	954356	954361	954366	954371	954376	954381	954386	954391	48	4. 4
12	9.954396	954401	954407	954412	954417	954422	954427	954432	954437	954442	954447	954452	47	1″= 1
13	9.954457	954462	954468	954473	954478	954483	954488	954493	954498	954503	954508	954513	46	2. 2
14	9.954518	954523	954529	954534	954539	954544	954549	954554	954559	954564	954569	954574	45	3. 3
15	9.954579	954584	954590	954595	954600	954605	954610	954615	954620	954625	954630	954635	44	4. 4
16	9.954640	954645	954650	954655	954661	954666	954671	954676	954681	954686	954691	954696	43	1″= 1
17	9.954701	954706	954711	954716	954721	954726	954732	954737	954742	954747	954752	954757	42	2. 2
18	9.954762	954767	954772	954777	954782	954787	954792	954797	954802	954808	954813	954818	41	3. 3
19	9.954823	954828	954833	954838	954843	954848	954853	954858	954863	954868	954873	954878	40	4. 4
20	9.954883	954889	954894	954899	954904	954909	954914	954919	954924	954929	954934	954939	39	1″= 1
21	9.954944	954949	954954	954959	954964	954969	954974	954980	954985	954990	954995	955000	38	2. 2
22	9.955005	955010	955015	955020	955025	955030	955035	955040	955045	955050	955055	955060	37	3. 3
23	9.955065	955070	955075	955081	955086	955091	955096	955101	955106	955111	955116	955121	36	4. 4
24	9.955126	955131	955136	955141	955146	955151	955156	955161	955166	955171	955176	955181	35	1″= 1
25	9.955186	955191	955197	955202	955207	955212	955217	955222	955227	955232	955237	955242	34	2. 2
26	9.955247	955252	955257	955262	955267	955272	955277	955282	955287	955292	955297	955302	33	3. 3
27	9.955307	955312	955317	955322	955327	955332	955338	955343	955348	955353	955358	955363	32	4. 4
28	9.955368	955373	955378	955383	955388	955393	955398	955403	955408	955413	955418	955423	31	1″= 1
29	9.955428	955433	955438	955443	955448	955453	955458	955463	955468	955473	955478	955483	30	2. 2
30	9.955488	955493	955498	955503	955508	955513	955518	955523	955528	955533	955538	955544	29	3. 3
31	9.955549	955554	955559	955564	955569	955574	955579	955584	955589	955594	955599	955604	28	4. 4
32	9.955609	955614	955619	955624	955629	955634	955639	955644	955649	955654	955659	955664	27	1″= 1
33	9.955669	955674	955679	955684	955689	955694	955699	955704	955709	955714	955719	955724	26	2. 2
34	9.955729	955734	955739	955744	955749	955754	955759	955764	955769	955774	955779	955784	25	3. 3
35	9.955789	955794	955799	955804	955809	955814	955819	955824	955829	955834	955839	955844	24	4. 4
36	9.955849	955854	955859	955864	955869	955874	955879	955884	955889	955894	955899	955904	23	1″= 1
37	9.955909	955914	955919	955924	955929	955934	955939	955944	955949	955954	955959	955964	22	2. 2
38	9.955969	955974	955979	955984	955989	955994	955999	956004	956009	956014	956019	956024	21	3. 3
39	9.956029	956034	956039	956044	956049	956054	956059	956064	956069	956074	956079	956084	20	4. 4
40	9.956089	956094	956099	956104	956109	956114	956119	956123	956128	956133	956138	956143	19	1″= 1
41	9.956148	956153	956158	956163	956168	956173	956178	956183	956188	956193	956198	956203	18	2. 2
42	9.956208	956213	956218	956223	956228	956233	956238	956243	956248	956253	956258	956263	17	3. 3
43	9.956268	956273	956278	956283	956288	956293	956298	956303	956308	956313	956318	956323	16	4. 4
44	9.956327	956332	956337	956342	956347	956352	956357	956362	956367	956372	956377	956382	15	1″= 1
45	9.956387	956392	956397	956402	956407	956412	956417	956422	956427	956432	956437	956442	14	2. 2
46	9.956447	956452	956457	956462	956466	956471	956476	956481	956486	956491	956496	956501	13	3. 3
47	9.956506	956511	956516	956521	956526	956531	956536	956541	956546	956551	956556	956561	12	4. 4
48	9.956566	956571	956576	956580	956585	956590	956595	956600	956605	956610	956615	956620	11	1″= 1
49	9.956625	956630	956635	956640	956645	956650	956655	956660	956665	956670	956675	956679	10	2. 2
50	9.956684	956689	956694	956699	956704	956709	956714	956719	956724	956729	956734	956739	9	3. 3
51	9.956744	956749	956754	956759	956764	956768	956773	956778	956783	956788	956793	956798	8	4. 4
52	9.956803	956808	956813	956818	956823	956828	956833	956838	956843	956847	956852	956857	7	1″= 1
53	9.956862	956867	956872	956877	956882	956887	956892	956897	956902	956907	956912	956917	6	2. 2
54	9.956922	956926	956931	956936	956941	956946	956951	956956	956961	956966	956971	956976	5	3. 3
55	9.956981	956986	956991	956995	957000	957005	957010	957015	957020	957025	957030	957035	4	4. 4
56	9.957040	957045	957050	957055	957059	957064	957069	957074	957079	957084	957089	957094	3	1″= 1
57	9.957099	957104	957109	957114	957119	957123	957128	957133	957138	957143	957148	957153	2	2. 2
58	9.957158	957163	957168	957173	957178	957182	957187	957192	957197	957202	957207	957212	1	3. 3
59	9.957217	957222	957227	957232	957236	957241	957246	957251	957256	957261	957266	957271	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 25 degrees, or Sine of 115 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 65 degrees, or Co-sine of 155 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9. 957276	957281	957286	957290	957295	957300	957305	957310	957315	957320	957325	957330	59	1″ = 1
1	9. 957335	957340	957344	957349	957354	957359	957364	957369	957374	957379	957384	957389	58	2. 2
2	9. 957393	957398	957403	957408	957413	957418	957423	957428	957433	957438	957442	957447	57	3. 3
3	9. 957452	957457	957462	957467	957472	957477	957482	957487	957491	957496	957501	957506	56	4. 4
4	9. 957511	957516	957521	957526	957531	957536	957540	957545	957550	957555	957560	957565	55	1 = 1
5	9. 957570	957575	957580	957584	957589	957594	957599	957604	957609	957614	957619	957624	54	2. 2
6	9. 957628	957633	957638	957643	957648	957653	957658	957663	957667	957672	957677	957682	53	3. 3
7	9. 957687	957692	957697	957702	957707	957711	957716	957721	957726	957731	957736	957741	52	4. 4
8	9. 957746	957750	957755	957760	957765	957770	957775	957780	957785	957790	957794	957799	51	1 = 1
9	9. 957804	957809	957814	957819	957824	957829	957833	957838	957843	957848	957853	957858	50	2. 2
10	9. 957863	957867	957872	957877	957882	957887	957892	957897	957902	957906	957911	957916	49	3. 3
11	9. 957921	957926	957931	957936	957941	957945	957950	957955	957960	957965	957970	957975	48	4. 4
12	9. 957979	957984	957989	957994	957999	958004	958009	958013	958018	958023	958028	958033	47	1 = 1
13	9. 958038	958043	958048	958052	958057	958062	958067	958072	958077	958082	958086	958091	46	2. 2
14	9. 958096	958101	958106	958111	958116	958120	958125	958130	958135	958140	958145	958150	45	3. 3
15	9. 958154	958159	958164	958169	958174	958179	958183	958188	958193	958198	958203	958208	44	4. 4
16	9. 958213	958217	958222	958227	958232	958237	958242	958247	958251	958256	958261	958266	43	1 = 1
17	9. 958271	958276	958280	958285	958290	958295	958300	958305	958310	958314	958319	958324	42	2. 2
18	9. 958329	958334	958339	958343	958348	958353	958358	958363	958368	958372	958377	958382	41	3. 3
19	9. 958387	958392	958397	958401	958406	958411	958416	958421	958426	958431	958435	958440	40	4. 4
20	9. 958445	958450	958455	958460	958464	958469	958474	958479	958484	958489	958493	958498	39	1 = 1
21	9. 958503	958508	958513	958517	958522	958527	958532	958537	958542	958546	958551	958556	38	2. 2
22	9. 958561	958566	958571	958575	958580	958585	958590	958595	958600	958604	958609	958614	37	3. 3
23	9. 958619	958624	958629	958633	958638	958643	958648	958653	958657	958662	958667	958672	36	4. 4
24	9. 958677	958682	958686	958691	958696	958701	958706	958710	958715	958720	958725	958730	35	1 = 1
25	9. 958735	958739	958744	958749	958754	958759	958763	958768	958773	958778	958783	958788	34	2. 2
26	9. 958792	958797	958802	958807	958812	958816	958821	958826	958831	958836	958840	958845	33	3. 3
27	9. 958850	958855	958860	958864	958869	958874	958879	958884	958889	958893	958898	958903	32	4. 4
28	9. 958908	958913	958917	958922	958927	958932	958937	958941	958946	958951	958956	958961	31	1 = 1
29	9. 958965	958970	958975	958980	958985	958989	958994	958999	959004	959009	959013	959018	30	2. 2
30	9. 959023	959028	959033	959037	959042	959047	959052	959057	959061	959066	959071	959076	29	3. 3
31	9. 959081	959085	959090	959095	959100	959104	959109	959114	959119	959124	959128	959133	28	4. 4
32	9. 959138	959143	959148	959152	959157	959162	959167	959172	959176	959181	959186	959191	27	1 = 1
33	9. 959195	959200	959205	959210	959215	959219	959224	959229	959234	959239	959243	959248	26	2. 2
34	9. 959253	959258	959262	959267	959272	959277	959282	959286	959291	959296	959301	959305	25	3. 3
35	9. 959310	959315	959320	959325	959329	959334	959339	959344	959348	959353	959358	959363	24	4. 4
36	9. 959368	959372	959377	959382	959387	959391	959396	959401	959406	959411	959415	959420	23	1 = 1
37	9. 959425	959430	959434	959439	959444	959449	959454	959458	959463	959468	959473	959477	22	2. 2
38	9. 959482	959487	959492	959496	959501	959506	959511	959515	959520	959525	959530	959535	21	3. 3
39	9. 959539	959544	959549	959554	959558	959563	959568	959573	959577	959582	959587	959592	20	4. 4
40	9. 959596	959601	959606	959611	959616	959620	959625	959630	959635	959639	959644	959649	19	1 = 1
41	9. 959654	959658	959663	959668	959673	959677	959682	959687	959692	959696	959701	959706	18	2. 2
42	9. 959711	959715	959720	959725	959730	959734	959739	959744	959749	959753	959758	959763	17	3. 3
43	9. 959768	959772	959777	959782	959787	959791	959796	959801	959806	959810	959815	959820	16	4. 4
44	9. 959825	959829	959834	959839	959844	959848	959853	959858	959863	959867	959872	959877	15	1 = 1
45	9. 959882	959886	959891	959896	959901	959905	959910	959915	959919	959924	959929	959934	14	2. 2
46	9. 959938	959943	959948	959953	959957	959962	959967	959972	959976	959981	959986	959991	13	3. 3
47	9. 959995	960000	960005	960009	960014	960019	960024	960028	960033	960038	960043	960047	12	4. 4
48	9. 960052	960057	960062	960066	960071	960076	960080	960085	960090	960095	960099	960104	11	1 = 1
49	9. 960109	960114	960118	960123	960128	960132	960137	960142	960147	960151	960156	960161	10	2. 2
50	9. 960166	960170	960175	960180	960184	960189	960194	960199	960203	960208	960213	960217	9	3. 3
51	9. 960222	960227	960232	960236	960241	960246	960251	960255	960260	960265	960269	960274	8	4. 4
52	9. 960279	960284	960288	960293	960298	960302	960307	960312	960317	960321	960326	960331	7	1 = 1
53	9. 960335	960340	960345	960350	960354	960359	960364	960368	960373	960378	960383	960387	6	2. 2
54	9. 960392	960397	960401	960406	960411	960415	960420	960425	960430	960434	960439	960444	5	3. 3
55	9. 960448	960453	960458	960463	960467	960472	960477	960481	960486	960491	960495	960500	4	4. 4
56	9. 960505	960510	960514	960519	960524	960528	960533	960538	960542	960547	960552	960557	3	1 = 1
57	9. 960561	960566	960571	960575	960580	960585	960589	960594	960599	960604	960608	960613	2	2. 2
58	9. 960618	960622	960627	960632	960636	960641	960646	960650	960655	960660	960665	960669	1	3. 3
59	9. 960674	960679	960683	960688	960693	960697	960702	960707	960711	960716	960721	960726	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 24 degrees, or Sine of 114 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 66 degrees, or Co-sine of 156 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 960730	960735	960740	960744	960749	960754	960758	960763	960768	960772	960777	960782	59	1″ =
1	9. 960786	960791	960796	960800	960805	960810	960815	960819	960824	960829	960833	960838	58	2.
2	9. 960843	960847	960852	960857	960861	960866	960871	960875	960880	960885	960889	960894	57	3.
3	9. 960899	960903	960908	960913	960917	960922	960927	960931	960936	960941	960945	960950	56	4.
4	9. 960955	960960	960964	960969	960974	960978	960983	960988	960992	960997	961001	961006	55	1 =
5	9. 961011	961016	961020	961025	961030	961034	961039	961044	961048	961053	961058	961062	54	2.
6	9. 961067	961072	961076	961081	961086	961090	961095	961100	961104	961109	961114	961118	53	3.
7	9. 961123	961128	961132	961137	961142	961146	961151	961155	961160	961165	961169	961174	52	4.
8	9. 961179	961183	961188	961193	961197	961202	961207	961211	961216	961221	961225	961230	51	1 =
9	9. 961235	961239	961244	961249	961253	961258	961263	961267	961272	961277	961281	961286	50	2.
10	9. 961290	961295	961300	961304	961309	961314	961318	961323	961328	961332	961337	961342	49	3.
11	9. 961346	961351	961356	961360	961365	961369	961374	961379	961383	961388	961393	961397	48	4.
12	9. 961402	961407	961411	961416	961421	961425	961430	961434	961439	961444	961448	961453	47	1 =
13	9. 961458	961462	961467	961472	961476	961481	961486	961490	961495	961499	961504	961509	46	2.
14	9. 961513	961518	961523	961527	961532	961537	961541	961546	961550	961555	961560	961564	45	3.
15	9. 961569	961574	961578	961583	961587	961592	961597	961601	961606	961611	961615	961620	44	4.
16	9. 961625	961629	961634	961638	961643	961648	961652	961657	961662	961666	961671	961675	43	1 =
17	9. 961680	961685	961689	961694	961699	961703	961708	961712	961717	961722	961726	961731	42	2.
18	9. 961736	961740	961745	961749	961754	961759	961763	961768	961772	961777	961782	961786	41	3.
19	9. 961791	961796	961800	961805	961809	961814	961819	961823	961828	961833	961837	961842	40	4.
20	9. 961846	961851	961856	961860	961865	961869	961874	961879	961883	961888	961892	961897	39	1 =
21	9. 961902	961906	961911	961916	961920	961925	961929	961934	961939	961943	961948	961952	38	2.
22	9. 961957	961962	961966	961971	961975	961980	961985	961989	961994	961998	962003	962008	37	3.
23	9. 962012	962017	962021	962026	962031	962035	962040	962044	962049	962054	962058	962063	36	4.
24	9. 962067	962072	962077	962081	962086	962090	962095	962100	962104	962109	962113	962118	35	1 =
25	9. 962123	962127	962132	962136	962141	962146	962150	962155	962159	962164	962169	962173	34	2.
26	9. 962178	962182	962187	962192	962196	962201	962205	962210	962214	962219	962224	962228	33	3.
27	9. 962233	962237	962242	962247	962251	962256	962260	962265	962270	962274	962279	962283	32	4.
28	9. 962288	962292	962297	962302	962306	962311	962315	962320	962325	962329	962334	962338	31	1 =
29	9. 962343	962347	962352	962357	962361	962366	962370	962375	962380	962384	962389	962393	30	2.
30	9. 962398	962402	962407	962412	962416	962421	962425	962430	962434	962439	962444	962448	29	3.
31	9. 962453	962457	962462	962466	962471	962476	962480	962485	962489	962494	962498	962503	28	4.
32	9. 962508	962512	962517	962521	962526	962530	962535	962540	962544	962549	962553	962558	27	1 =
33	9. 962562	962567	962572	962576	962581	962585	962590	962594	962599	962604	962608	962613	26	2.
34	9. 962617	962622	962626	962631	962635	962640	962645	962649	962654	962658	962663	962667	25	3.
35	9. 962672	962676	962681	962686	962690	962695	962699	962704	962708	962713	962718	962722	24	4.
36	9. 962727	962731	962736	962740	962745	962749	962754	962759	962763	962768	962772	962777	23	1 =
37	9. 962781	962786	962790	962795	962799	962804	962809	962813	962818	962822	962827	962831	22	2.
38	9. 962836	962840	962845	962850	962854	962859	962863	962868	962872	962877	962881	962886	21	3.
39	9. 962890	962895	962900	962904	962909	962913	962918	962922	962927	962931	962936	962940	20	4.
40	9. 962945	962949	962954	962959	962963	962968	962972	962977	962981	962986	962990	962995	19	1 =
41	9. 962999	963004	963009	963013	963018	963022	963027	963031	963036	963040	963045	963049	18	2.
42	9. 963054	963058	963063	963067	963072	963077	963081	963086	963090	963095	963099	963104	17	3.
43	9. 963108	963113	963117	963122	963126	963131	963135	963140	963144	963149	963154	963158	16	4.
44	9. 963163	963167	963172	963176	963181	963185	963190	963194	963199	963203	963208	963212	15	1 =
45	9. 963217	963221	963226	963230	963235	963239	963244	963249	963253	963258	963262	963267	14	2.
46	9. 963271	963276	963280	963285	963289	963294	963298	963303	963307	963312	963316	963321	13	3.
47	9. 963325	963330	963334	963339	963343	963348	963352	963357	963361	963366	963370	963375	12	4.
48	9. 963380	963384	963389	963393	963398	963402	963407	963411	963416	963420	963425	963429	11	1 =
49	9. 963434	963438	963443	963447	963452	963456	963461	963465	963470	963474	963479	963483	10	2.
50	9. 963488	963492	963497	963501	963506	963510	963515	963519	963524	963528	963533	963537	9	3.
51	9. 963542	963546	963551	963555	963560	963564	963569	963573	963578	963582	963587	963591	8	4.
52	9. 963596	963600	963605	963609	963614	963618	963623	963627	963632	963636	963641	963645	7	1 =
53	9. 963650	963654	963659	963663	963668	963672	963677	963681	963686	963690	963695	963699	6	2.
54	9. 963704	963708	963713	963717	963722	963726	963731	963735	963740	963744	963748	963753	5	3.
55	9. 963757	963762	963766	963771	963775	963780	963784	963789	963793	963798	963802	963807	4	4.
56	9. 963811	963816	963820	963825	963829	963834	963838	963843	963847	963852	963856	963861	3	1 =
57	9. 963865	963870	963874	963879	963883	963887	963892	963896	963901	963905	963910	963914	2	2.
58	9. 963919	963923	963928	963932	963937	963941	963946	963950	963955	963959	963964	963968	1	3.
59	9. 963972	963977	963981	963986	963990	963995	963999	964004	964008	964013	964017	964022	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 23 degrees, or Sine of 113 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 67 degrees, or Co-sine of 157 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.964026	964031	964035	964040	964044	964048	964053	964057	964062	964066	964071	964075	59	1″ = 1
1	9.964080	964084	964089	964093	964098	964102	964107	964111	964115	964120	964124	964129	58	2. 2
2	9.964133	964138	964142	964147	964151	964156	964160	964165	964169	964173	964178	964182	57	3. 3
3	9.964187	964191	964196	964200	964205	964209	964214	964218	964222	964227	964231	964236	56	4. 4
4	9.964240	964245	964249	964254	964258	964263	964267	964271	964276	964280	964285	964289	55	1 = 1
5	9.964294	964298	964303	964307	964312	964316	964320	964325	964329	964334	964338	964343	54	2. 2
6	9.964347	964352	964356	964360	964365	964369	964374	964378	964383	964387	964392	964396	53	3. 3
7	9.964400	964405	964409	964414	964418	964423	964427	964432	964436	964440	964445	964449	52	4. 4
8	9.964454	964458	964463	964467	964471	964476	964480	964485	964489	964494	964498	964503	51	1 = 1
9	9.964507	964511	964516	964520	964525	964529	964534	964538	964542	964547	964551	964556	50	2. 2
10	9.964560	964565	964569	964574	964578	964582	964587	964591	964596	964600	964605	964609	49	3. 3
11	9.964613	964618	964622	964627	964631	964636	964640	964644	964649	964653	964658	964662	48	4. 4
12	9.964667	964671	964675	964680	964684	964689	964693	964697	964702	964706	964711	964715	47	1 = 1
13	9.964720	964724	964728	964733	964737	964742	964746	964751	964755	964759	964764	964768	46	2. 2
14	9.964773	964777	964781	964786	964790	964795	964799	964804	964808	964812	964817	964821	45	3. 3
15	9.964826	964830	964834	964839	964843	964848	964852	964857	964861	964865	964870	964874	44	4. 4
16	9.964879	964883	964887	964892	964896	964901	964905	964909	964914	964918	964923	964927	43	1 = 1
17	9.964931	964936	964940	964945	964949	964954	964958	964962	964967	964971	964976	964980	42	2. 2
18	9.964984	964989	964993	964998	965002	965006	965011	965015	965020	965024	965028	965033	41	3. 3
19	9.965037	965042	965046	965050	965055	965059	965064	965068	965072	965077	965081	965086	40	4. 4
20	9.965090	965094	965099	965103	965108	965112	965116	965121	965125	965130	965134	965138	39	1 = 1
21	9.965143	965147	965151	965156	965160	965165	965169	965173	965178	965182	965187	965191	38	2. 2
22	9.965195	965200	965204	965209	965213	965217	965222	965226	965230	965235	965239	965244	37	3. 3
23	9.965248	965252	965257	965261	965266	965270	965274	965279	965283	965288	965292	965296	36	4. 4
24	9.965301	965305	965309	965314	965318	965323	965327	965331	965336	965340	965344	965349	35	1 = 1
25	9.965353	965358	965362	965366	965371	965375	965379	965384	965388	965393	965397	965401	34	2. 2
26	9.965406	965410	965414	965419	965423	965428	965432	965436	965441	965445	965449	965454	33	3. 3
27	9.965458	965463	965467	965471	965476	965480	965484	965489	965493	965498	965502	965506	32	4. 4
28	9.965511	965515	965519	965524	965528	965532	965537	965541	965546	965550	965554	965559	31	1 = 1
29	9.965563	965567	965572	965576	965581	965585	965589	965594	965598	965602	965607	965611	30	2. 2
30	9.965615	965620	965624	965628	965633	965637	965642	965646	965650	965655	965659	965663	29	3. 3
31	9.965668	965672	965676	965681	965685	965689	965694	965698	965703	965707	965711	965716	28	4. 4
32	9.965720	965724	965729	965733	965737	965742	965746	965750	965755	965759	965763	965768	27	1 = 1
33	9.965772	965777	965781	965785	965790	965794	965798	965803	965807	965811	965816	965820	26	2. 2
34	9.965824	965829	965833	965837	965842	965846	965850	965855	965859	965863	965868	965872	25	3. 3
35	9.965876	965881	965885	965890	965894	965898	965903	965907	965911	965916	965920	965924	24	4. 3
36	9.965929	965933	965937	965942	965946	965950	965955	965959	965963	965968	965972	965976	23	1 = 1
37	9.965981	965985	965989	965994	965998	966002	966007	966011	966015	966020	966024	966028	22	2. 2
38	9.966033	966037	966041	966046	966050	966054	966059	966063	966067	966072	966076	966080	21	3. 3
39	9.966085	966089	966093	966098	966102	966106	966111	966115	966119	966124	966128	966132	20	4. 3
40	9.966137	966141	966145	966149	966154	966158	966162	966167	966171	966175	966180	966184	19	1 = 1
41	9.966188	966193	966197	966201	966206	966210	966214	966219	966223	966227	966232	966236	18	2. 2
42	9.966240	966244	966249	966253	966258	966262	966266	966270	966275	966279	966283	966288	17	3. 3
43	9.966292	966296	966301	966305	966309	966314	966318	966322	966327	966331	966335	966339	16	4. 3
44	9.966344	966348	966352	966357	966361	966365	966370	966374	966378	966383	966387	966391	15	1 = 1
45	9.966395	966400	966404	966408	966413	966417	966421	966426	966430	966434	966439	966443	14	2. 2
46	9.966447	966451	966456	966460	966464	966469	966473	966477	966482	966486	966490	966494	13	3. 3
47	9.966499	966503	966507	966512	966516	966520	966525	966529	966533	966537	966542	966546	12	4. 3
48	9.966550	966555	966559	966563	966568	966572	966576	966580	966585	966589	966593	966598	11	1 = 1
49	9.966602	966606	966610	966615	966619	966623	966628	966632	966636	966640	966645	966649	10	2. 2
50	9.966653	966658	966662	966666	966671	966675	966679	966683	966688	966692	966696	966701	9	3. 3
51	9.966705	966709	966713	966718	966722	966726	966731	966735	966739	966743	966748	966752	8	4. 3
52	9.966756	966760	966765	966769	966773	966778	966782	966786	966790	966795	966799	966803	7	1 = 1
53	9.966808	966812	966816	966820	966825	966829	966833	966838	966842	966846	966850	966855	6	2. 2
54	9.966859	966863	966867	966872	966876	966880	966885	966889	966893	966897	966902	966906	5	3. 3
55	9.966910	966914	966919	966923	966927	966932	966936	966940	966944	966949	966953	966957	4	4. 3
56	9.966961	966966	966970	966974	966978	966983	966987	966991	966996	967000	967004	967008	3	1 = 1
57	9.967013	967017	967021	967025	967030	967034	967038	967042	967047	967051	967055	967059	2	2. 2
58	9.967064	967068	967072	967077	967081	967085	967089	967094	967098	967102	967106	967111	1	3. 3
59	9.967115	967119	967123	967128	967132	967136	967140	967145	967149	967153	967157	967162	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 22 degrees, or Sine of 112 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 68 degrees, or Co-sine of 158 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 967166	967170	967174	967179	967183	967187	967191	967196	967200	967204	967208	967213	59	1″ = 1
1	9. 967217	967221	967225	967230	967234	967238	967242	967247	967251	967255	967259	967264	58	2. 2
2	9. 967268	967272	967276	967281	967285	967289	967293	967298	967302	967306	967310	967315	57	3. 3
3	9. 967319	967323	967327	967332	967336	967340	967344	967349	967353	967357	967361	967365	56	4. 3
4	9. 967370	967374	967378	967382	967387	967391	967395	967399	967404	967408	967412	967416	55	1 = 1
5	9. 967421	967425	967429	967433	967438	967442	967446	967450	967454	967459	967463	967467	54	2. 2
6	9. 967471	967476	967480	967484	967488	967493	967497	967501	967505	967509	967514	967518	53	3. 3
7	9. 967522	967526	967531	967535	967539	967543	967548	967552	967556	967560	967564	967569	52	4. 3
8	9. 967573	967577	967581	967586	967590	967594	967598	967602	967607	967611	967615	967619	51	1 = 1
9	9. 967624	967628	967632	967636	967640	967645	967649	967653	967657	967662	967666	967670	50	2. 2
10	9. 967674	967678	967683	967687	967691	967695	967699	967704	967708	967712	967716	967721	49	3. 3
11	9. 967725	967729	967733	967737	967742	967746	967750	967754	967758	967763	967767	967771	48	4. 3
12	9. 967775	967780	967784	967788	967792	967796	967801	967805	967809	967813	967817	967822	47	1 = 1
13	9. 967826	967830	967834	967838	967843	967847	967851	967855	967859	967864	967868	967872	46	2. 2
14	9. 967876	967881	967885	967889	967893	967897	967902	967906	967910	967914	967918	967923	45	3. 3
15	9. 967927	967931	967935	967939	967944	967948	967952	967956	967960	967965	967969	967973	44	4. 3
16	9. 967977	967981	967985	967990	967994	967998	968002	968006	968011	968015	968019	968023	43	1 = 1
17	9. 968027	968032	968036	968040	968044	968048	968053	968057	968061	968065	968069	968074	42	2. 2
18	9. 968078	968082	968086	968090	968094	968099	968103	968107	968111	968115	968120	968124	41	3. 3
19	9. 968128	968132	968136	968141	968145	968149	968153	968157	968161	968166	968170	968174	40	4. 3
20	9. 968178	968182	968187	968191	968195	968199	968203	968207	968212	968216	968220	968224	39	1 = 1
21	9. 968228	968233	968237	968241	968245	968249	968253	968258	968262	968266	968270	968274	38	2. 2
22	9. 968278	968283	968287	968291	968295	968299	968304	968308	968312	968316	968320	968324	37	3. 3
23	9. 968329	968333	968337	968341	968345	968349	968354	968358	968362	968366	968370	968374	36	4. 3
24	9. 968379	968383	968387	968391	968395	968399	968404	968408	968412	968416	968420	968424	35	1 = 1
25	9. 968429	968433	968437	968441	968445	968449	968454	968458	968462	968466	968470	968474	34	2. 2
26	9. 968479	968483	968487	968491	968495	968499	968504	968508	968512	968516	968520	968524	33	3. 3
27	9. 968528	968533	968537	968541	968545	968549	968553	968558	968562	968566	968570	968574	32	4. 3
28	9. 968578	968582	968587	968591	968595	968599	968603	968607	968612	968616	968620	968624	31	1 = 1
29	9. 968628	968632	968636	968641	968645	968649	968653	968657	968661	968666	968670	968674	30	2. 2
30	9. 968678	968682	968686	968690	968695	968699	968703	968707	968711	968715	968719	968724	29	3. 3
31	9. 968728	968732	968736	968740	968744	968748	968753	968757	968761	968765	968769	968773	28	4. 3
32	9. 968777	968782	968786	968790	968794	968798	968802	968806	968811	968815	968819	968823	27	1 = 1
33	9. 968827	968831	968835	968839	968844	968848	968852	968856	968860	968864	968868	968873	26	2. 2
34	9. 968877	968881	968885	968889	968893	968897	968901	968906	968910	968914	968918	968922	25	3. 3
35	9. 968926	968930	968934	968939	968943	968947	968951	968955	968959	968963	968968	968972	24	4. 3
36	9. 968976	968980	968984	968988	968992	968996	969001	969005	969009	969013	969017	969021	23	1 = 1
37	9. 969025	969029	969033	969038	969042	969046	969050	969054	969058	969062	969066	969071	22	2. 2
38	9. 969075	969079	969083	969087	969091	969095	969099	969104	969108	969112	969116	969120	21	3. 3
39	9. 969124	969128	969132	969136	969141	969145	969149	969153	969157	969161	969165	969169	20	4. 3
40	9. 969173	969178	969182	969186	969190	969194	969198	969202	969206	969210	969215	969219	19	1 = 1
41	9. 969223	969227	969231	969235	969239	969243	969247	969252	969256	969260	969264	969268	18	2. 2
42	9. 969272	969276	969280	969284	969288	969293	969297	969301	969305	969309	969313	969317	17	3. 3
43	9. 969321	969325	969329	969334	969338	969342	969346	969350	969354	969358	969362	969366	16	4. 3
44	9. 969370	969375	969379	969383	969387	969391	969395	969399	969403	969407	969411	969416	15	1. = 1
45	9. 969420	969424	969428	969432	969436	969440	969444	969448	969452	969456	969461	969465	14	2. 2
46	9. 969469	969473	969477	969481	969485	969489	969493	969497	969501	969506	969510	969514	13	3. 3
47	9. 969518	969522	969526	969530	969534	969538	969542	969546	969550	969555	969559	969563	12	4. 3
48	9. 969567	969571	969575	969579	969583	969587	969591	969595	969599	969604	969608	969612	11	1 = 1
49	9. 969616	969620	969624	969628	969632	969636	969640	969644	969648	969653	969657	969661	10	2. 2
50	9. 969665	969669	969673	969677	969681	969685	969689	969693	969697	969701	969705	969710	9	3. 3
51	9. 969714	969718	969722	969726	969730	969734	969738	969742	969746	969750	969754	969758	8	4. 3
52	9. 969762	969767	969771	969775	969779	969783	969787	969791	969795	969799	969803	969807	7	1 = 1
53	9. 969811	969815	969819	969823	969828	969832	969836	969840	969844	969848	969852	969856	6	2. 2
54	9. 969860	969864	969868	969872	969876	969880	969884	969888	969893	969897	969901	969905	5	3. 3
55	9. 969909	969913	969917	969921	969925	969929	969933	969937	969941	969945	969949	969953	4	4. 3
56	9. 969957	969962	969966	969970	969974	969978	969982	969986	969990	969994	969998	970002	3	1 = 1
57	9. 970006	970010	970014	970018	970022	970026	970030	970034	970039	970043	970047	970051	2	2. 2
58	9. 970055	970059	970063	970067	970071	970075	970079	970083	970087	970091	970095	970099	1	3. 3
59	9. 970103	970107	970111	970115	970119	970123	970128	970132	970136	970140	970144	970148	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 21 degrees, or Sine of 111 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 69 degrees, or Co-sine of 159 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.970152	970156	970160	970164	970168	970172	970176	970180	970184	970188	970192	970196	59	1″ = 1
1	9.970200	970204	970208	970212	970216	970220	970224	970229	970233	970237	970241	970245	58	2. 2
2	9.970249	970253	970257	970261	970265	970269	970273	970277	970281	970285	970289	970293	57	3. 2
3	9.970297	970301	970305	970309	970313	970317	970321	970325	970329	970333	970337	970341	56	4. 3
4	9.970345	970349	970353	970358	970362	970366	970370	970374	970378	970382	970386	970390	55	1 = 1
5	9.970394	970398	970402	970406	970410	970414	970418	970422	970426	970430	970434	970438	54	2. 2
6	9.970442	970446	970450	970454	970458	970462	970466	970470	970474	970478	970482	970486	53	3. 2
7	9.970490	970494	970498	970502	970506	970510	970514	970518	970522	970526	970530	970534	52	4. 3
8	9.970538	970542	970546	970550	970554	970558	970562	970566	970570	970574	970579	970583	51	1 = 1
9	9.970587	970591	970595	970599	970603	970607	970611	970615	970619	970623	970627	970631	50	2. 2
10	9.970635	970639	970643	970647	970651	970655	970659	970663	970667	970671	970675	970679	49	3. 2
11	9.970683	970687	970691	970695	970699	970703	970707	970711	970715	970719	970723	970727	48	4. 3
12	9.970731	970735	970739	970743	970747	970751	970755	970759	970763	970767	970771	970775	47	1 = 1
13	9.970779	970783	970787	970791	970795	970799	970803	970807	970811	970815	970819	970823	46	2. 2
14	9.970827	970831	970835	970839	970843	970847	970851	970855	970859	970862	970866	970870	45	3. 2
15	9.970874	970878	970882	970886	970890	970894	970898	970902	970906	970910	970914	970918	44	4. 3
16	9.970922	970926	970930	970934	970938	970942	970946	970950	970954	970958	970962	970966	43	1 = 1
17	9.970970	970974	970978	970982	970986	970990	970994	970998	971002	971006	971010	971014	42	2. 2
18	9.971018	971022	971026	971030	971034	971038	971042	971046	971050	971054	971058	971062	41	3. 2
19	9.971066	971070	971074	971077	971081	971085	971089	971093	971097	971101	971105	971109	40	4. 3
20	9.971113	971117	971121	971125	971129	971133	971137	971141	971145	971149	971153	971157	39	1 = 1
21	9.971161	971165	971169	971173	971177	971181	971185	971189	971193	971197	971201	971205	38	2. 2
22	9.971208	971212	971216	971220	971224	971228	971232	971236	971240	971244	971248	971252	37	3. 2
23	9.971256	971260	971264	971268	971272	971276	971280	971284	971288	971292	971296	971300	36	4. 3
24	9.971304	971307	971311	971315	971319	971323	971327	971331	971335	971339	971343	971347	35	1 = 1
25	9.971351	971355	971359	971363	971367	971371	971375	971379	971383	971387	971391	971394	34	2. 2
26	9.971398	971402	971406	971410	971414	971418	971422	971426	971430	971434	971438	971442	33	3. 2
27	9.971446	971450	971454	971458	971462	971466	971469	971473	971477	971481	971485	971489	32	4. 3
28	9.971493	971497	971501	971505	971509	971513	971517	971521	971525	971529	971533	971536	31	1 = 1
29	9.971540	971544	971548	971552	971556	971560	971564	971568	971572	971576	971580	971584	30	2. 2
30	9.971588	971592	971596	971599	971603	971607	971611	971615	971619	971623	971627	971631	29	3. 2
31	9.971635	971639	971643	971647	971651	971655	971658	971662	971666	971670	971674	971678	28	4. 3
32	9.971682	971686	971690	971694	971698	971702	971706	971710	971713	971717	971721	971725	27	1 = 1
33	9.971729	971733	971737	971741	971745	971749	971753	971757	971761	971765	971768	971772	26	2. 2
34	9.971776	971780	971784	971788	971792	971796	971800	971804	971808	971812	971815	971819	25	3. 2
35	9.971823	971827	971831	971835	971839	971843	971847	971851	971855	971859	971862	971866	24	4. 3
36	9.971870	971874	971878	971882	971886	971890	971894	971898	971902	971906	971909	971913	23	1 = 1
37	9.971917	971921	971925	971929	971933	971937	971941	971945	971949	971952	971956	971960	22	2. 2
38	9.971964	971968	971972	971976	971980	971984	971988	971992	971995	971999	972003	972007	21	3. 2
39	9.972011	972015	972019	972023	972027	972031	972035	972038	972042	972046	972050	972054	20	4. 3
40	9.972058	972062	972066	972070	972074	972077	972081	972085	972089	972093	972097	972101	19	1 = 1
41	9.972105	972109	972113	972116	972120	972124	972128	972132	972136	972140	972144	972148	18	2. 2
42	9.972151	972155	972159	972163	972167	972171	972175	972179	972183	972186	972190	972194	17	3. 2
43	9.972198	972202	972206	972210	972214	972218	972222	972225	972229	972233	972237	972241	16	4. 3
44	9.972245	972249	972253	972257	972260	972264	972268	972272	972276	972280	972284	972288	15	1 = 1
45	9.972291	972295	972299	972303	972307	972311	972315	972319	972323	972326	972330	972334	14	2. 2
46	9.972338	972342	972346	972350	972354	972357	972361	972365	972369	972373	972377	972381	13	3. 2
47	9.972385	972388	972392	972396	972400	972404	972408	972412	972416	972419	972423	972427	12	4. 3
48	9.972431	972435	972439	972443	972447	972450	972454	972458	972462	972466	972470	972474	11	1 = 1
49	9.972478	972481	972485	972489	972493	972497	972501	972505	972509	972512	972516	972520	10	2. 2
50	9.972524	972528	972532	972536	972539	972543	972547	972551	972555	972559	972563	972566	9	3. 2
51	9.972570	972574	972578	972582	972586	972590	972594	972597	972601	972605	972609	972613	8	4. 3
52	9.972617	972621	972624	972628	972632	972636	972640	972644	972648	972651	972655	972659	7	1 = 1
53	9.972663	972667	972671	972675	972678	972682	972686	972690	972694	972698	972702	972705	6	2. 2
54	9.972709	972713	972717	972721	972725	972728	972732	972736	972740	972744	972748	972752	5	3. 2
55	9.972755	972759	972763	972767	972771	972775	972779	972782	972786	972790	972794	972798	4	4. 3
56	9.972802	972805	972809	972813	972817	972821	972825	972829	972832	972836	972840	972844	3	1 = 1
57	9.972848	972852	972855	972859	972863	972867	972871	972875	972878	972882	972886	972890	2	2. 2
58	9.972894	972898	972901	972905	972909	972913	972917	972921	972925	972928	972932	972936	1	3. 2
59	9.972940	972944	972948	972951	972955	972959	972963	972967	972971	972974	972978	972982	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 20 degrees, or Sine of 110 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 62 degrees, or Co-sine of 152 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.945935	945941	945946	945952	945957	945963	945969	945974	945980	945985	945991	945997	59	1″ = 1
1	9.946002	946008	946013	946019	946024	946030	946036	946041	946047	946052	946058	946064	58	2. 2
2	9.946069	946075	946080	946086	946092	946097	946103	946108	946114	946120	946125	946131	57	3. 3
3	9.946136	946142	946147	946153	946159	946164	946170	946175	946181	946187	946192	946198	56	4. 4
4	9.946203	946209	946214	946220	946226	946231	946237	946242	946248	946254	946259	946265	55	1 = 1
5	9.946270	946276	946281	946287	946293	946298	946304	946309	946315	946320	946326	946332	54	2. 2
6	9.946337	946343	946348	946354	946359	946365	946371	946376	946382	946387	946393	946398	53	3. 3
7	9.946404	946410	946415	946421	946426	946432	946437	946443	946449	946454	946460	946465	52	4. 4
8	9.946471	946476	946482	946488	946493	946499	946504	946510	946515	946521	946526	946532	51	1 = 1
9	9.946538	946543	946549	946554	946560	946565	946571	946577	946582	946588	946593	946599	50	2. 2
10	9.946604	946610	946615	946621	946627	946632	946638	946643	946649	946654	946660	946665	49	3. 3
11	9.946671	946677	946682	946688	946693	946699	946704	946710	946715	946721	946727	946732	48	4. 4
12	9.946738	946743	946749	946754	946760	946765	946771	946776	946782	946788	946793	946799	47	1 = 1
13	9.946804	946810	946815	946821	946826	946832	946838	946843	946849	946854	946860	946865	46	2. 2
14	9.946871	946876	946882	946887	946893	946898	946904	946910	946915	946921	946926	946932	45	3. 3
15	9.946937	946943	946948	946954	946959	946965	946970	946976	946982	946987	946993	946998	44	4. 4
16	9.947004	947009	947015	947020	947026	947031	947037	947042	947048	947053	947059	947065	43	1 = 1
17	9.947070	947076	947081	947087	947092	947098	947103	947109	947114	947120	947125	947131	42	2. 2
18	9.947136	947142	947147	947153	947159	947164	947170	947175	947181	947186	947192	947197	41	3. 3
19	9.947203	947208	947214	947219	947225	947230	947236	947241	947247	947252	947258	947263	40	4. 4
20	9.947269	947275	947280	947286	947291	947297	947302	947308	947313	947319	947324	947330	39	1 =
21	9.947335	947341	947346	947352	947357	947363	947368	947374	947379	947385	947390	947396	38	2.
22	9.947401	947407	947412	947418	947423	947429	947434	947440	947445	947451	947456	947462	37	3.
23	9.947467	947473	947478	947484	947490	947495	947501	947506	947512	947517	947523	947528	36	4.
24	9.947534	947539	947545	947550	947556	947561	947567	947572	947578	947583	947589	947594	35	1 =
25	9.947600	947605	947611	947616	947622	947627	947633	947638	947644	947649	947655	947660	34	2.
26	9.947666	947671	947677	947682	947688	947693	947699	947704	947710	947715	947720	947726	33	3.
27	9.947731	947737	947742	947748	947753	947759	947764	947770	947775	947781	947786	947792	32	4.
28	9.947797	947803	947808	947814	947819	947825	947830	947836	947841	947847	947852	947858	31	1 =
29	9.947863	947869	947874	947880	947885	947891	947896	947902	947907	947913	947918	947923	30	2.
30	9.947929	947934	947940	947945	947951	947956	947962	947967	947973	947978	947984	947989	29	3.
31	9.947995	948000	948006	948011	948017	948022	948028	948033	948039	948044	948049	948055	28	4.
32	9.948060	948066	948071	948077	948082	948088	948093	948099	948104	948110	948115	948121	27	1 =
33	9.948126	948132	948137	948142	948148	948153	948159	948164	948170	948175	948181	948186	26	2.
34	9.948192	948197	948203	948208	948214	948219	948224	948230	948235	948241	948246	948252	25	3.
35	9.948257	948263	948268	948274	948279	948285	948290	948295	948301	948306	948312	948317	24	4.
36	9.948323	948328	948334	948339	948345	948350	948355	948361	948366	948372	948377	948383	23	1 =
37	9.948388	948394	948399	948405	948410	948415	948421	948426	948432	948437	948443	948448	22	2.
38	9.948454	948459	948464	948470	948475	948481	948486	948492	948497	948503	948508	948514	21	3.
39	9.948519	948524	948530	948535	948541	948546	948552	948557	948563	948568	948573	948579	20	4.
40	9.948584	948590	948595	948601	948606	948611	948617	948622	948628	948633	948639	948644	19	1 =
41	9.948650	948655	948660	948666	948671	948677	948682	948688	948693	948698	948704	948709	18	2.
42	9.948715	948720	948726	948731	948737	948742	948747	948753	948758	948764	948769	948775	17	3.
43	9.948780	948785	948791	948796	948802	948807	948813	948818	948823	948829	948834	948840	16	4.
44	9.948845	948851	948856	948861	948867	948872	948878	948883	948888	948894	948899	948905	15	1 =
45	9.948910	948916	948921	948926	948932	948937	948943	948948	948954	948959	948964	948970	14	2.
46	9.948975	948981	948986	948991	948997	949002	949008	949013	949019	949024	949029	949035	13	3.
47	9.949040	949046	949051	949056	949062	949067	949073	949078	949084	949089	949094	949100	12	4.
48	9.949105	949111	949116	949121	949127	949132	949138	949143	949148	949154	949159	949165	11	1 =
49	9.949170	949175	949181	949186	949192	949197	949203	949208	949213	949219	949224	949230	10	2.
50	9.949235	949240	949246	949251	949257	949262	949267	949273	949278	949284	949289	949294	9	3.
51	9.949300	949305	949311	949316	949321	949327	949332	949338	949343	949348	949354	949359	8	4.
52	9.949365	949370	949375	949381	949386	949391	949397	949402	949408	949413	949418	949424	7	1 =
53	9.949429	949435	949440	949445	949451	949456	949462	949467	949472	949478	949483	949488	6	2.
54	9.949494	949499	949505	949510	949515	949521	949526	949532	949537	949542	949548	949553	5	3.
55	9.949559	949564	949569	949575	949580	949585	949591	949596	949602	949607	949612	949618	4	4.
56	9.949623	949628	949634	949639	949645	949650	949655	949661	949666	949671	949677	949682	3	1 =
57	9.949688	949693	949698	949704	949709	949714	949720	949725	949731	949736	949741	949747	2	2.
58	9.949752	949757	949763	949768	949774	949779	949784	949790	949795	949800	949806	949811	1	3.
59	9.949817	949822	949827	949833	949838	949843	949849	949854	949859	949865	949870	949876	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-sine of 27 degrees, or Sine of 117 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 63 degrees, or Co-sine of 153 degrees. 0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Propor. parts.
0	9.949881	949886	949892	949897	949902	949908	949913	949918	949924	949929	949935	949940	59	1″ = 1
1	9.949945	949951	949956	949961	949967	949972	949977	949983	949988	949994	949999	950004	58	2. 2
2	9.950010	950015	950020	950026	950031	950036	950042	950047	950052	950058	950063	950068	57	3. 3
3	9.950074	950079	950085	950090	950095	950101	950106	950111	950117	950122	950127	950133	56	4. 4
4	9.950138	950143	950149	950154	950159	950165	950170	950175	950181	950186	950192	950197	55	1 = 1
5	9.950202	950208	950213	950218	950224	950229	950234	950240	950245	950250	950256	950261	54	2. 2
6	9.950266	950272	950277	950282	950288	950293	950298	950304	950309	950314	950320	950325	53	3. 3
7	9.950330	950336	950341	950346	950352	950357	950362	950368	950373	950378	950384	950389	52	4. 4
8	9.950394	950400	950405	950410	950416	950421	950426	950432	950437	950442	950448	950453	51	1 = 1
9	9.950458	950464	950469	950474	950480	950485	950490	950496	950501	950506	950512	950517	50	2. 2
10	9.950522	950528	950533	950538	950544	950549	950554	950560	950565	950570	950576	950581	49	3. 3
11	9.950586	950592	950597	950602	950607	950613	950618	950623	950629	950634	950639	950645	48	4. 4
12	9.950650	950655	950661	950666	950671	950677	950682	950687	950693	950698	950703	950709	47	1 = 1
13	9.950714	950719	950724	950730	950735	950740	950746	950751	950756	950762	950767	950772	46	2. 2
14	9.950778	950783	950788	950793	950799	950804	950809	950815	950820	950825	950831	950836	45	3. 3
15	9.950841	950847	950852	950857	950862	950868	950873	950878	950884	950889	950894	950900	44	4. 4
16	9.950905	950910	950916	950921	950926	950931	950937	950942	950947	950953	950958	950963	43	1 = 1
17	9.950969	950974	950979	950984	950990	950995	951000	951006	951011	951016	951021	951027	42	2. 2
18	9.951032	951037	951043	951048	951053	951059	951064	951069	951074	951080	951085	951090	41	3. 3
19	9.951096	951101	951106	951111	951117	951122	951127	951133	951138	951143	951148	951154	40	4. 4
20	9.951159	951164	951170	951175	951180	951186	951191	951196	951201	951207	951212	951217	39	1 = 1
21	9.951222	951228	951233	951238	951244	951249	951254	951259	951265	951270	951275	951281	38	2. 2
22	9.951286	951291	951296	951302	951307	951312	951318	951323	951328	951333	951339	951344	37	3. 3
23	9.951349	951354	951360	951365	951370	951376	951381	951386	951391	951397	951402	951407	36	4. 4
24	9.951412	951418	951423	951428	951434	951439	951444	951449	951455	951460	951465	951470	35	1 = 1
25	9.951476	951481	951486	951492	951497	951502	951507	951513	951518	951523	951528	951534	34	2. 2
26	9.951539	951544	951549	951555	951560	951565	951570	951576	951581	951586	951592	951597	33	3. 3
27	9.951602	951607	951613	951618	951623	951628	951634	951639	951644	951649	951655	951660	32	4. 4
28	9.951665	951670	951676	951681	951686	951691	951697	951702	951707	951712	951718	951723	31	1 = 1
29	9.951728	951733	951739	951744	951749	951754	951760	951765	951770	951775	951781	951786	30	2. 2
30	9.951791	951796	951802	951807	951812	951817	951823	951828	951833	951838	951844	951849	29	3. 3
31	9.951854	951859	951865	951870	951875	951880	951886	951891	951896	951901	951907	951912	28	4. 4
32	9.951917	951922	951928	951933	951938	951943	951949	951954	951959	951964	951970	951975	27	1 = 1
33	9.951980	951985	951990	951996	952001	952006	952011	952017	952022	952027	952032	952038	26	2. 2
34	9.952043	952048	952053	952059	952064	952069	952074	952079	952085	952090	952095	952100	25	3. 3
35	9.952106	952111	952116	952121	952127	952132	952137	952142	952147	952153	952158	952163	24	4. 4
36	9.952168	952174	952179	952184	952189	952194	952200	952205	952210	952215	952221	952226	23	1 = 1
37	9.952231	952236	952241	952247	952252	952257	952262	952268	952273	952278	952283	952288	22	2. 2
38	9.952294	952299	952304	952309	952315	952320	952325	952330	952335	952341	952346	952351	21	3. 3
39	9.952356	952361	952367	952372	952377	952382	952388	952393	952398	952403	952408	952414	20	4. 4
40	9.952419	952424	952429	952434	952440	952445	952450	952455	952460	952466	952471	952476	19	1 = 1
41	9.952481	952487	952492	952497	952502	952507	952513	952518	952523	952528	952533	952539	18	2. 2
42	9.952544	952549	952554	952559	952565	952570	952575	952580	952585	952591	952596	952601	17	3. 3
43	9.952606	952611	952617	952622	952627	952632	952637	952643	952648	952653	952658	952663	16	4. 4
44	9.952669	952674	952679	952684	952689	952695	952700	952705	952710	952715	952720	952726	15	1 = 1
45	9.952731	952736	952741	952746	952752	952757	952762	952767	952772	952778	952783	952788	14	2. 2
46	9.952793	952798	952804	952809	952814	952819	952824	952829	952835	952840	952845	952850	13	3. 3
47	9.952855	952861	952866	952871	952876	952881	952886	952892	952897	952902	952907	952912	12	4. 4
48	9.952918	952923	952928	952933	952938	952943	952949	952954	952959	952964	952969	952975	11	1 = 1
49	9.952980	952985	952990	952995	953000	953006	953011	953016	953021	953026	953031	953037	10	2. 2
50	9.953042	953047	953052	953057	953062	953068	953073	953078	953083	953088	953094	953099	9	3. 3
51	9.953104	953109	953114	953119	953125	953130	953135	953140	953145	953150	953156	953161	8	4. 4
52	9.953166	953171	953176	953181	953187	953192	953197	953202	953207	953212	953217	953223	7	1 = 1
53	9.953228	953233	953238	953243	953248	953254	953259	953264	953269	953274	953279	953285	6	2. 2
54	9.953290	953295	953300	953305	953310	953316	953321	953326	953331	953336	953341	953346	5	3. 3
55	9.953352	953357	953362	953367	953372	953377	953383	953388	953393	953398	953403	953408	4	4. 4
56	9.953413	953419	953424	953429	953434	953439	953444	953449	953455	953460	953465	953470	3	1 = 1
57	9.953475	953480	953485	953491	953496	953501	953506	953511	953516	953521	953527	953532	2	2. 2
58	9.953537	953542	953547	953552	953557	953563	953568	953573	953578	953583	953588	953593	1	3. 3
59	9.953599	953604	953609	953614	953619	953624	953629	953635	953640	953645	953650	953655	0	4. 4
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-sine of 26 degrees, or Sine of 116 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 64 degrees, or Co-sine of 154 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.953660	953665	953671	953676	953681	953686	953691	953696	953701	953706	953712	953717	59	1″ =
1	9.953722	953727	953732	953737	953742	953747	953753	953758	953763	953768	953773	953778	58	2.
2	9.953783	953789	953794	953799	953804	953809	953814	953819	953824	953830	953835	953840	57	3.
3	9.953845	953850	953855	953860	953865	953870	953876	953881	953886	953891	953896	953901	56	4.
4	9.953906	953911	953917	953922	953927	953932	953937	953942	953947	953952	953958	953963	55	1 =
5	9.953968	953973	953978	953983	953988	953993	953998	954004	954009	954014	954019	954024	54	2.
6	9.954029	954034	954039	954044	954050	954055	954060	954065	954070	954075	954080	954085	53	3.
7	9.954090	954096	954101	954106	954111	954116	954121	954126	954131	954136	954141	954147	52	4.
8	9.954152	954157	954162	954167	954172	954177	954182	954187	954193	954198	954203	954208	51	1 =
9	9.954213	954218	954223	954228	954233	954238	954244	954249	954254	954259	954264	954269	50	2.
10	9.954274	954279	954284	954289	954295	954300	954305	954310	954315	954320	954325	954330	49	3.
11	9.954335	954340	954345	954351	954356	954361	954366	954371	954376	954381	954386	954391	48	4.
12	9.954396	954401	954407	954412	954417	954422	954427	954432	954437	954442	954447	954452	47	1 =
13	9.954457	954462	954468	954473	954478	954483	954488	954493	954498	954503	954508	954513	46	2.
14	9.954518	954523	954529	954534	954539	954544	954549	954554	954559	954564	954569	954574	45	3.
15	9.954579	954584	954590	954595	954600	954605	954610	954615	954620	954625	954630	954635	44	4.
16	9.954640	954645	954650	954655	954661	954666	954671	954676	954681	954686	954691	954696	43	1 =
17	9.954701	954706	954711	954716	954721	954726	954732	954737	954742	954747	954752	954757	42	2.
18	9.954762	954767	954772	954777	954782	954787	954792	954797	954802	954808	954813	954818	41	3.
19	9.954823	954828	954833	954838	954843	954848	954853	954858	954863	954868	954873	954878	40	4.
20	9.954883	954889	954894	954899	954904	954909	954914	954919	954924	954929	954934	954939	39	1 =
21	9.954944	954949	954954	954959	954964	954969	954974	954980	954985	954990	954995	955000	38	2.
22	9.955005	955010	955015	955020	955025	955030	955035	955040	955045	955050	955055	955060	37	3.
23	9.955065	955070	955075	955081	955086	955091	955096	955101	955106	955111	955116	955121	36	4.
24	9.955126	955131	955136	955141	955146	955151	955156	955161	955166	955171	955176	955181	35	1 =
25	9.955186	955191	955197	955202	955207	955212	955217	955222	955227	955232	955237	955242	34	2.
26	9.955247	955252	955257	955262	955267	955272	955277	955282	955287	955292	955297	955302	33	3.
27	9.955307	955312	955317	955322	955327	955332	955338	955343	955348	955353	955358	955363	32	4.
28	9.955368	955373	955378	955383	955388	955393	955398	955403	955408	955413	955418	955423	31	1 =
29	9.955428	955433	955438	955443	955448	955453	955458	955463	955468	955473	955478	955483	30	2.
30	9.955488	955493	955498	955503	955508	955513	955518	955523	955528	955533	955538	955544	29	3.
31	9.955549	955554	955559	955564	955569	955574	955579	955584	955589	955594	955599	955604	28	4.
32	9.955609	955614	955619	955624	955629	955634	955639	955644	955649	955654	955659	955664	27	1 =
33	9.955669	955674	955679	955684	955689	955694	955699	955704	955709	955714	955719	955724	26	2.
34	9.955729	955734	955739	955744	955749	955754	955759	955764	955769	955774	955779	955784	25	3.
35	9.955789	955794	955799	955804	955809	955814	955819	955824	955829	955834	955839	955844	24	4.
36	9.955849	955854	955859	955864	955869	955874	955879	955884	955889	955894	955899	955904	23	1 =
37	9.955909	955914	955919	955924	955929	955934	955939	955944	955949	955954	955959	955964	22	2.
38	9.955969	955974	955979	955984	955989	955994	955999	956004	956009	956014	956019	956024	21	3.
39	9.956029	956034	956039	956044	956049	956054	956059	956064	956069	956074	956079	956084	20	4.
40	9.956089	956094	956099	956104	956109	956114	956119	956123	956128	956133	956138	956143	19	1 =
41	9.956148	956153	956158	956163	956168	956173	956178	956183	956188	956193	956198	956203	18	2.
42	9.956208	956213	956218	956223	956228	956233	956238	956243	956248	956253	956258	956263	17	3.
43	9.956268	956273	956278	956283	956288	956293	956298	956303	956308	956313	956318	956323	16	4.
44	9.956327	956332	956337	956342	956347	956352	956357	956362	956367	956372	956377	956382	15	1 =
45	9.956387	956392	956397	956402	956407	956412	956417	956422	956427	956432	956437	956442	14	2.
46	9.956447	956452	956457	956462	956466	956471	956476	956481	956486	956491	956496	956501	13	3.
47	9.956506	956511	956516	956521	956526	956531	956536	956541	956546	956551	956556	956561	12	4.
48	9.956566	956571	956576	956580	956585	956590	956595	956600	956605	956610	956615	956620	11	1 =
49	9.956625	956630	956635	956640	956643	956650	956655	956660	956665	956670	956675	956679	10	2.
50	9.956684	956689	956694	956699	956704	956709	956714	956719	956724	956729	956734	956739	9	3.
51	9.956744	956749	956754	956759	956764	956768	956773	956778	956783	956788	956793	956798	8	4.
52	9.956803	956808	956813	956818	956823	956828	956833	956838	956843	956847	956852	956857	7	1 =
53	9.956862	956867	956872	956877	956882	956887	956892	956897	956902	956907	956912	956917	6	2.
54	9.956922	956926	956931	956936	956941	956946	956951	956956	956961	956966	956971	956976	5	3.
55	9.956981	956986	956991	956995	957000	957005	957010	957015	957020	957025	957030	957035	4	4.
56	9.957040	957045	957050	957055	957059	957064	957069	957074	957079	957084	957089	957094	3	1 =
57	9.957099	957104	957109	957114	957119	957123	957128	957133	957138	957143	957148	957153	2	2.
58	9.957158	957163	957168	957173	957178	957182	957187	957192	957197	957202	957207	957212	1	3.
59	9.957217	957222	957227	957232	957236	957241	957246	957251	957256	957261	957266	957271	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 25 degrees, or Sine of 115 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 65 degrees, or Co-sine of 155 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.957276	957281	957286	957290	957295	957300	957305	957310	957315	957320	957325	957330	59	1″ = 1
1	9.957335	957340	957344	957349	957354	957359	957364	957369	957374	957379	957384	957389	58	2. 2
2	9.957393	957398	957403	957408	957413	957418	957423	957428	957433	957438	957442	957447	57	3. 3
3	9.957452	957457	957462	957467	957472	957477	957482	957487	957491	957496	957501	957506	56	4. 4
4	9.957511	957516	957521	957526	957531	957536	957540	957545	957550	957555	957560	957565	55	1 = 1
5	9.957570	957575	957580	957584	957589	957594	957599	957604	957609	957614	957619	957624	54	2. 2
6	9.957628	957633	957638	957643	957648	957653	957658	957663	957667	957672	957677	957682	53	3. 3
7	9.957687	957692	957697	957702	957707	957711	957716	957721	957726	957731	957736	957741	52	4. 4
8	9.957746	957750	957755	957760	957765	957770	957775	957780	957785	957790	957794	957799	51	1 = 1
9	9.957804	957809	957814	957819	957824	957829	957833	957838	957843	957848	957853	957858	50	2. 2
10	9.957863	957867	957872	957877	957882	957887	957892	957897	957902	957906	957911	957916	49	3. 3
11	9.957921	957926	957931	957936	957941	957945	957950	957955	957960	957965	957970	957975	48	4. 4
12	9.957979	957984	957989	957994	957999	958004	958009	958013	958018	958023	958028	958033	47	1 = 1
13	9.958038	958043	958048	958052	958057	958062	958067	958072	958077	958082	958086	958091	46	2. 2
14	9.958096	958101	958106	958111	958116	958120	958125	958130	958135	958140	958145	958150	45	3. 3
15	9.958154	958159	958164	958169	958174	958179	958183	958188	958193	958198	958203	958208	44	4. 4
16	9.958213	958217	958222	958227	958232	958237	958242	958247	958251	958256	958261	958266	43	1 = 1
17	9.958271	958276	958280	958285	958290	958295	958300	958305	958310	958314	958319	958324	42	2. 2
18	9.958329	958334	958339	958343	958348	958353	958358	958363	958368	958372	958377	958382	41	3. 3
19	9.958387	958392	958397	958401	958406	958411	958416	958421	958426	958431	958435	958440	40	4. 4
20	9.958445	958450	958455	958460	958464	958469	958474	958479	958484	958489	958493	958498	39	1 = 1
21	9.958503	958508	958513	958517	958522	958527	958532	958537	958542	958546	958551	958556	38	2. 2
22	9.958561	958566	958571	958575	958580	958585	958590	958595	958600	958604	958609	958614	37	3. 3
23	9.958619	958624	958629	958633	958638	958643	958648	958653	958657	958662	958667	958672	36	4. 4
24	9.958677	958682	958686	958691	958696	958701	958706	958710	958715	958720	958725	958730	35	1 = 1
25	9.958735	958739	958744	958749	958754	958759	958763	958768	958773	958778	958783	958788	34	2. 2
26	9.958792	958797	958802	958807	958812	958816	958821	958826	958831	958836	958840	958845	33	3. 3
27	9.958850	958855	958860	958864	958869	958874	958879	958884	958889	958893	958898	958903	32	4. 4
28	9.958908	958913	958917	958922	958927	958932	958937	958941	958946	958951	958956	958961	31	1 = 1
29	9.958965	958970	958975	958980	958985	958989	958994	958999	959004	959009	959013	959018	30	2. 2
30	9.959023	959028	959033	959037	959042	959047	959052	959057	959061	959066	959071	959076	29	3. 3
31	9.959081	959085	959090	959095	959100	959104	959109	959114	959119	959124	959128	959133	28	4. 4
32	9.959138	959143	959148	959152	959157	959162	959167	959172	959176	959181	959186	959191	27	1 = 1
33	9.959195	959200	959205	959210	959215	959219	959224	959229	959234	959239	959243	959248	26	2. 2
34	9.959253	959258	959262	959267	959272	959277	959282	959286	959291	959296	959301	959305	25	3. 3
35	9.959310	959315	959320	959325	959329	959334	959339	959344	959348	959353	959358	959363	24	4. 4
36	9.959368	959372	959377	959382	959387	959391	959396	959401	959406	959411	959415	959420	23	1 = 1
37	9.959425	959430	959434	959439	959444	959449	959454	959458	959463	959468	959473	959477	22	2. 2
38	9.959482	959487	959492	959496	959501	959506	959511	959515	959520	959525	959530	959535	21	3. 3
39	9.959539	959544	959549	959554	959558	959563	959568	959573	959577	959582	959587	959592	20	4. 4
40	9.959596	959601	959606	959611	959616	959620	959625	959630	959635	959639	959644	959649	19	1 = 1
41	9.959654	959658	959663	959668	959673	959677	959682	959687	959692	959696	959701	959706	18	2. 2
42	9.959711	959715	959720	959725	959730	959734	959739	959744	959749	959753	959758	959763	17	3. 3
43	9.959768	959772	959777	959782	959787	959791	959796	959801	959806	959810	959815	959820	16	4. 4
44	9.959825	959829	959834	959839	959844	959848	959853	959858	959863	959867	959872	959877	15	1 = 1
45	9.959882	959886	959891	959896	959901	959905	959910	959915	959919	959924	959929	959934	14	2. 2
46	9.959938	959943	959948	959953	959957	959962	959967	959972	959976	959981	959986	959991	13	3. 3
47	9.959995	960000	960005	960009	960014	960019	960024	960028	960033	960038	960043	960047	12	4. 4
48	9.960052	960057	960062	960066	960071	960076	960080	960085	960090	960095	960099	960104	11	1 = 1
49	9.960109	960114	960118	960123	960128	960132	960137	960142	960147	960151	960156	960161	10	2. 2
50	9.960166	960170	960175	960180	960184	960189	960194	960199	960203	960208	960213	960217	9	3. 3
51	9.960222	960227	960232	960236	960241	960246	960251	960255	960260	960265	960269	960274	8	4. 4
52	9.960279	960284	960288	960293	960298	960302	960307	960312	960317	960321	960326	960331	7	1 = 1
53	9.960335	960340	960345	960350	960354	960359	960364	960368	960373	960378	960383	960387	6	2. 2
54	9.960392	960397	960401	960406	960411	960415	960420	960425	960430	960434	960439	960444	5	3. 3
55	9.960448	960453	960458	960463	960467	960472	960477	960481	960486	960491	960495	960500	4	4. 4
56	9.960505	960510	960514	960519	960524	960528	960533	960538	960542	960547	960552	960557	3	1 = 1
57	9.960561	960566	960571	960575	960580	960585	960589	960594	960599	960604	960608	960613	2	2. 2
58	9.960618	960622	960627	960632	960636	960641	960646	960650	960655	960660	960665	960669	1	3. 3
59	9.960674	960679	960683	960688	960693	960697	960702	960707	960711	960716	960721	960726	0	4. 4
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 24 degrees, or Sine of 114 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 66 degrees, or Co-sine of 156 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.960730	960735	960740	960744	960749	960754	960758	960763	960768	960772	960777	960782	59	1″ =
1	9.960786	960791	960796	960800	960805	960810	960815	960819	960824	960829	960833	960838	58	2.
2	9.960843	960847	960852	960857	960861	960866	960871	960875	960880	960885	960889	960894	57	3.
3	9.960899	960903	960908	960913	960917	960922	960927	960931	960936	960941	960945	960950	56	4.
4	9.960955	960960	960964	960969	960974	960978	960983	960988	960992	960997	961001	961006	55	1 =
5	9.961011	961016	961020	961025	961030	961034	961039	961044	961048	961053	961058	961062	54	2.
6	9.961067	961072	961076	961081	961086	961090	961095	961100	961104	961109	961114	961118	53	3.
7	9.961123	961128	961132	961137	961142	961146	961151	961155	961160	961165	961169	961174	52	4.
8	9.961179	961183	961188	961193	961197	961202	961207	961211	961216	961221	961225	961230	51	1 =
9	9.961235	961239	961244	961249	961253	961258	961263	961267	961272	961277	961281	961286	50	2.
10	9.961290	961295	961300	961304	961309	961314	961318	961323	961328	961332	961337	961342	49	3.
11	9.961346	961351	961356	961360	961365	961369	961374	961379	961383	961388	961393	961397	48	4.
12	9.961402	961407	961411	961416	961421	961425	961430	961434	961439	961444	961448	961453	47	1 =
13	9.961458	961462	961467	961472	961476	961481	961486	961490	961495	961499	961504	961509	46	2.
14	9.961513	961518	961523	961527	961532	961537	961541	961546	961550	961555	961560	961564	45	3.
15	9.961569	961574	961578	961583	961587	961592	961597	961601	961606	961611	961615	961620	44	4.
16	9.961625	961629	961634	961638	961643	961648	961652	961657	961662	961666	961671	961675	43	1 =
17	9.961680	961685	961689	961694	961699	961703	961708	961712	961717	961722	961726	961731	42	2.
18	9.961736	961740	961745	961749	961754	961759	961763	961768	961772	961777	961782	961786	41	3.
19	9.961791	961796	961800	961805	961809	961814	961819	961823	961828	961833	961837	961842	40	4.
20	9.961846	961851	961856	961860	961865	961869	961874	961879	961883	961888	961892	961897	39	1 =
21	9.961902	961906	961911	961916	961920	961925	961929	961934	961939	961943	961948	961952	38	2.
22	9.961957	961962	961966	961971	961975	961980	961985	961989	961994	961998	962003	962008	37	3.
23	9.962012	962017	962021	962026	962031	962035	962040	962044	962049	962054	962058	962063	36	4.
24	9.962067	962072	962077	962081	962086	962090	962095	962100	962104	962109	962113	962118	35	1 =
25	9.962123	962127	962132	962136	962141	962146	962150	962155	962159	962164	962169	962173	34	2.
26	9.962178	962182	962187	962192	962196	962201	962205	962210	962214	962219	962224	962228	33	3.
27	9.962233	962237	962242	962247	962251	962256	962260	962265	962270	962274	962279	962283	32	4.
28	9.962288	962292	962297	962302	962306	962311	962315	962320	962325	962329	962334	962338	31	1 =
29	9.962343	962347	962352	962357	962361	962366	962370	962375	962380	962384	962389	962393	30	2.
30	9.962398	962402	962407	962412	962416	962421	962425	962430	962434	962439	962444	962448	29	3.
31	9.962453	962457	962462	962466	962471	962476	962480	962485	962489	962494	962498	962503	28	4.
32	9.962508	962512	962517	962521	962526	962530	962535	962540	962544	962549	962553	962558	27	1 =
33	9.962562	962567	962572	962576	962581	962585	962590	962594	962599	962604	962608	962613	26	2.
34	9.962617	962622	962626	962631	962635	962640	962645	962649	962654	962658	962663	962667	25	3.
35	9.962672	962676	962681	962686	962690	962695	962699	962704	962708	962713	962718	962722	24	4.
36	9.962727	962731	962736	962740	962745	962749	962754	962759	962763	962768	962772	962777	23	1 =
37	9.962781	962786	962790	962795	962799	962804	962809	962813	962818	962822	962827	962831	22	2.
38	9.962836	962840	962845	962850	962854	962859	962863	962868	962872	962877	962881	962886	21	3.
39	9.962890	962895	962900	962904	962909	962913	962918	962922	962927	962931	962936	962940	20	4.
40	9.962945	962949	962954	962959	962963	962968	962972	962977	962981	962986	962990	962995	19	1 =
41	9.962999	963004	963009	963013	963018	963022	963027	963031	963036	963040	963045	963049	18	2.
42	9.963054	963058	963063	963067	963072	963077	963081	963086	963090	963095	963099	963104	17	3.
43	9.963108	963113	963117	963122	963126	963131	963135	963140	963144	963149	963154	963158	16	4.
44	9.963163	963167	963172	963176	963181	963185	963190	963194	963199	963203	963208	963212	15	1 =
45	9.963217	963221	963226	963230	963235	963239	963244	963249	963253	963258	963262	963267	14	2.
46	9.963271	963276	963280	963285	963289	963294	963298	963303	963307	963312	963316	963321	13	3.
47	9.963325	963330	963334	963339	963343	963348	963352	963357	963361	963366	963370	963375	12	4.
48	9.963380	963384	963389	963393	963398	963402	963407	963411	963416	963420	963425	963429	11	1 =
49	9.963434	963438	963443	963447	963452	963456	963461	963465	963470	963474	963479	963483	10	2.
50	9.963488	963492	963497	963501	963506	963510	963515	963519	963524	963528	963533	963537	9	3.
51	9.963542	963546	963551	963555	963560	963564	963569	963573	963578	963582	963587	963591	8	4.
52	9.963596	963600	963605	963609	963614	963618	963623	963627	963632	963636	963641	963645	7	1 =
53	9.963650	963654	963659	963663	963668	963672	963677	963681	963686	963690	963695	963699	6	2.
54	9.963704	963708	963713	963717	963722	963726	963731	963735	963740	963744	963748	963753	5	3.
55	9.963757	963762	963766	963771	963775	963780	963784	963789	963793	963798	963802	963807	4	4.
56	9.963811	963816	963820	963825	963829	963834	963838	963843	963847	963852	963856	963861	3	1 =
57	9.963865	963870	963874	963879	963883	963887	963892	963896	963901	963905	963910	963914	2	2.
58	9.963919	963923	963928	963932	963937	963941	963946	963950	963955	963959	963964	963968	1	3.
59	9.963972	963977	963981	963986	963990	963995	963999	964004	964008	964013	964017	964022	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 23 degrees, or Sine of 113 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 67 degrees, or Co-sine of 157 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.964026	964031	964035	964040	964044	964048	964053	964057	964062	964066	964071	964075	59	1″ = 1
1	9.964080	964084	964089	964093	964098	964102	964107	964111	964115	964120	964124	964129	58	2. 2
2	9.964133	964138	964142	964147	964151	964156	964160	964165	964169	964173	964178	964182	57	3. 3
3	9.964187	964191	964196	964200	964205	964209	964214	964218	964222	964227	964231	964236	56	4. 4
4	9.964240	964245	964249	964254	964258	964263	964267	964271	964276	964280	964285	964289	55	1 = 1
5	9.964294	964298	964303	964307	964312	964316	964320	964325	964329	964334	964338	964343	54	2. 2
6	9.964347	964352	964356	964360	964365	964369	964374	964378	964383	964387	964392	964396	53	3. 3
7	9.964400	964405	964409	964414	964418	964423	964427	964432	964436	964440	964445	964449	52	4. 4
8	9.964454	964458	964463	964467	964471	964476	964480	964485	964489	964494	964498	964503	51	1 = 1
9	9.964507	964511	964516	964520	964525	964529	964534	964538	964542	964547	964551	964556	50	2. 2
10	9.964560	964565	964569	964574	964578	964582	964587	964591	964596	964600	964605	964609	49	3. 3
11	9.964613	964618	964622	964627	964631	964636	964640	964644	964649	964653	964658	964662	48	4. 4
12	9.964667	964671	964675	964680	964684	964689	964693	964697	964702	964706	964711	964715	47	1 = 1
13	9.964720	964724	964728	964733	964737	964742	964746	964751	964755	964759	964764	964768	46	2. 2
14	9.964773	964777	964781	964786	964790	964795	964799	964804	964808	964812	964817	964821	45	3. 3
15	9.964826	964830	964834	964839	964843	964848	964852	964857	964861	964865	964870	964874	44	4. 4
16	9.964879	964883	964887	964892	964896	964901	964905	964909	964914	964918	964923	964927	43	1 = 1
17	9.964931	964936	964940	964945	964949	964954	964958	964962	964967	964971	964976	964980	42	2. 2
18	9.964984	964989	964993	964998	965002	965006	965011	965015	965020	965024	965028	965033	41	3. 3
19	9.965037	965042	965046	965050	965055	965059	965064	965068	965072	965077	965081	965086	40	4. 4
20	9.965090	965094	965099	965103	965108	965112	965116	965121	965125	965130	965134	965138	39	1 = 1
21	9.965143	965147	965151	965156	965160	965165	965169	965173	965178	965182	965187	965191	38	2. 2
22	9.965195	965200	965204	965209	965213	965217	965222	965226	965230	965235	965239	965244	37	3. 3
23	9.965248	965252	965257	965261	965266	965270	965274	965279	965283	965288	965292	965296	36	4. 4
24	9.965301	965305	965309	965314	965318	965323	965327	965331	965336	965340	965344	965349	35	1 = 1
25	9.965353	965358	965362	965366	965371	965375	965379	965384	965388	965393	965397	965401	34	2. 2
26	9.965406	965410	965414	965419	965423	965428	965432	965436	965441	965445	965449	965454	33	3. 3
27	9.965458	965463	965467	965471	965476	965480	965484	965489	965493	965498	965502	965506	32	4. 4
28	9.965511	965515	965519	965524	965528	965532	965537	965541	965546	965550	965554	965559	31	1 = 1
29	9.965563	965567	965572	965576	965581	965585	965589	965594	965598	965602	965607	965611	30	2. 2
30	9.965615	965620	965624	965628	965633	965637	965642	965646	965650	965655	965659	965663	29	3. 3
31	9.965668	965672	965676	965681	965685	965689	965694	965698	965703	965707	965711	965716	28	4. 4
32	9.965720	965724	965729	965733	965737	965742	965746	965750	965755	965759	965763	965768	27	1 = 1
33	9.965772	965777	965781	965785	965790	965794	965798	965803	965807	965811	965816	965820	26	2. 2
34	9.965824	965829	965833	965837	965842	965846	965850	965855	965859	965863	965868	965872	25	3. 3
35	9.965876	965881	965885	965890	965894	965898	965903	965907	965911	965916	965920	965924	24	4. 3
36	9.965929	965933	965937	965942	965946	965950	965955	965959	965963	965968	965972	965976	23	1 = 1
37	9.965981	965985	965989	965994	965998	966002	966007	966011	966015	966020	966024	966028	22	2. 2
38	9.966033	966037	966041	966046	966050	966054	966059	966063	966067	966072	966076	966080	21	3. 3
39	9.966085	966089	966093	966098	966102	966106	966111	966115	966119	966124	966128	966132	20	4. 3
40	9.966137	966141	966145	966149	966154	966158	966162	966167	966171	966175	966180	966184	19	1 = 1
41	9.966188	966193	966197	966201	966206	966210	966214	966219	966223	966227	966232	966236	18	2. 2
42	9.966240	966245	966249	966253	966258	966262	966266	966270	966275	966279	966283	966288	17	3. 3
43	9.966292	966296	966301	966305	966309	966314	966318	966322	966327	966331	966335	966339	16	4. 3
44	9.966344	966348	966352	966357	966361	966365	966370	966374	966378	966383	966387	966391	15	1 = 1
45	9.966395	966400	966404	966408	966413	966417	966421	966426	966430	966434	966439	966443	14	2. 2
46	9.966447	966451	966456	966460	966464	966469	966473	966477	966482	966486	966490	966494	13	3. 3
47	9.966499	966503	966507	966512	966516	966520	966525	966529	966533	966537	966542	966546	12	4. 3
48	9.966550	966555	966559	966563	966568	966572	966576	966580	966585	966589	966593	966598	11	1 = 1
49	9.966602	966606	966610	966615	966619	966623	966628	966632	966636	966640	966645	966649	10	2. 2
50	9.966653	966658	966662	966666	966671	966675	966679	966683	966688	966692	966696	966701	9	3. 3
51	9.966705	966709	966713	966718	966722	966726	966731	966735	966739	966743	966748	966752	8	4. 3
52	9.966756	966760	966765	966769	966773	966778	966782	966786	966790	966795	966799	966803	7	1 = 1
53	9.966808	966812	966816	966820	966825	966829	966833	966838	966842	966846	966850	966855	6	2. 2
54	9.966859	966863	966867	966872	966876	966880	966885	966889	966893	966897	966902	966906	5	3. 3
55	9.966910	966914	966919	966923	966927	966932	966936	966940	966944	966949	966953	966957	4	4. 3
56	9.966961	966966	966970	966974	966978	966983	966987	966991	966996	967000	967004	967008	3	1 = 1
57	9.967013	967017	967021	967025	967030	967034	967038	967042	967047	967051	967055	967059	2	2. 2
58	9.967064	967068	967072	967077	967081	967085	967089	967094	967098	967102	967106	967111	1	3. 3
59	9.967115	967119	967123	967128	967132	967136	967140	967145	967149	967153	967157	967162	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 22 degrees, or Co-sine of 112 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 68 degrees, or Co-sine of 158 degrees.												Minutes	Proportionals.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.967166	967170	967174	967179	967183	967187	967191	967196	967200	967204	967208	967213	59	1″ =
1	9.967217	967221	967225	967230	967234	967238	967242	967247	967251	967255	967259	967264	58	2.
2	9.967268	967272	967276	967281	967285	967289	967293	967298	967302	967306	967310	967315	57	3.
3	9.967319	967323	967327	967332	967336	967340	967344	967349	967353	967357	967361	967365	56	4.
4	9.967370	967374	967378	967382	967387	967391	967395	967399	967404	967408	967412	967416	55	1″ =
5	9.967421	967425	967429	967433	967438	967442	967446	967450	967454	967459	967463	967467	54	2.
6	9.967471	967476	967480	967484	967488	967493	967497	967501	967505	967509	967514	967518	53	3.
7	9.967522	967526	967531	967535	967539	967543	967548	967552	967556	967560	967564	967569	52	4.
8	9.967573	967577	967581	967586	967590	967594	967598	967602	967607	967611	967615	967619	51	1″ =
9	9.967624	967628	967632	967636	967640	967645	967649	967653	967657	967662	967666	967670	50	2.
10	9.967674	967678	967683	967687	967691	967695	967699	967704	967708	967712	967716	967721	49	3.
11	9.967725	967729	967733	967737	967742	967746	967750	967754	967758	967763	967767	967771	48	4.
12	9.967775	967780	967784	967788	967792	967796	967801	967805	967809	967813	967817	967822	47	1″ =
13	9.967826	967830	967834	967838	967843	967847	967851	967855	967859	967864	967868	967872	46	2.
14	9.967876	967881	967885	967889	967893	967897	967902	967906	967910	967914	967918	967923	45	3.
15	9.967927	967931	967935	967939	967944	967948	967952	967956	967960	967965	967969	967973	44	4.
16	9.967977	967981	967985	967990	967994	967998	968002	968006	968011	968015	968019	968023	43	1″ =
17	9.968027	968032	968036	968040	968044	968048	968053	968057	968061	968065	968069	968074	42	2.
18	9.968078	968082	968086	968090	968094	968099	968103	968107	968111	968115	968120	968124	41	3.
19	9.968128	968132	968136	968141	968145	968149	968153	968157	968161	968166	968170	968174	40	4.
20	9.968178	968182	968187	968191	968195	968199	968203	968207	968212	968216	968220	968224	39	1″ =
21	9.968228	968233	968237	968241	968245	968249	968253	968258	968262	968266	968270	968274	38	2.
22	9.968278	968283	968287	968291	968295	968299	968304	968308	968312	968316	968320	968324	37	3.
23	9.968329	968333	968337	968341	968345	968349	968354	968358	968362	968366	968370	968374	36	4.
24	9.968379	968383	968387	968391	968395	968399	968404	968408	968412	968416	968420	968424	35	1″ =
25	9.968429	968433	968437	968441	968445	968449	968454	968458	968462	968466	968470	968474	34	2.
26	9.968479	968483	968487	968491	968495	968499	968504	968508	968512	968516	968520	968524	33	3.
27	9.968528	968533	968537	968541	968545	968549	968553	968558	968562	968566	968570	968574	32	4.
28	9.968578	968582	968587	968591	968595	968599	968603	968607	968612	968616	968620	968624	31	1″ =
29	9.968628	968632	968636	968641	968645	968649	968653	968657	968661	968666	968670	968674	30	2.
30	9.968678	968682	968686	968690	968695	968699	968703	968707	968711	968715	968719	968724	29	3.
31	9.968728	968732	968736	968740	968744	968748	968753	968757	968761	968765	968769	968773	28	4.
32	9.968777	968782	968786	968790	968794	968798	968802	968806	968811	968815	968819	968823	27	1″ =
33	9.968827	968831	968835	968839	968844	968848	968852	968856	968860	968864	968868	968873	26	2.
34	9.968877	968881	968885	968889	968893	968897	968901	968906	968910	968914	968918	968922	25	3.
35	9.968926	968930	968934	968939	968943	968947	968951	968955	968959	968963	968968	968972	24	4.
36	9.968976	968980	968984	968988	968992	968996	969001	969005	969009	969013	969017	969021	23	1″ =
37	9.969025	969029	969033	969038	969042	969046	969050	969054	969058	969062	969066	969071	22	2.
38	9.969075	969079	969083	969087	969091	969095	969099	969104	969108	969112	969116	969120	21	3.
39	9.969124	969128	969132	969136	969141	969145	969149	969153	969157	969161	969165	969169	20	4.
40	9.969173	969178	969182	969186	969190	969194	969198	969202	969206	969210	969215	969219	19	1″ =
41	9.969223	969227	969231	969235	969239	969243	969247	969252	969256	969260	969264	969268	18	2.
42	9.969272	969276	969280	969284	969288	969293	969297	969301	969305	969309	969313	969317	17	3.
43	9.969321	969325	969329	969334	969338	969342	969346	969350	969354	969358	969362	969366	16	4.
44	9.969370	969375	969379	969383	969387	969391	969395	969399	969403	969407	969411	969416	15	1″ =
45	9.969420	969424	969428	969432	969436	969440	969444	969448	969452	969456	969461	969465	14	2.
46	9.969469	969473	969477	969481	969485	969489	969493	969497	969501	969506	969510	969514	13	3.
47	9.969518	969522	969526	969530	969534	969538	969542	969546	969550	969555	969559	969563	12	4.
48	9.969567	969571	969575	969579	969583	969587	969591	969595	969599	969604	969608	969612	11	1″ =
49	9.969616	969620	969624	969628	969632	969636	969640	969644	969648	969653	969657	969661	10	2.
50	9.969665	969669	969673	969677	969681	969685	969689	969693	969697	969701	969705	969710	9	3.
51	9.969714	969718	969722	969726	969730	969734	969738	969742	969746	969750	969754	969758	8	4.
52	9.969762	969767	969771	969775	969779	969783	969787	969791	969795	969799	969803	969807	7	1″ =
53	9.969811	969815	969819	969823	969828	969832	969836	969840	969844	969848	969852	969856	6	2.
54	9.969860	969864	969868	969872	969876	969880	969884	969888	969893	969897	969901	969905	5	3.
55	9.969909	969913	969917	969921	969925	969929	969933	969937	969941	969945	969949	969953	4	4.
56	9.969957	969962	969966	969970	969974	969978	969982	969986	969990	969994	969998	970002	3	1″ =
57	9.970006	970010	970014	970018	970022	970026	970030	970034	970039	970043	970047	970051	2	2.
58	9.970055	970059	970063	970067	970071	970075	970079	970083	970087	970091	970095	970099	1	3.
59	9.970103	970107	970111	970115	970119	970123	970128	970132	970136	970140	970144	970148	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportionals.
	Co-sine of 21 degrees, or Sine of 111 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 69 degrees, or Co-sine of 159 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.970152	970156	970160	970164	970168	970172	970176	970180	970184	970188	970192	970196	59	1″ = 1
1	9.970200	970204	970208	970212	970216	970220	970224	970229	970233	970237	970241	970245	58	2. 2
2	9.970249	970253	970257	970261	970265	970269	970273	970277	970281	970285	970289	970293	57	3. 2
3	9.970297	970301	970305	970309	970313	970317	970321	970325	970329	970333	970337	970341	56	4. 3
4	9.970345	970349	970353	970358	970362	970366	970370	970374	970378	970382	970386	970390	55	1 = 1
5	9.970394	970398	970402	970406	970410	970414	970418	970422	970426	970430	970434	970438	54	2. 2
6	9.970442	970446	970450	970454	970458	970462	970466	970470	970474	970478	970482	970486	53	3. 2
7	9.970490	970494	970498	970502	970506	970510	970514	970518	970522	970526	970530	970534	52	4. 3
8	9.970538	970542	970546	970550	970554	970558	970562	970566	970570	970574	970579	970583	51	1 = 1
9	9.970587	970591	970595	970599	970603	970607	970611	970615	970619	970623	970627	970631	50	2. 2
10	9.970635	970639	970643	970647	970651	970655	970659	970663	970667	970671	970675	970679	49	3. 2
11	9.970683	970687	970691	970695	970699	970703	970707	970711	970715	970719	970723	970727	48	4. 3
12	9.970731	970735	970739	970743	970747	970751	970755	970759	970763	970767	970771	970775	47	1 = 1
13	9.970779	970783	970787	970791	970795	970799	970803	970807	970811	970815	970819	970823	46	2. 2
14	9.970827	970831	970835	970839	970843	970847	970851	970855	970859	970862	970866	970870	45	3. 2
15	9.970874	970878	970882	970886	970890	970894	970898	970902	970906	970910	970914	970918	44	4. 3
16	9.970922	970926	970930	970934	970938	970942	970946	970950	970954	970958	970962	970966	43	1 = 1
17	9.970970	970974	970978	970982	970986	970990	970994	970998	971002	971006	971010	971014	42	2. 2
18	9.971018	971022	971026	971030	971034	971038	971042	971046	971050	971054	971058	971062	41	3. 2
19	9.971066	971070	971074	971077	971081	971085	971089	971093	971097	971101	971105	971109	40	4. 3
20	9.971113	971117	971121	971125	971129	971133	971137	971141	971145	971149	971153	971157	39	1 = 1
21	9.971161	971165	971169	971173	971177	971181	971185	971189	971193	971197	971201	971205	38	2. 2
22	9.971208	971212	971216	971220	971224	971228	971232	971236	971240	971244	971248	971252	37	3. 2
23	9.971256	971260	971264	971268	971272	971276	971280	971284	971288	971292	971296	971300	36	4. 3
24	9.971304	971307	971311	971315	971319	971323	971327	971331	971335	971339	971343	971347	35	1 = 1
25	9.971351	971355	971359	971363	971367	971371	971375	971379	971383	971387	971391	971394	34	2. 2
26	9.971398	971402	971406	971410	971414	971418	971422	971426	971430	971434	971438	971442	33	3. 2
27	9.971446	971450	971454	971458	971462	971466	971469	971473	971477	971481	971485	971489	32	4. 3
28	9.971493	971497	971501	971505	971509	971513	971517	971521	971525	971529	971533	971536	31	1 = 1
29	9.971540	971544	971548	971552	971556	971560	971564	971568	971572	971576	971580	971584	30	2. 2
30	9.971588	971592	971596	971599	971603	971607	971611	971615	971619	971623	971627	971631	29	3. 2
31	9.971635	971639	971643	971647	971651	971655	971658	971662	971666	971670	971674	971678	28	4. 3
32	9.971682	971686	971690	971694	971698	971702	971706	971710	971713	971717	971721	971725	27	1 = 1
33	9.971729	971733	971737	971741	971745	971749	971753	971757	971761	971765	971768	971772	26	2. 2
34	9.971776	971780	971784	971788	971792	971796	971800	971804	971808	971812	971815	971819	25	3. 2
35	9.971823	971827	971831	971835	971839	971843	971847	971851	971855	971859	971862	971866	24	4. 3
36	9.971870	971874	971878	971882	971886	971890	971894	971898	971902	971906	971909	971913	23	1 = 1
37	9.971917	971921	971925	971929	971933	971937	971941	971945	971949	971952	971956	971960	22	2. 2
38	9.971964	971968	971972	971976	971980	971984	971988	971992	971995	971999	972003	972007	21	3. 2
39	9.972011	972015	972019	972023	972027	972031	972035	972038	972042	972046	972050	972054	20	4. 3
40	9.972058	972062	972066	972070	972074	972077	972081	972085	972089	972093	972097	972101	19	1 = 1
41	9.972105	972109	972113	972116	972120	972124	972128	972132	972136	972140	972144	972148	18	2. 2
42	9.972151	972155	972159	972163	972167	972171	972175	972179	972183	972186	972190	972194	17	3. 2
43	9.972198	972202	972206	972210	972214	972218	972222	972225	972229	972233	972237	972241	16	4. 3
44	9.972245	972249	972253	972257	972260	972264	972268	972272	972276	972280	972284	972288	15	1 = 1
45	9.972291	972295	972299	972303	972307	972311	972315	972319	972323	972326	972330	972334	14	2. 2
46	9.972338	972342	972346	972350	972354	972357	972361	972365	972369	972373	972377	972381	13	3. 2
47	9.972385	972388	972392	972396	972400	972404	972408	972412	972416	972419	972423	972427	12	4. 3
48	9.972431	972435	972439	972443	972447	972450	972454	972458	972462	972466	972470	972474	11	1 = 1
49	9.972478	972481	972485	972489	972493	972497	972501	972505	972509	972512	972516	972520	10	2. 2
50	9.972524	972528	972532	972536	972539	972543	972547	972551	972555	972559	972563	972566	9	3. 2
51	9.972570	972574	972578	972582	972586	972590	972594	972597	972601	972605	972609	972613	8	4. 3
52	9.972617	972621	972624	972628	972632	972636	972640	972644	972648	972651	972655	972659	7	1 = 1
53	9.972663	972667	972671	972675	972678	972682	972686	972690	972694	972698	972702	972705	6	2. 2
54	9.972709	972713	972717	972721	972725	972728	972732	972736	972740	972744	972748	972752	5	3. 2
55	9.972755	972759	972763	972767	972771	972775	972779	972782	972786	972790	972794	972798	4	4. 3
56	9.972802	972805	972809	972813	972817	972821	972825	972829	972832	972836	972840	972844	3	1 = 1
57	9.972848	972852	972855	972859	972863	972867	972871	972875	972878	972882	972886	972890	2	2. 2
58	9.972894	972898	972901	972905	972909	972913	972917	972921	972925	972928	972932	972936	1	3. 2
59	9.972940	972944	972948	972951	972955	972959	972963	972967	972971	972974	972978	972982	0	4. 3
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 20 degrees, or Sine of 110 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 70 degrees, or Co-sine of 160 degrees.												Minutes	Proportionals.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.972986	972990	972994	972997	973001	973005	973009	973013	973017	973020	973024	973028	59	1″ =
1	9.973032	973036	973039	973043	973047	973051	973055	973059	973062	973066	973070	973074	58	2.
2	9.973078	973082	973085	973089	973093	973097	973101	973105	973108	973112	973116	973120	57	3.
3	9.973124	973127	973131	973135	973139	973143	973147	973150	973154	973158	973162	973166	56	4.
4	9.973169	973173	973177	973181	973185	973189	973192	973196	973200	973204	973208	973211	55	1 =
5	9.973215	973219	973223	973227	973231	973234	973238	973242	973246	973250	973253	973257	54	2.
6	9.973261	973265	973269	973272	973276	973280	973284	973288	973291	973295	973299	973303	53	3.
7	9.973307	973311	973314	973318	973322	973326	973330	973333	973337	973341	973345	973349	52	4.
8	9.973352	973356	973360	973364	973368	973371	973375	973379	973383	973387	973390	973394	51	1 =
9	9.973398	973402	973406	973409	973413	973417	973421	973425	973428	973432	973436	973440	50	2.
10	9.973444	973447	973451	973455	973459	973463	973466	973470	973474	973478	973482	973485	49	3.
11	9.973489	973493	973497	973501	973504	973508	973512	973516	973519	973523	973527	973531	48	4.
12	9.973535	973538	973542	973546	973550	973554	973557	973561	973565	973569	973573	973576	47	1 =
13	9.973580	973584	973588	973591	973595	973599	973603	973607	973610	973614	973618	973622	46	2.
14	9.973626	973629	973633	973637	973641	973644	973648	973652	973656	973660	973663	973667	45	3.
15	9.973671	973675	973678	973682	973686	973690	973694	973697	973701	973705	973709	973712	44	4.
16	9.973716	973720	973724	973728	973731	973735	973739	973743	973746	973750	973754	973758	43	1 =
17	9.973762	973765	973769	973773	973777	973780	973784	973788	973792	973795	973799	973803	42	2.
18	9.973807	973811	973814	973818	973822	973826	973829	973833	973837	973841	973844	973848	41	3.
19	9.973852	973856	973860	973863	973867	973871	973875	973878	973882	973886	973890	973893	40	4.
20	9.973897	973901	973905	973908	973912	973916	973920	973924	973927	973931	973935	973939	39	1 =
21	9.973942	973946	973950	973954	973957	973961	973965	973969	973972	973976	973980	973984	38	2.
22	9.973987	973991	973995	973999	974002	974006	974010	974014	974017	974021	974025	974029	37	3.
23	9.974032	974036	974040	974044	974047	974051	974055	974059	974062	974066	974070	974074	36	4.
24	9.974077	974081	974085	974089	974092	974096	974100	974104	974107	974111	974115	974119	35	1 =
25	9.974122	974126	974130	974134	974137	974141	974145	974149	974152	974156	974160	974164	34	2.
26	9.974167	974171	974175	974179	974182	974186	974190	974194	974197	974201	974205	974208	33	3.
27	9.974212	974216	974220	974223	974227	974231	974235	974238	974242	974246	974250	974253	32	4.
28	9.974257	974261	974265	974268	974272	974276	974279	974283	974287	974291	974294	974298	31	1 =
29	9.974302	974306	974309	974313	974317	974320	974324	974328	974332	974335	974339	974343	30	2.
30	9.974347	974350	974354	974358	974362	974365	974369	974373	974376	974380	974384	974388	29	3.
31	9.974391	974395	974399	974402	974406	974410	974414	974417	974421	974425	974429	974432	28	4.
32	9.974436	974440	974443	974447	974451	974455	974458	974462	974466	974469	974473	974477	27	1 =
33	9.974481	974484	974488	974492	974495	974499	974503	974507	974510	974514	974518	974522	26	2.
34	9.974525	974529	974533	974536	974540	974544	974547	974551	974555	974559	974562	974566	25	3.
35	9.974570	974573	974577	974581	974585	974588	974592	974596	974599	974603	974607	974611	24	4.
36	9.974614	974618	974622	974625	974629	974633	974637	974640	974644	974648	974651	974655	23	1 =
37	9.974659	974662	974666	974670	974674	974677	974681	974685	974688	974692	974696	974699	22	2.
38	9.974703	974707	974711	974714	974718	974722	974725	974729	974733	974736	974740	974744	21	3.
39	9.974748	974751	974755	974759	974762	974766	974770	974773	974777	974781	974785	974788	20	4.
40	9.974792	974796	974799	974803	974807	974810	974814	974818	974821	974825	974829	974833	19	1 =
41	9.974836	974840	974844	974847	974851	974855	974858	974862	974866	974869	974873	974877	18	2.
42	9.974880	974884	974888	974892	974895	974899	974903	974906	974910	974914	974917	974921	17	3.
43	9.974925	974928	974932	974936	974939	974943	974947	974950	974954	974958	974961	974965	16	4.
44	9.974969	974973	974976	974980	974984	974987	974991	974995	974998	975002	975006	975009	15	1 =
45	9.975013	975017	975020	975024	975028	975031	975035	975039	975042	975046	975050	975053	14	2.
46	9.975057	975061	975064	975068	975072	975075	975079	975083	975086	975090	975094	975097	13	3.
47	9.975101	975105	975108	975112	975116	975119	975123	975127	975130	975134	975138	975141	12	4.
48	9.975145	975149	975152	975156	975160	975163	975167	975171	975174	975178	975182	975185	11	1 =
49	9.975189	975193	975196	975200	975204	975207	975211	975215	975218	975222	975226	975229	10	2.
50	9.975233	975237	975240	975244	975248	975251	975255	975259	975262	975266	975270	975273	9	3.
51	9.975277	975281	975284	975288	975292	975295	975299	975303	975306	975310	975313	975317	8	4.
52	9.975321	975324	975328	975332	975335	975339	975343	975346	975350	975354	975357	975361	7	1 =
53	9.975365	975368	975372	975376	975379	975383	975387	975390	975394	975397	975401	975405	6	2.
54	9.975408	975412	975416	975419	975423	975427	975430	975434	975438	975441	975445	975448	5	3.
55	9.975452	975456	975459	975463	975467	975470	975474	975478	975481	975485	975489	975492	4	4.
56	9.975496	975499	975503	975507	975510	975514	975518	975521	975525	975529	975532	975536	3	1 =
57	9.975539	975543	975547	975550	975554	975558	975561	975565	975569	975572	975576	975579	2	2.
58	9.975583	975587	975590	975594	975598	975601	975605	975608	975612	975616	975619	975623	1	3.
59	9.975627	975630	975634	975637	975641	975645	975648	975652	975656	975659	975663	975666	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportionals.
	Co-sine of 19 degrees, or Sine of 109 degrees.													

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LOGARITHMIC SINES

Minutes	Sine of 71 degrees, or Co-sine of 161 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.975670	975674	975677	975681	975685	975688	975692	975695	975699	975703	975706	975710	59	1″ = 1
1	9.975714	975717	975721	975724	975728	975732	975735	975739	975743	975746	975750	975753	58	2. 1
2	9.975757	975761	975764	975768	975772	975775	975779	975782	975786	975790	975793	975797	57	3. 2
3	9.975800	975804	975808	975811	975815	975818	975822	975826	975829	975833	975837	975840	56	4. 3
4	9.975844	975847	975851	975855	975858	975862	975865	975869	975873	975876	975880	975883	55	1 = 1
5	9.975887	975891	975894	975898	975902	975905	975909	975912	975916	975920	975923	975927	54	2. 1
6	9.975930	975934	975938	975941	975945	975948	975952	975956	975959	975963	975966	975970	53	3. 2
7	9.975974	975977	975981	975984	975988	975992	975995	975999	976002	976006	976010	976013	52	4. 3
8	9.976017	976020	976024	976028	976031	976035	976038	976042	976046	976049	976053	976056	51	1 = 1
9	9.976060	976064	976067	976071	976074	976078	976082	976085	976089	976092	976096	976099	50	2. 1
10	9.976103	976107	976110	976114	976117	976121	976125	976128	976132	976135	976139	976143	49	3. 2
11	9.976146	976150	976153	976157	976160	976164	976168	976171	976175	976178	976182	976186	48	4. 3
12	9.976189	976193	976196	976200	976203	976207	976211	976214	976218	976221	976225	976229	47	1 = 1
13	9.976232	976236	976239	976243	976246	976250	976254	976257	976261	976264	976268	976272	46	2. 1
14	9.976275	976279	976282	976286	976289	976293	976297	976300	976304	976307	976311	976314	45	3. 2
15	9.976318	976322	976325	976329	976332	976336	976339	976343	976347	976350	976354	976357	44	4. 3
16	9.976361	976364	976368	976372	976375	976379	976382	976386	976389	976393	976397	976400	43	1 = 1
17	9.976404	976407	976411	976414	976418	976422	976425	976429	976432	976436	976439	976443	42	2. 1
18	9.976446	976450	976454	976457	976461	976464	976468	976471	976475	976479	976482	976486	41	3. 2
19	9.976489	976493	976496	976500	976503	976507	976511	976514	976518	976521	976525	976528	40	4. 3
20	9.976532	976535	976539	976543	976546	976550	976553	976557	976560	976564	976567	976571	39	1 = 1
21	9.976575	976578	976582	976585	976589	976592	976596	976599	976603	976607	976610	976614	38	2. 1
22	9.976617	976621	976624	976628	976631	976635	976638	976642	976646	976649	976653	976656	37	3. 2
23	9.976660	976663	976667	976670	976674	976677	976681	976685	976688	976692	976695	976699	36	4. 3
24	9.976702	976706	976709	976713	976716	976720	976724	976727	976731	976734	976738	976741	35	1 = 1
25	9.976745	976748	976752	976755	976759	976762	976766	976770	976773	976777	976780	976784	34	2. 1
26	9.976787	976791	976794	976798	976801	976805	976808	976812	976816	976819	976823	976826	33	3. 2
27	9.976830	976833	976837	976840	976844	976847	976851	976854	976858	976861	976865	976868	32	4. 3
28	9.976872	976876	976879	976883	976886	976890	976893	976897	976900	976904	976907	976911	31	1 = 1
29	9.976914	976918	976921	976925	976928	976932	976935	976939	976943	976946	976950	976953	30	2. 1
30	9.976957	976960	976964	976967	976971	976974	976978	976981	976985	976988	976992	976995	29	3. 2
31	9.976999	977002	977006	977009	977013	977016	977020	977024	977027	977031	977034	977038	28	4. 3
32	9.977041	977045	977048	977052	977055	977059	977062	977066	977069	977073	977076	977080	27	1 = 1
33	9.977083	977087	977090	977094	977097	977101	977104	977108	977111	977115	977118	977122	26	2. 1
34	9.977125	977129	977132	977136	977139	977143	977146	977150	977153	977157	977160	977164	25	3. 2
35	9.977167	977171	977174	977178	977181	977185	977188	977192	977195	977199	977202	977206	24	4. 3
36	9.977209	977213	977216	977220	977223	977227	977230	977234	977237	977241	977244	977248	23	1 = 1
37	9.977251	977255	977258	977262	977265	977269	977272	977276	977279	977283	977286	977290	22	2. 1
38	9.977293	977297	977300	977304	977307	977311	977314	977318	977321	977325	977328	977332	21	3. 2
39	9.977335	977339	977342	977346	977349	977353	977356	977360	977363	977367	977370	977374	20	4. 3
40	9.977377	977381	977384	977388	977391	977395	977398	977402	977405	977409	977412	977416	19	1 = 1
41	9.977419	977423	977426	977430	977433	977437	977440	977444	977447	977450	977454	977457	18	2. 1
42	9.977461	977464	977468	977471	977475	977478	977482	977485	977489	977492	977496	977499	17	3. 2
43	9.977503	977506	977510	977513	977517	977520	977524	977527	977531	977534	977537	977541	16	4. 3
44	9.977544	977548	977551	977555	977558	977562	977565	977569	977572	977576	977579	977583	15	1 = 1
45	9.977586	977590	977593	977597	977600	977603	977607	977610	977614	977617	977621	977624	14	2. 1
46	9.977628	977631	977635	977638	977642	977645	977649	977652	977655	977659	977662	977666	13	3. 2
47	9.977669	977673	977676	977680	977683	977687	977690	977694	977697	977700	977704	977707	12	4. 3
48	9.977711	977714	977718	977721	977725	977728	977732	977735	977739	977742	977745	977749	11	1 = 1
49	9.977752	977756	977759	977763	977766	977770	977773	977777	977780	977784	977787	977790	10	2. 1
50	9.977794	977797	977801	977804	977808	977811	977815	977818	977821	977825	977828	977832	9	3. 2
51	9.977835	977839	977842	977846	977849	977853	977856	977859	977863	977866	977870	977873	8	4. 3
52	9.977877	977880	977884	977887	977890	977894	977897	977901	977904	977908	977911	977915	7	1 = 1
53	9.977918	977921	977925	977928	977932	977935	977939	977942	977946	977949	977952	977956	6	2. 1
54	9.977959	977963	977966	977970	977973	977977	977980	977983	977987	977990	977994	977997	5	3. 2
55	9.978001	978004	978008	978011	978014	978018	978021	978025	978028	978032	978035	978038	4	4. 3
56	9.978042	978045	978049	978052	978056	978059	978062	978066	978069	978073	978076	978080	3	1 = 1
57	9.978083	978086	978090	978093	978097	978100	978104	978107	978110	978114	978117	978121	2	2. 1
58	9.978124	978128	978131	978134	978138	978141	978145	978148	978152	978155	978158	978162	1	3. 2
59	9.978165	978169	978172	978176	978179	978182	978186	978189	978193	978196	978200	978203	0	4. 3
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 18 degrees, or Sine of 108 degrees.

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LOGARITHMIC SINES.

Sine of 72 degrees, or Co-sine of 162 degrees.

Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Proper parts.
0	9.978206	978210	978213	978217	978220	978223	978227	978230	978234	978237	978241	978244	59	1″= 1
1	9.978247	978251	978254	978258	978261	978264	978268	978271	978275	978278	978282	978285	58	2. 1
2	9.978288	978292	978295	978299	978302	978305	978309	978312	978316	978319	978323	978326	57	3. 2
3	9.978329	978333	978336	978340	978343	978346	978350	978353	978357	978360	978363	978367	56	4. 3
4	9.978370	978374	978377	978380	978384	978387	978391	978394	978397	978401	978404	978408	55	1 = 1
5	9.978411	978415	978418	978421	978425	978428	978432	978435	978438	978442	978445	978449	54	2. 1
6	9.978452	978455	978459	978462	978466	978469	978472	978476	978479	978483	978486	978489	53	3. 2
7	9.978493	978496	978500	978503	978506	978510	978513	978516	978520	978523	978527	978530	52	4. 3
8	9.978533	978537	978540	978544	978547	978550	978554	978557	978561	978564	978567	978571	51	1 = 1
9	9.978574	978578	978581	978584	978588	978591	978594	978598	978601	978605	978608	978611	50	2. 1
10	9.978615	978618	978622	978625	978628	978632	978635	978639	978642	978645	978649	978652	49	3. 2
11	9.978655	978659	978662	978666	978669	978672	978676	978679	978682	978686	978689	978693	48	4. 3
12	9.978696	978699	978703	978706	978710	978713	978716	978720	978723	978726	978730	978733	47	1 = 1
13	9.978737	978740	978743	978747	978750	978753	978757	978760	978764	978767	978770	978774	46	2. 1
14	9.978777	978780	978784	978787	978791	978794	978797	978801	978804	978807	978811	978814	45	3. 2
15	9.978818	978821	978824	978828	978831	978834	978838	978841	978844	978848	978851	978855	44	4. 3
16	9.978858	978861	978865	978868	978871	978875	978878	978881	978885	978888	978892	978895	43	1 = 1
17	9.978898	978902	978905	978908	978912	978915	978918	978922	978925	978929	978932	978935	42	2. 1
18	9.978939	978942	978945	978949	978952	978955	978959	978962	978966	978969	978972	978976	41	3. 2
19	9.978979	978982	978986	978989	978992	978996	978999	979002	979006	979009	979013	979016	40	4. 3
20	9.979019	979023	979026	979029	979033	979036	979039	979043	979046	979049	979053	979056	39	1 = 1
21	9.979059	979063	979066	979069	979073	979076	979080	979083	979086	979090	979093	979096	38	2. 1
22	9.979100	979103	979106	979110	979113	979116	979120	979123	979126	979130	979133	979136	37	3. 2
23	9.979140	979143	979146	979150	979153	979156	979160	979163	979166	979170	979173	979176	36	4. 3
24	9.979180	979183	979187	979190	979193	979197	979200	979203	979207	979210	979213	979217	35	1 = 1
25	9.979220	979223	979227	979230	979233	979237	979240	979243	979247	979250	979253	979257	34	2. 1
26	9.979260	979263	979267	979270	979273	979277	979280	979283	979287	979290	979293	979297	33	3. 2
27	9.979300	979303	979307	979310	979313	979317	979320	979323	979327	979330	979333	979336	32	4. 3
28	9.979340	979343	979346	979350	979353	979356	979360	979363	979366	979370	979373	979376	31	1 = 1
29	9.979380	979383	979386	979390	979393	979396	979400	979403	979406	979410	979413	979416	30	2. 1
30	9.979420	979423	979426	979430	979433	979436	979439	979443	979446	979449	979453	979456	29	3. 2
31	9.979459	979463	979466	979469	979473	979476	979479	979483	979486	979489	979493	979496	28	4. 3
32	9.979499	979502	979506	979509	979512	979516	979519	979522	979526	979529	979532	979536	27	1 = 1
33	9.979539	979542	979545	979549	979552	979555	979559	979562	979565	979569	979572	979575	26	2. 1
34	9.979579	979582	979585	979588	979592	979595	979598	979602	979605	979608	979612	979615	25	3. 2
35	9.979618	979622	979625	979628	979631	979635	979638	979641	979645	979648	979651	979655	24	4. 3
36	9.979658	979661	979664	979668	979671	979674	979678	979681	979684	979687	979691	979694	23	1 = 1
37	9.979697	979701	979704	979707	979711	979714	979717	979720	979724	979727	979730	979734	22	2. 1
38	9.979737	979740	979744	979747	979750	979753	979757	979760	979763	979767	979770	979773	21	3. 2
39	9.979776	979780	979783	979786	979790	979793	979796	979799	979803	979806	979809	979813	20	4. 3
40	9.979816	979819	979822	979826	979829	979832	979836	979839	979842	979845	979849	979852	19	1 = 1
41	9.979855	979859	979862	979865	979868	979872	979875	979878	979882	979885	979888	979891	18	2. 1
42	9.979895	979898	979901	979904	979908	979911	979914	979918	979921	979924	979927	979931	17	3. 2
43	9.979934	979937	979941	979944	979947	979950	979954	979957	979960	979963	979967	979970	16	4. 3
44	9.979973	979977	979980	979983	979986	979990	979993	979996	979999	980003	980006	980009	15	1 = 1
45	9.980012	980016	980019	980022	980026	980029	980032	980035	980039	980042	980045	980048	14	2. 1
46	9.980052	980055	980058	980061	980065	980068	980071	980075	980078	980081	980084	980088	13	3. 2
47	9.980091	980094	980097	980101	980104	980107	980110	980114	980117	980120	980123	980127	12	4. 3
48	9.980130	980133	980137	980140	980143	980146	980150	980153	980156	980159	980163	980166	11	1 = 1
49	9.980169	980172	980176	980179	980182	980185	980189	980192	980195	980198	980202	980205	10	2. 1
50	9.980208	980211	980215	980218	980221	980224	980228	980231	980234	980237	980241	980244	9	3. 2
51	9.980247	980250	980254	980257	980260	980263	980267	980270	980273	980276	980280	980283	8	4. 3
52	9.980286	980289	980293	980296	980299	980302	980306	980309	980312	980315	980319	980322	7	1 = 1
53	9.980325	980328	980332	980335	980338	980341	980344	980348	980351	980354	980357	980361	6	2. 1
54	9.980364	980367	980370	980374	980377	980380	980383	980387	980390	980393	980396	980400	5	3. 2
55	9.980403	980406	980409	980412	980416	980419	980422	980425	980429	980432	980435	980438	4	4. 3
56	9.980442	980445	980448	980451	980454	980458	980461	980464	980467	980471	980474	980477	3	1 = 1
57	9.980480	980484	980487	980490	980493	980496	980500	980503	980506	980509	980513	980516	2	2. 1
58	9.980519	980522	980525	980529	980532	980535	980538	980542	980545	980548	980551	980555	1	3. 2
59	9.980558	980561	980564	980567	980571	980574	980577	980580	980583	980587	980590	980593	0	4. 3
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proper parts.

Co-sine of 17 degrees, or Sine of 107 degrees.

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LOGARITHMIC SINES.

Sine of 73 degrees, or Co-sine of 163 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.980596	980600	980603	980606	980609	980612	980616	980619	980622	980625	980629	980632	59	1″ = 1
1	9.980635	980638	980641	980645	980648	980651	980654	980657	980661	980664	980667	980670	58	2. 1
2	9.980674	980677	980680	980683	980686	980690	980693	980696	980699	980702	980706	980709	57	3. 2
3	9.980712	980715	980718	980722	980725	980728	980731	980735	980738	980741	980744	980747	56	4. 3
4	9.980751	980754	980757	980760	980763	980767	980770	980773	980776	980779	980783	980786	55	1 = 1
5	9.980789	980792	980795	980799	980802	980805	980808	980811	980815	980818	980821	980824	54	2. 1
6	9.980827	980831	980834	980837	980840	980843	980847	980850	980853	980856	980859	980863	53	3. 2
7	9.980866	980869	980872	980875	980879	980882	980885	980888	980891	980894	980898	980901	52	4. 3
8	9.980904	980907	980910	980914	980917	980920	980923	980926	980930	980933	980936	980939	51	1 = 1
9	9.980942	980946	980949	980952	980955	980958	980961	980965	980968	980971	980974	980977	50	2. 1
10	9.980981	980984	980987	980990	980993	980997	981000	981003	981006	981009	981012	981016	49	3. 2
11	9.981019	981022	981025	981028	981032	981035	981038	981041	981044	981047	981051	981054	48	4. 3
12	9.981057	981060	981063	981066	981070	981073	981076	981079	981082	981086	981089	981092	47	1 = 1
13	9.981095	981098	981101	981105	981108	981111	981114	981117	981120	981124	981127	981130	46	2. 1
14	9.981133	981136	981140	981143	981146	981149	981152	981155	981159	981162	981165	981168	45	3. 2
15	9.981171	981174	981178	981181	981184	981187	981190	981193	981197	981200	981203	981206	44	4. 3
16	9.981209	981212	981216	981219	981222	981225	981228	981231	981235	981238	981241	981244	43	1 = 1
17	9.981247	981250	981253	981257	981260	981263	981266	981269	981272	981276	981279	981282	42	2. 1
18	9.981285	981288	981291	981295	981298	981301	981304	981307	981310	981313	981317	981320	41	3. 2
19	9.981323	981326	981320	981332	981336	981339	981342	981345	981348	981351	981355	981358	40	4. 3
20	9.981361	981364	981367	981370	981373	981377	981380	981383	981386	981389	981392	981395	39	1 = 1
21	9.981399	981402	981405	981408	981411	981414	981417	981421	981424	981427	981430	981433	38	2. 1
22	9.981436	981440	981443	981446	981449	981452	981455	981458	981462	981465	981468	981471	37	3. 2
23	9.981474	981477	981480	981484	981487	981490	981493	981496	981499	981502	981505	981509	36	4. 3
24	9.981512	981515	981518	981521	981524	981527	981531	981534	981537	981540	981543	981546	35	1 = 1
25	9.981549	981553	981556	981559	981562	981565	981568	981571	981574	981578	981581	981584	34	2. 1
26	9.981587	981590	981593	981596	981600	981603	981606	981609	981612	981615	981618	981621	33	3. 2
27	9.981625	981628	981631	981634	981637	981640	981643	981646	981650	981653	981656	981659	32	4. 3
28	9.981662	981665	981668	981671	981675	981678	981681	981684	981687	981690	981693	981696	31	1 = 1
29	9.981700	981703	981706	981709	981712	981715	981718	981721	981725	981728	981731	981734	30	2. 1
30	9.981737	981740	981743	981746	981749	981753	981756	981759	981762	981765	981768	981771	29	3. 2
31	9.981774	981778	981781	981784	981787	981790	981793	981796	981799	981802	981806	981809	28	4. 3
32	9.981812	981815	981818	981821	981824	981827	981830	981834	981837	981840	981843	981846	27	1 = 1
33	9.981849	981852	981855	981858	981862	981865	981868	981871	981874	981877	981880	981883	26	2. 1
34	9.981886	981889	981893	981896	981899	981902	981905	981908	981911	981914	981917	981921	25	3. 2
35	9.981924	981927	981930	981933	981936	981939	981942	981945	981948	981952	981955	981958	24	4. 3
36	9.981961	981964	981967	981970	981973	981976	981979	981983	981986	981989	981992	981995	23	1 = 1
37	9.981998	982001	982004	982007	982010	982013	982017	982020	982023	982026	982029	982032	22	2. 1
38	9.982035	982038	982041	982044	982047	982051	982054	982057	982060	982063	982066	982069	21	3. 2
39	9.982072	982075	982078	982081	982085	982088	982091	982094	982097	982100	982103	982106	20	4. 2
40	9.982109	982112	982115	982118	982122	982125	982128	982131	982134	982137	982140	982143	19	1 = 1
41	9.982146	982149	982152	982155	982159	982162	982165	982168	982171	982174	982177	982180	18	2. 1
42	9.982183	982186	982189	982192	982196	982199	982202	982205	982208	982211	982214	982217	17	3. 2
43	9.982220	982223	982226	982229	982232	982235	982239	982242	982245	982248	982251	982254	16	4. 2
44	9.982257	982260	982263	982266	982269	982272	982275	982278	982282	982285	982288	982291	15	1 = 1
45	9.982294	982297	982300	982303	982306	982309	982312	982315	982318	982321	982325	982328	14	2. 1
46	9.982331	982334	982337	982340	982343	982346	982349	982352	982355	982358	982361	982364	13	3. 2
47	9.982367	982370	982374	982377	982380	982383	982386	982389	982392	982395	982398	982401	12	4. 2
48	9.982404	982407	982410	982413	982416	982419	982422	982426	982429	982432	982435	982438	11	1 = 1
49	9.982441	982444	982447	982450	982453	982456	982459	982462	982465	982468	982471	982474	10	2. 1
50	9.982477	982481	982484	982487	982490	982493	982496	982499	982502	982505	982508	982511	9	3. 2
51	9.982514	982517	982520	982523	982526	982529	982532	982535	982538	982541	982545	982548	8	4. 2
52	9.982551	982554	982557	982560	982563	982566	982569	982572	982575	982578	982581	982584	7	1 = 1
53	9.982587	982590	982593	982596	982599	982602	982605	982608	982611	982615	982618	982621	6	2. 1
54	9.982624	982627	982630	982633	982636	982639	982642	982645	982648	982651	982654	982657	5	3. 2
55	9.982660	982663	982666	982669	982672	982675	982678	982681	982684	982687	982690	982693	4	4. 2
56	9.982696	982700	982703	982706	982709	982712	982715	982718	982721	982724	982727	982730	3	1 = 1
57	9.982733	982736	982739	982742	982745	982748	982751	982754	982757	982760	982763	982766	2	2. 1
58	9.982769	982772	982775	982778	982781	982784	982787	982790	982793	982796	982799	982802	1	3. 2
59	9.982805	982808	982811	982815	982818	982821	982824	982827	982830	982833	982836	982839	0	4. 2
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-sine of 16 degrees, or Sine of 106 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 74 degrees, or Co-sine of 164 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 982842	982845	982848	982851	982854	982857	982860	982863	982866	982869	982872	982875	59	1″= 1
1	9. 982878	982881	982884	982887	982890	982893	982896	982899	982902	982905	982908	982911	58	2. 1
2	9. 982914	982917	982920	982923	982926	982929	982932	982935	982938	982941	982944	982947	57	3. 1
3	9. 982950	982953	982956	982959	982962	982965	982968	982971	982974	982977	982980	982983	56	4. 2
4	9. 982986	982989	982992	982995	982998	983001	983004	983007	983010	983013	983016	983019	55	1 = 1
5	9. 983022	983025	983028	983031	983034	983037	983040	983043	983046	983049	983052	983055	54	2. 1
6	9. 983058	983061	983064	983067	983070	983073	983076	983079	983082	983085	983088	983091	53	3. 2
7	9. 983094	983097	983100	983103	983106	983109	983112	983115	983118	983121	983124	983127	52	4. 2
8	9. 983130	983133	983136	983139	983142	983145	983148	983151	983154	983157	983160	983163	51	1 = 1
9	9. 983166	983169	983172	983175	983178	983181	983184	983187	983190	983193	983196	983199	50	2. 1
10	9. 983202	983205	983208	983211	983214	983217	983220	983223	983226	983229	983232	983235	49	3. 2
11	9. 983238	983241	983244	983247	983250	983253	983256	983259	983262	983265	983268	983271	48	4. 2
12	9. 983274	983277	983279	983282	983285	983288	983291	983294	983297	983300	983303	983306	47	1 = 1
13	9. 983309	983312	983315	983318	983321	983324	983327	983330	983333	983336	983339	983342	46	2. 1
14	9. 983345	983348	983351	983354	983357	983360	983363	983366	983369	983372	983375	983378	45	3. 2
15	9. 983381	983384	983387	983389	983392	983395	983398	983401	983404	983407	983410	983413	44	4. 2
16	9. 983416	983419	983422	983425	983428	983431	983434	983437	983440	983443	983446	983449	43	1 = 1
17	9. 983452	983455	983458	983461	983464	983467	983470	983472	983475	983478	983481	983484	42	2. 1
18	9. 983487	983490	983493	983496	983499	983502	983505	983508	983511	983514	983517	983520	41	3. 2
19	9. 983523	983526	983529	983532	983535	983538	983541	983543	983546	983549	983552	983555	40	4. 2
20	9. 983558	983561	983564	983567	983570	983573	983576	983579	983582	983585	983588	983591	39	1 = 1
21	9. 983594	983597	983600	983602	983605	983608	983611	983614	983617	983620	983623	983626	38	2. 1
22	9. 983629	983632	983635	983638	983641	983644	983647	983650	983653	983656	983658	983661	37	3. 2
23	9. 983664	983667	983670	983673	983676	983679	983682	983685	983688	983691	983694	983697	36	4. 2
24	9. 983700	983703	983706	983708	983711	983714	983717	983720	983723	983726	983729	983732	35	1 = 1
25	9. 983735	983738	983741	983744	983747	983750	983753	983755	983758	983761	983764	983767	34	2. 1
26	9. 983770	983773	983776	983779	983782	983785	983788	983791	983794	983796	983799	983802	33	3. 2
27	9. 983805	983808	983811	983814	983817	983820	983823	983826	983829	983832	983835	983837	32	4. 2
28	9. 983840	983843	983846	983849	983852	983855	983858	983861	983864	983867	983870	983873	31	1 = 1
29	9. 983876	983878	983881	983884	983887	983890	983893	983896	983899	983902	983905	983908	30	2. 1
30	9. 983911	983913	983916	983919	983922	983925	983928	983931	983934	983937	983940	983943	29	3. 2
31	9. 983946	983948	983951	983954	983957	983960	983963	983966	983969	983972	983975	983978	28	4. 2
32	9. 983981	983983	983986	983989	983992	983995	983998	984001	984004	984007	984010	984013	27	1 = 1
33	9. 984015	984018	984021	984024	984027	984030	984033	984036	984039	984042	984045	984047	26	2. 1
34	9. 984050	984053	984056	984059	984062	984065	984068	984071	984074	984077	984079	984082	25	3. 2
35	9. 984085	984088	984091	984094	984097	984100	984103	984106	984108	984111	984114	984117	24	4. 2
36	9. 984120	984123	984126	984129	984132	984135	984137	984140	984143	984146	984149	984152	23	1 = 1
37	9. 984155	984158	984161	984164	984166	984169	984172	984175	984178	984181	984184	984187	22	2. 1
38	9. 984190	984192	984195	984198	984201	984204	984207	984210	984213	984216	984218	984221	21	3. 2
39	9. 984224	984227	984230	984233	984236	984239	984242	984244	984247	984250	984253	984256	20	4. 2
40	9. 984259	984262	984265	984268	984270	984273	984276	984279	984282	984285	984288	984291	19	1 = 1
41	9. 984294	984296	984299	984302	984305	984308	984311	984314	984317	984319	984322	984325	18	2. 1
42	9. 984328	984331	984334	984337	984340	984343	984345	984348	984351	984354	984357	984360	17	3. 2
43	9. 984363	984366	984368	984371	984374	984377	984380	984383	984386	984389	984391	984394	16	4. 2
44	9. 984397	984400	984403	984406	984409	984412	984414	984417	984420	984423	984426	984429	15	1 = 1
45	9. 984432	984435	984437	984440	984443	984446	984449	984452	984455	984457	984460	984463	14	2. 1
46	9. 984466	984469	984472	984475	984478	984480	984483	984486	984489	984492	984495	984498	13	3. 2
47	9. 984500	984503	984506	984509	984512	984515	984518	984520	984523	984526	984529	984532	12	4. 2
48	9. 984535	984538	984541	984543	984546	984549	984552	984555	984558	984561	984563	984566	11	1 = 1
49	9. 984569	984572	984575	984578	984581	984583	984586	984589	984592	984595	984598	984601	10	2. 1
50	9. 984603	984606	984609	984612	984615	984618	984620	984623	984626	984629	984632	984635	9	3. 2
51	9. 984638	984640	984643	984646	984649	984652	984655	984658	984660	984663	984666	984669	8	4. 2
52	9. 984672	984675	984677	984680	984683	984686	984689	984692	984695	984697	984700	984703	7	1 = 1
53	9. 984706	984709	984712	984714	984717	984720	984723	984726	984729	984731	984734	984737	6	2. 1
54	9. 984740	984743	984746	984749	984751	984754	984757	984760	984763	984766	984768	984771	5	3. 2
55	9. 984774	984777	984780	984783	984785	984788	984791	984794	984797	984800	984802	984805	4	4. 2
56	9. 984808	984811	984814	984817	984819	984822	984825	984828	984831	984834	984836	984839	3	1 = 1
57	9. 984842	984845	984848	984851	984853	984856	984859	984862	984865	984868	984870	984873	2	2. 1
58	9. 984876	984879	984882	984885	984887	984890	984893	984896	984899	984901	984904	984907	1	3. 2
59	9. 984910	984913	984916	984918	984921	984924	984927	984930	984933	984935	984938	984941	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-sine of 15 degrees, or Sine of 105 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 75 degrees, or Co-sine of 165 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.984944	984947	984949	984952	984955	984958	984961	984964	984966	984969	984972	984975	59	1″ = 1
1	9.984978	984980	984983	984986	984989	984992	984995	984997	985000	985003	985006	985009	58	2. 1
2	9.985011	985014	985017	985020	985023	985026	985028	985031	985034	985037	985040	985042	57	3. 2
3	9.985045	985048	985051	985054	985056	985059	985062	985065	985068	985070	985073	985076	56	4. 2
4	9.985079	985082	985085	985087	985090	985093	985096	985099	985101	985104	985107	985110	55	1 = 1
5	9.985113	985115	985118	985121	985124	985127	985129	985132	985135	985138	985141	985143	54	2. 1
6	9.985146	985149	985152	985155	985157	985160	985163	985166	985169	985171	985174	985177	53	3. 2
7	9.985180	985183	985185	985188	985191	985194	985197	985199	985202	985205	985208	985211	52	4. 2
8	9.985213	985216	985219	985222	985225	985227	985230	985233	985236	985239	985241	985244	51	1 = 1
9	9.985247	985250	985252	985255	985258	985261	985264	985266	985269	985272	985275	985278	50	2. 1
10	9.985280	985283	985286	985289	985292	985294	985297	985300	985303	985305	985308	985311	49	3. 2
11	9.985314	985317	985319	985322	985325	985328	985331	985333	985336	985339	985342	985344	48	4. 2
12	9.985347	985350	985353	985356	985358	985361	985364	985367	985369	985372	985375	985378	47	1 = 1
13	9.985381	985383	985386	985389	985392	985394	985397	985400	985403	985406	985408	985411	46	2. 1
14	9.985414	985417	985419	985422	985425	985428	985430	985433	985436	985439	985442	985444	45	3. 2
15	9.985447	985450	985453	985455	985458	985461	985464	985467	985469	985472	985475	985478	44	4. 2
16	9.985480	985483	985486	985489	985491	985494	985497	985500	985503	985505	985508	985511	43	1 = 1
17	9.985514	985516	985519	985522	985525	985527	985530	985533	985536	985538	985541	985544	42	2. 1
18	9.985547	985550	985552	985555	985558	985561	985563	985566	985569	985572	985574	985577	41	3. 2
19	9.985580	985583	985585	985588	985591	985594	985596	985599	985602	985605	985607	985610	40	4. 2
20	9.985613	985616	985618	985621	985624	985627	985629	985632	985635	985638	985641	985643	39	1 = 1
21	9.985646	985649	985652	985654	985657	985660	985663	985665	985668	985671	985674	985676	38	2. 1
22	9.985679	985682	985685	985687	985690	985693	985696	985698	985701	985704	985706	985709	37	3. 2
23	9.985712	985715	985717	985720	985723	985726	985728	985731	985734	985737	985739	985742	36	4. 2
24	9.985745	985748	985750	985753	985756	985759	985761	985764	985767	985770	985772	985775	35	1 = 1
25	9.985778	985781	985783	985786	985789	985791	985794	985797	985800	985802	985805	985808	34	2. 1
26	9.985811	985813	985816	985819	985822	985824	985827	985830	985833	985835	985838	985841	33	3. 2
27	9.985843	985846	985849	985852	985854	985857	985860	985863	985865	985868	985871	985873	32	4. 2
28	9.985876	985879	985882	985884	985887	985890	985893	985895	985898	985901	985903	985906	31	1 = 1
29	9.985909	985912	985914	985917	985920	985923	985925	985928	985931	985933	985936	985939	30	2. 1
30	9.985942	985944	985947	985950	985953	985955	985958	985961	985963	985966	985969	985972	29	3. 2
31	9.985974	985977	985980	985982	985985	985988	985991	985993	985996	985999	986001	986004	28	4. 2
32	9.986007	986010	986012	986015	986018	986020	986023	986026	986029	986031	986034	986037	27	1 = 1
33	9.986039	986042	986045	986048	986050	986053	986056	986058	986061	986064	986066	986069	26	2. 1
34	9.986072	986075	986077	986080	986083	986086	986088	986091	986094	986096	986099	986102	25	3. 2
35	9.986105	986107	986110	986113	986115	986118	986121	986123	986126	986129	986132	986134	24	4. 2
36	9.986137	986140	986142	986145	986148	986150	986153	986156	986159	986161	986164	986167	23	1 = 1
37	9.986169	986172	986175	986177	986180	986183	986186	986188	986191	986194	986196	986199	22	2. 1
38	9.986202	986204	986207	986210	986213	986215	986218	986221	986223	986226	986229	986231	21	3. 2
39	9.986234	986237	986239	986242	986245	986248	986250	986253	986256	986258	986261	986264	20	4. 2
40	9.986266	986269	986272	986274	986277	986280	986283	986285	986288	986291	986293	986296	19	1 = 1
41	9.986299	986301	986304	986307	986309	986312	986315	986317	986320	986323	986326	986328	18	2. 1
42	9.986331	986334	986336	986339	986342	986344	986347	986350	986352	986355	986358	986360	17	3. 2
43	9.986363	986366	986368	986371	986374	986376	986379	986382	986384	986387	986390	986393	16	4. 2
44	9.986395	986398	986401	986403	986406	986409	986411	986414	986417	986419	986422	986425	15	1 = 1
45	9.986427	986430	986433	986435	986438	986441	986443	986446	986449	986451	986454	986457	14	2. 1
46	9.986459	986462	986465	986467	986470	986473	986475	986478	986481	986483	986486	986489	13	3. 2
47	9.986491	986494	986497	986499	986502	986505	986507	986510	986513	986515	986518	986521	12	4. 2
48	9.986523	986526	986529	986531	986534	986537	986539	986542	986545	986547	986550	986553	11	1 = 1
49	9.986555	986558	986561	986563	986566	986569	986571	986574	986577	986579	986582	986585	10	2. 1
50	9.986587	986590	986593	986595	986598	986601	986603	986606	986608	986611	986614	986616	9	3. 2
51	9.986619	986622	986624	986627	986630	986632	986635	986638	986640	986643	986646	986648	8	4. 2
52	9.986651	986654	986656	986659	986662	986664	986667	986669	986672	986675	986677	986680	7	1 = 1
53	9.986683	986685	986688	986691	986693	986696	986699	986701	986704	986707	986709	986712	6	2. 1
54	9.986714	986717	986720	986722	986725	986728	986730	986733	986736	986738	986741	986744	5	3. 2
55	9.986746	986749	986751	986754	986757	986759	986762	986765	986767	986770	986773	986775	4	4. 2
56	9.986778	986781	986783	986786	986788	986791	986794	986796	986799	986802	986804	986807	3	1 = 1
57	9.986809	986812	986815	986817	986820	986823	986825	986828	986831	986833	986836	986838	2	2. 1
58	9.986841	986844	986846	986849	986852	986854	986857	986860	986862	986865	986867	986870	1	3. 2
59	9.986873	986875	986878	986881	986883	986886	986888	986891	986894	986896	986899	986902	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 14 degrees, or Sine of 104 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 76 degrees, or Co-sine of 166 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 986904	986907	986909	986912	986915	986917	986920	986923	986925	986928	986930	986933	59	1″ = 1
1	9. 986936	986938	986941	986944	986946	986949	986951	986954	986957	986959	986962	986964	58	2. 1
2	9. 986967	986970	986972	986975	986978	986980	986983	986985	986988	986991	986993	986996	57	3. 2
3	9. 986998	987001	987004	987006	987009	987012	987014	987017	987019	987022	987025	987027	56	4. 2
4	9. 987030	987032	987035	987038	987040	987043	987046	987048	987051	987053	987056	987059	55	1 = 1
5	9. 987061	987064	987066	987069	987072	987074	987077	987079	987082	987085	987087	987090	54	2. 1
6	9. 987092	987095	987098	987100	987103	987105	987108	987111	987113	987116	987118	987121	53	3. 2
7	9. 987124	987126	987129	987132	987134	987137	987139	987142	987145	987147	987150	987152	52	4. 2
8	9. 987155	987158	987160	987163	987165	987168	987170	987173	987176	987178	987181	987183	51	1 = 1
9	9. 987186	987189	987191	987194	987196	987199	987202	987204	987207	987209	987212	987215	50	2. 1
10	9. 987217	987220	987222	987225	987228	987230	987233	987235	987238	987241	987243	987246	49	3. 2
11	9. 987248	987251	987253	987256	987259	987261	987264	987266	987269	987272	987274	987277	48	4. 2
12	9. 987279	987282	987285	987287	987290	987292	987295	987297	987300	987303	987305	987308	47	1 = 1
13	9. 987310	987313	987316	987318	987321	987323	987326	987328	987331	987334	987336	987339	46	2. 1
14	9. 987341	987344	987346	987349	987352	987354	987357	987359	987362	987365	987367	987370	45	3. 2
15	9. 987372	987375	987377	987380	987383	987385	987388	987390	987393	987395	987398	987401	44	4. 2
16	9. 987403	987406	987408	987411	987413	987416	987419	987421	987424	987426	987429	987431	43	1 = 1
17	9. 987434	987437	987439	987442	987444	987447	987449	987452	987455	987457	987460	987462	42	2. 1
18	9. 987465	987467	987470	987473	987475	987478	987480	987483	987485	987488	987490	987493	41	3. 2
19	9. 987496	987498	987501	987503	987506	987508	987511	987514	987516	987519	987521	987524	40	4. 2
20	9. 987526	987529	987531	987534	987537	987539	987542	987544	987547	987549	987552	987554	39	1 = 1
21	9. 987557	987560	987562	987565	987567	987570	987572	987575	987577	987580	987583	987585	38	2. 1
22	9. 987588	987590	987593	987595	987598	987600	987603	987606	987608	987611	987613	987616	37	3. 2
23	9. 987618	987621	987623	987626	987629	987631	987634	987636	987639	987641	987644	987646	36	4. 2
24	9. 987649	987651	987654	987657	987659	987662	987664	987667	987669	987672	987674	987677	35	1 = 1
25	9. 987679	987682	987685	987687	987690	987692	987695	987697	987700	987702	987705	987707	34	2. 1
26	9. 987710	987712	987715	987718	987720	987723	987725	987728	987730	987733	987735	987738	33	3. 2
27	9. 987740	987743	987745	987748	987751	987753	987756	987758	987761	987763	987766	987768	32	4. 2
28	9. 987771	987773	987776	987778	987781	987783	987786	987789	987791	987794	987796	987799	31	1 = 1
29	9. 987801	987804	987806	987809	987811	987814	987816	987819	987821	987824	987827	987829	30	2. 1
30	9. 987832	987834	987837	987839	987842	987844	987847	987849	987852	987854	987857	987859	29	3. 2
31	9. 987862	987864	987867	987869	987872	987874	987877	987880	987882	987885	987887	987890	28	4. 2
32	9. 987892	987895	987897	987900	987902	987905	987907	987910	987912	987915	987917	987920	27	1 = 1
33	9. 987922	987925	987927	987930	987932	987935	987937	987940	987943	987945	987948	987950	26	2. 1
34	9. 987953	987955	987958	987960	987963	987965	987968	987970	987973	987975	987978	987980	25	3. 2
35	9. 987983	987985	987988	987990	987993	987995	987998	988000	988003	988005	988008	988010	24	4. 2
36	9. 988013	988015	988018	988020	988023	988025	988028	988030	988033	988035	988038	988040	23	1 = 1
37	9. 988043	988045	988048	988050	988053	988055	988058	988060	988063	988065	988068	988070	22	2. 1
38	9. 988073	988075	988078	988080	988083	988085	988088	988090	988093	988095	988098	988100	21	3. 2
39	9. 988103	988105	988108	988110	988113	988115	988118	988120	988123	988125	988128	988130	20	4. 2
40	9. 988133	988135	988138	988140	988143	988145	988148	988150	988153	988155	988158	988160	19	1 = 1
41	9. 988163	988165	988168	988170	988173	988175	988178	988180	988183	988185	988188	988190	18	2. 1
42	9. 988193	988195	988198	988200	988203	988205	988208	988210	988213	988215	988218	988220	17	3. 2
43	9. 988223	988225	988227	988230	988232	988235	988237	988240	988242	988245	988247	988250	16	4. 2
44	9. 988252	988255	988257	988260	988262	988265	988267	988270	988272	988275	988277	988280	15	1 = 0
45	9. 988282	988285	988287	988290	988292	988295	988297	988299	988302	988304	988307	988309	14	2. 1
46	9. 988312	988314	988317	988319	988322	988324	988327	988329	988332	988334	988337	988339	13	3. 2
47	9. 988342	988344	988346	988349	988351	988354	988356	988359	988361	988364	988366	988369	12	4. 2
48	9. 988371	988374	988376	988379	988381	988384	988386	988388	988391	988393	988396	988398	11	1 = 0
49	9. 988401	988403	988406	988408	988411	988413	988416	988418	988421	988423	988425	988428	10	2. 1
50	9. 988430	988433	988435	988438	988440	988443	988445	988448	988450	988453	988455	988457	9	3. 1
51	9. 988460	988462	988465	988467	988470	988472	988475	988477	988480	988482	988484	988487	8	4. 2
52	9. 988489	988492	988494	988497	988499	988502	988504	988507	988509	988512	988514	988516	7	1 = 0
53	9. 988519	988521	988524	988526	988529	988531	988534	988536	988538	988541	988543	988546	6	2. 1
54	9. 988548	988551	988553	988556	988558	988561	988563	988565	988568	988570	988573	988575	5	3. 1
55	9. 988578	988580	988583	988585	988587	988590	988592	988595	988597	988600	988602	988605	4	4. 2
56	9. 988607	988609	988612	988614	988617	988619	988622	988624	988627	988629	988631	988634	3	1 = 0
57	9. 988636	988639	988641	988644	988646	988649	988651	988653	988656	988658	988661	988663	2	2. 1
58	9. 988666	988668	988670	988673	988675	988678	988680	988683	988685	988687	988690	988692	1	3. 1
59	9. 988695	988697	988700	988702	988705	988707	988709	988712	988714	988717	988719	988722	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-sine of 13 degrees, or Sine of 103 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 77 degrees, or Co-sine of 167 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.988724	988726	988729	988731	988734	988736	988739	988741	988743	988746	988748	988751	59	1″ = 0
1	9.988753	988756	988758	988760	988763	988765	988768	988770	988773	988775	988777	988780	58	2. 1
2	9.988782	988785	988787	988790	988792	988794	988797	988799	988802	988804	988806	988809	57	3. 1
3	9.988811	988814	988816	988819	988821	988823	988826	988828	988831	988833	988836	988838	56	4. 2
4	9.988840	988843	988845	988848	988850	988852	988855	988857	988860	988862	988864	988867	55	1 = 0
5	9.988869	988872	988874	988877	988879	988881	988884	988886	988889	988891	988893	988896	54	2. 1
6	9.988898	988901	988903	988906	988908	988910	988913	988915	988918	988920	988922	988925	53	3. 1
7	9.988927	988930	988932	988934	988937	988939	988942	988944	988946	988949	988951	988954	52	4. 2
8	9.988956	988958	988961	988963	988966	988968	988970	988973	988975	988978	988980	988983	51	1 = 0
9	9.988985	988987	988990	988992	988995	988997	988999	989002	989004	989007	989009	989011	50	2. 1
10	9.989014	989016	989019	989021	989023	989026	989028	989030	989033	989035	989038	989040	49	3. 1
11	9.989042	989045	989047	989050	989052	989054	989057	989059	989062	989064	989066	989069	48	4. 2
12	9.989071	989074	989076	989078	989081	989083	989086	989088	989090	989093	989095	989097	47	1 = 0
13	9.989100	989102	989105	989107	989109	989112	989114	989117	989119	989121	989124	989126	46	2. 1
14	9.989129	989131	989133	989136	989138	989140	989143	989145	989148	989150	989152	989155	45	3. 1
15	9.989157	989160	989162	989164	989167	989169	989171	989174	989176	989179	989181	989183	44	4. 2
16	9.989186	989188	989190	989193	989195	989198	989200	989202	989205	989207	989209	989212	43	1 = 0
17	9.989214	989217	989219	989221	989224	989226	989228	989231	989233	989236	989238	989240	42	2. 1
18	9.989243	989245	989247	989250	989252	989255	989257	989259	989262	989264	989266	989269	41	3. 1
19	9.989271	989274	989276	989278	989281	989283	989285	989288	989290	989292	989295	989297	40	4. 2
20	9.989300	989302	989304	989307	989309	989311	989314	989316	989318	989321	989323	989326	39	1 = 0
21	9.989328	989330	989333	989335	989337	989340	989342	989344	989347	989349	989352	989354	38	2. 1
22	9.989356	989359	989361	989363	989366	989368	989370	989373	989375	989377	989380	989382	37	3. 1
23	9.989385	989387	989389	989392	989394	989396	989399	989401	989403	989406	989408	989410	36	4. 2
24	9.989413	989415	989418	989420	989422	989425	989427	989429	989432	989434	989436	989439	35	1 = 0
25	9.989441	989443	989446	989448	989450	989453	989455	989457	989460	989462	989465	989467	34	2. 1
26	9.989469	989472	989474	989476	989479	989481	989483	989486	989488	989490	989493	989495	33	3. 1
27	9.989497	989500	989502	989504	989507	989509	989511	989514	989516	989518	989521	989523	32	4. 2
28	9.989525	989528	989530	989532	989535	989537	989540	989542	989544	989547	989549	989551	31	1 = 0
29	9.989554	989556	989558	989561	989563	989565	989568	989570	989572	989575	989577	989579	30	2. 1
30	9.989582	989584	989586	989589	989591	989593	989596	989598	989600	989603	989605	989607	29	3. 1
31	9.989610	989612	989614	989617	989619	989621	989624	989626	989628	989631	989633	989635	28	4. 2
32	9.989637	989640	989642	989644	989647	989649	989651	989654	989656	989658	989661	989663	27	1 = 0
33	9.989665	989668	989670	989672	989675	989677	989679	989682	989684	989686	989689	989691	26	2. 1
34	9.989693	989696	989698	989700	989703	989705	989707	989710	989712	989714	989716	989719	25	3. 1
35	9.989721	989723	989726	989728	989730	989733	989735	989737	989740	989742	989744	989747	24	4. 2
36	9.989749	989751	989754	989756	989758	989760	989763	989765	989767	989770	989772	989774	23	1 = 0
37	9.989777	989779	989781	989784	989786	989788	989791	989793	989795	989797	989800	989802	22	2. 1
38	9.989804	989807	989809	989811	989814	989816	989818	989821	989823	989825	989827	989830	21	3. 1
39	9.989832	989834	989837	989839	989841	989844	989846	989848	989850	989853	989855	989857	20	4. 2
40	9.989860	989862	989864	989867	989869	989871	989874	989876	989878	989880	989883	989885	19	1 = 0
41	9.989887	989890	989892	989894	989897	989899	989901	989903	989906	989908	989910	989913	18	2. 1
42	9.989915	989917	989919	989922	989924	989926	989929	989931	989933	989936	989938	989940	17	3. 1
43	9.989942	989945	989947	989949	989952	989954	989956	989958	989961	989963	989965	989968	16	4. 2
44	9.989970	989972	989974	989977	989979	989981	989984	989986	989988	989990	989993	989995	15	1 = 0
45	9.989997	990000	990002	990004	990006	990009	990011	990013	990016	990018	990020	990022	14	2. 1
46	9.990025	990027	990029	990032	990034	990036	990038	990041	990043	990045	990048	990050	13	3. 1
47	9.990052	990054	990057	990059	990061	990064	990066	990068	990070	990073	990075	990077	12	4. 2
48	9.990079	990082	990084	990086	990089	990091	990093	990095	990098	990100	990102	990104	11	1 = 0
49	9.990107	990109	990111	990114	990116	990118	990120	990123	990125	990127	990129	990132	10	2. 1
50	9.990134	990136	990139	990141	990143	990145	990148	990150	990152	990154	990157	990159	9	3. 1
51	9.990161	990163	990166	990168	990170	990173	990175	990177	990179	990182	990184	990186	8	4. 2
52	9.990188	990191	990193	990195	990197	990200	990202	990204	990206	990209	990211	990213	7	1 = 0
53	9.990216	990218	990220	990222	990225	990227	990229	990231	990234	990236	990238	990240	6	2. 1
54	9.990243	990245	990247	990249	990252	990254	990256	990258	990261	990263	990265	990267	5	3. 1
55	9.990270	990272	990274	990276	990279	990281	990283	990285	990288	990290	990292	990294	4	4. 2
56	9.990297	990299	990301	990303	990306	990308	990310	990312	990315	990317	990319	990321	3	1 = 0
57	9.990324	990326	990328	990330	990333	990335	990337	990339	990342	990344	990346	990348	2	2. 1
58	9.990351	990353	990355	990357	990360	990362	990364	990366	990369	990371	990373	990375	1	3. 1
59	9.990378	990380	990382	990384	990387	990389	990391	990393	990395	990398	990400	990402	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 12 degrees, or Sine of 102 degrees.													

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Table XXXVI.

LOGARITHMIC SINES.

Minutes	Sine of 78 degrees, or Co-sine of 168 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportionals.
0	9. 990404	990407	990409	990411	990413	990416	990418	990420	990422	990425	990427	990429	59	1″ = 0
1	9. 990431	990434	990436	990438	990440	990442	990445	990447	990449	990451	990454	990456	58	2. 1
2	9. 990458	990460	990463	990465	990467	990469	990471	990474	990476	990478	990480	990483	57	3. 1
3	9. 990485	990487	990489	990492	990494	990496	990498	990500	990503	990505	990507	990509	56	4. 2
4	9. 990512	990514	990516	990518	990520	990523	990525	990527	990529	990532	990534	990536	55	1 = 0
5	9. 990538	990540	990543	990545	990547	990549	990552	990554	990556	990558	990560	990563	54	2. 1
6	9. 990565	990567	990569	990572	990574	990576	990578	990580	990583	990585	990587	990589	53	3. 1
7	9. 990591	990594	990596	990598	990600	990603	990605	990607	990609	990611	990614	990616	52	4. 2
8	9. 990618	990620	990622	990625	990627	990629	990631	990634	990636	990638	990640	990642	51	1 = 0
9	9. 990645	990647	990649	990651	990653	990656	990658	990660	990662	990664	990667	990669	50	2. 1
10	9. 990671	990673	990675	990678	990680	990682	990684	990686	990689	990691	990693	990695	49	3. 1
11	9. 990697	990700	990702	990704	990706	990709	990711	990713	990715	990717	990720	990722	48	4. 2
12	9. 990724	990726	990728	990731	990733	990735	990737	990739	990741	990744	990746	990748	47	1 = 0
13	9. 990750	990752	990755	990757	990759	990761	990763	990766	990768	990770	990772	990774	46	2. 1
14	9. 990777	990779	990781	990783	990785	990788	990790	990792	990794	990796	990799	990801	45	3. 1
15	9. 990803	990805	990807	990809	990812	990814	990816	990818	990820	990823	990825	990827	44	4. 2
16	9. 990829	990831	990834	990836	990838	990840	990842	990844	990847	990849	990851	990853	43	1 = 0
17	9. 990855	990858	990860	990862	990864	990866	990868	990871	990873	990875	990877	990879	42	2. 1
18	9. 990882	990884	990886	990888	990890	990892	990895	990897	990899	990901	990903	990906	41	3. 1
19	9. 990908	990910	990912	990914	990916	990919	990921	990923	990925	990927	990929	990932	40	4. 2
20	9. 990934	990936	990938	990940	990943	990945	990947	990949	990951	990953	990956	990958	39	1 = 0
21	9. 990960	990962	990964	990966	990969	990971	990973	990975	990977	990979	990982	990984	38	2. 1
22	9. 990986	990988	990990	990992	990995	990997	990999	991001	991003	991005	991008	991010	37	3. 1
23	9. 991012	991014	991016	991018	991021	991023	991025	991027	991029	991031	991034	991036	36	4. 2
24	9. 991038	991040	991042	991044	991046	991049	991051	991053	991055	991057	991059	991062	35	1 = 0
25	9. 991064	991066	991068	991070	991072	991075	991077	991079	991081	991083	991085	991087	34	2. 1
26	9. 991090	991092	991094	991096	991098	991100	991103	991105	991107	991109	991111	991113	33	3. 1
27	9. 991115	991118	991120	991122	991124	991126	991128	991131	991133	991135	991137	991139	32	4. 2
28	9. 991144	991143	991146	991148	991150	991152	991154	991156	991158	991161	991163	991165	31	1 = 0
29	9. 991167	991169	991171	991173	991176	991178	991180	991182	991184	991186	991188	991191	30	2. 1
30	9. 991193	991195	991197	991199	991201	991203	991206	991208	991210	991212	991214	991216	29	3. 1
31	9. 991218	991221	991223	991225	991227	991229	991231	991233	991236	991238	991240	991242	28	4. 2
32	9. 991244	991246	991248	991250	991253	991255	991257	991259	991261	991263	991265	991268	27	1 = 0
33	9. 991270	991272	991274	991276	991278	991280	991282	991285	991287	991289	991291	991293	26	2. 1
34	9. 991295	991297	991300	991302	991304	991306	991308	991310	991312	991314	991317	991319	25	3. 1
35	9. 991321	991323	991325	991327	991329	991331	991334	991336	991338	991340	991342	991344	24	4. 2
36	9. 991346	991348	991351	991353	991355	991357	991359	991361	991363	991365	991367	991370	23	1 = 0
37	9. 991372	991374	991376	991378	991380	991382	991384	991387	991389	991391	991393	991395	22	2. 1
38	9. 991397	991399	991401	991403	991406	991408	991410	991412	991414	991416	991418	991420	21	3. 1
39	9. 991423	991425	991427	991429	991431	991433	991435	991437	991439	991442	991444	991446	20	4. 2
40	9. 991448	991450	991452	991454	991456	991458	991461	991463	991465	991467	991469	991471	19	1 = 0
41	9. 991473	991475	991477	991479	991482	991484	991486	991488	991490	991492	991494	991496	18	2. 1
42	9. 991498	991501	991503	991505	991507	991509	991511	991513	991515	991517	991519	991522	17	3. 1
43	9. 991524	991526	991528	991530	991532	991534	991536	991538	991540	991543	991545	991547	16	4. 2
44	9. 991549	991551	991553	991555	991557	991559	991561	991564	991566	991568	991570	991572	15	1 = 0
45	9. 991574	991576	991578	991580	991582	991584	991587	991589	991591	991593	991595	991597	14	2. 1
46	9. 991599	991601	991603	991605	991607	991610	991612	991614	991616	991618	991620	991622	13	3. 1
47	9. 991624	991626	991628	991630	991633	991635	991637	991639	991641	991643	991645	991647	12	4. 2
48	9. 991649	991651	991653	991655	991658	991660	991662	991664	991666	991668	991670	991672	11	1 = 0
49	9. 991674	991676	991678	991680	991683	991685	991687	991689	991691	991693	991695	991697	10	2. 1
50	9. 991699	991701	991703	991705	991707	991710	991712	991714	991716	991718	991720	991722	9	3. 1
51	9. 991724	991726	991728	991730	991732	991734	991737	991739	991741	991743	991745	991747	8	4. 2
52	9. 991749	991751	991753	991755	991757	991759	991761	991763	991766	991768	991770	991772	7	1 = 0
53	9. 991774	991776	991778	991780	991782	991784	991786	991788	991790	991792	991794	991797	6	2. 1
54	9. 991799	991801	991803	991805	991807	991809	991811	991813	991815	991817	991819	991821	5	3. 1
55	9. 991823	991825	991827	991830	991832	991834	991836	991838	991840	991842	991844	991846	4	4. 2
56	9. 991848	991850	991852	991854	991856	991858	991860	991863	991865	991867	991869	991871	3	1 = 0
57	9. 991873	991875	991877	991879	991881	991883	991885	991887	991889	991891	991893	991895	2	2. 1
58	9. 991897	991899	991902	991904	991906	991908	991910	991912	991914	991916	991918	991920	1	3. 1
59	9. 991922	991924	991926	991928	991930	991932	991934	991936	991938	991940	991943	991945	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportionals.

Co-sine of 11 degrees, or Sine of 101 degrees.

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LOGARITHMIC SINES.

Minutes	Sine of 79 degrees, or Co-sine of 169 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.991947	991949	991951	991953	991955	991957	991959	991961	991963	991965	991967	991969	59	1″ = 0
1	9.991971	991973	991975	991977	991979	991981	991983	991985	991988	991990	991992	991994	58	2. 1
2	9.991996	991998	992000	992002	992004	992006	992008	992010	992012	992014	992016	992018	57	3. 1
3	9.992020	992022	992024	992026	992028	992030	992032	992034	992036	992038	992040	992043	56	4. 2
4	9.992045	992047	992049	992051	992053	992055	992057	992059	992061	992063	992065	992067	55	1 = 0
5	9.992069	992071	992073	992075	992077	992079	992081	992083	992085	992087	992089	992091	54	2. 1
6	9.992093	992095	992097	992099	992101	992103	992105	992107	992109	992112	992114	992116	53	3. 1
7	9.992118	992120	992122	992124	992126	992128	992130	992132	992134	992136	992138	992140	52	4. 2
8	9.992142	992144	992146	992148	992150	992152	992154	992156	992158	992160	992162	992164	51	1 = 0
9	9.992166	992168	992170	992172	992174	992176	992178	992180	992182	992184	992186	992188	50	2. 1
10	9.992190	992192	992194	992196	992198	992200	992202	992204	992206	992208	992210	992212	49	3. 1
11	9.992214	992216	992218	992220	992222	992224	992226	992228	992230	992232	992234	992237	48	4. 2
12	9.992239	992241	992243	992245	992247	992249	992251	992253	992255	992257	992259	992261	47	1 = 0
13	9.992263	992265	992267	992269	992271	992273	992275	992277	992279	992281	992283	992285	46	2. 1
14	9.992287	992289	992291	992293	992295	992297	992299	992301	992303	992305	992307	992309	45	3. 1
15	9.992311	992313	992315	992317	992319	992321	992323	992325	992327	992329	992331	992333	44	4. 2
16	9.992335	992337	992339	992341	992343	992345	992347	992349	992351	992353	992355	992357	43	1 = 0
17	9.992358	992360	992362	992364	992366	992368	992370	992372	992374	992376	992378	992380	42	2. 1
18	9.992382	992384	992386	992388	992390	992392	992394	992396	992398	992400	992402	992404	41	3. 1
19	9.992406	992408	992410	992412	992414	992416	992418	992420	992422	992424	992426	992428	40	4. 2
20	9.992430	992432	992434	992436	992438	992440	992442	992444	992446	992448	992450	992452	39	1 = 0
21	9.992454	992456	992458	992460	992462	992464	992466	992468	992470	992472	992474	992476	38	2. 1
22	9.992478	992480	992482	992484	992485	992487	992489	992491	992493	992495	992497	992499	37	3. 1
23	9.992501	992503	992505	992507	992509	992511	992513	992515	992517	992519	992521	992523	36	4. 2
24	9.992525	992527	992529	992531	992533	992535	992537	992539	992541	992543	992545	992547	35	1 = 0
25	9.992549	992551	992552	992554	992556	992558	992560	992562	992564	992566	992568	992570	34	2. 1
26	9.992572	992574	992576	992578	992580	992582	992584	992586	992588	992590	992592	992594	33	3. 1
27	9.992596	992598	992600	992602	992604	992606	992607	992609	992611	992613	992615	992617	32	4. 2
28	9.992619	992621	992623	992625	992627	992629	992631	992633	992635	992637	992639	992641	31	1 = 0
29	9.992643	992645	992647	992649	992651	992653	992654	992656	992658	992660	992662	992664	30	2. 1
30	9.992666	992668	992670	992672	992674	992676	992678	992680	992682	992684	992686	992688	29	3. 1
31	9.992690	992692	992693	992695	992697	992699	992701	992703	992705	992707	992709	992711	28	4. 2
32	9.992713	992715	992717	992719	992721	992723	992725	992727	992728	992730	992732	992734	27	1 = 0
33	9.992736	992738	992740	992742	992744	992746	992748	992750	992752	992754	992756	992758	26	2. 1
34	9.992759	992761	992763	992765	992767	992769	992771	992773	992775	992777	992779	992781	25	3. 1
35	9.992783	992785	992787	992789	992791	992792	992794	992796	992798	992800	992802	992804	24	4. 2
36	9.992806	992808	992810	992812	992814	992816	992818	992819	992821	992823	992825	992827	23	1 = 0
37	9.992829	992831	992833	992835	992837	992839	992841	992843	992845	992846	992848	992850	22	2. 1
38	9.992852	992854	992856	992858	992860	992862	992864	992866	992868	992870	992872	992873	21	3. 1
39	9.992875	992877	992879	992881	992883	992885	992887	992889	992891	992893	992895	992896	20	4. 2
40	9.992898	992900	992902	992904	992906	992908	992910	992912	992914	992916	992918	992920	19	1 = 0
41	9.992921	992923	992925	992927	992929	992931	992933	992935	992937	992939	992941	992942	18	2. 1
42	9.992944	992946	992948	992950	992952	992954	992956	992958	992960	992962	992964	992965	17	3. 1
43	9.992967	992969	992971	992973	992975	992977	992979	992981	992983	992985	992986	992988	16	4. 2
44	9.992990	992992	992994	992996	992998	993000	993002	993004	993005	993007	993009	993011	15	1 = 0
45	9.993013	993015	993017	993019	993021	993023	993025	993026	993028	993030	993032	993034	14	2. 1
46	9.993036	993038	993040	993042	993044	993045	993047	993049	993051	993053	993055	993057	13	3. 1
47	9.993059	993061	993063	993064	993066	993068	993070	993072	993074	993076	993078	993080	12	4. 2
48	9.993081	993083	993085	993087	993089	993091	993093	993095	993097	993099	993100	993102	11	1 = 0
49	9.993104	993106	993108	993110	993112	993114	993116	993117	993119	993121	993123	993125	10	2. 1
50	9.993127	993129	993131	993133	993134	993136	993138	993140	993142	993144	993146	993148	9	3. 1
51	9.993149	993151	993153	993155	993157	993159	993161	993163	993165	993166	993168	993170	8	4. 2
52	9.993172	993174	993176	993178	993180	993181	993183	993185	993187	993189	993191	993193	7	1 = 0
53	9.993195	993197	993198	993200	993202	993204	993206	993208	993210	993212	993213	993215	6	2. 1
54	9.993217	993219	993221	993223	993225	993227	993228	993230	993232	993234	993236	993238	5	3. 1
55	9.993240	993242	993243	993245	993247	993249	993251	993253	993255	993256	993258	993260	4	4. 2
56	9.993262	993264	993266	993268	993270	993271	993273	993275	993277	993279	993281	993283	3	1 = 0
57	9.993285	993286	993288	993290	993292	993294	993296	993298	993299	993301	993303	993305	2	2. 1
58	9.993307	993309	993311	993312	993314	993316	993318	993320	993322	993324	993325	993327	1	3. 1
59	9.993329	993331	993333	993335	993337	993339	993340	993342	993344	993346	993348	993350	0	4. 1
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-sine of 10 degrees, or Sine of 100 degrees.													

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LOGARITHMIC SINES.

Minutes	Sine of 80 degrees, or Co-sine of 170 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	9.993351	9.993355	9.993359	9.993363	9.993366	9.993370	59	
1	9.993374	9.993377	9.993381	9.993385	9.993389	9.993392	58	1″ = 0
2	9.993396	9.993400	9.993403	9.993407	9.993411	9.993414	57	2. 1
3	9.993418	9.993422	9.993426	9.993429	9.993433	9.993437	56	3. 1
4	9.993440	9.993444	9.993448	9.993451	9.993455	9.993459	55	4. 1
5	9.993462	9.993466	9.993470	9.993473	9.993477	9.993481	54	5. 2
6	9.993484	9.993488	9.993492	9.993496	9.993499	9.993503	53	6. 2
7	9.993506	9.993510	9.993514	9.993518	9.993521	9.993525	52	7. 3
8	9.993528	9.993532	9.993536	9.993539	9.993543	9.993547	51	8. 3
9	9.993550	9.993554	9.993558	9.993561	9.993565	9.993569	50	9. 3
10	9.993572	9.993576	9.993580	9.993583	9.993587	9.993591	49	
11	9.993594	9.993598	9.993602	9.993605	9.993609	9.993612	48	1 = 0
12	9.993616	9.993620	9.993623	9.993627	9.993631	9.993634	47	2. 1
13	9.993638	9.993641	9.993645	9.993649	9.993652	9.993656	46	3. 1
14	9.993660	9.993663	9.993667	9.993670	9.993674	9.993678	45	4. 1
15	9.993681	9.993685	9.993689	9.993692	9.993696	9.993699	44	5. 2
16	9.993703	9.993707	9.993710	9.993714	9.993718	9.993721	43	6. 2
17	9.993725	9.993728	9.993732	9.993736	9.993739	9.993743	42	7. 2
18	9.993746	9.993750	9.993754	9.993757	9.993761	9.993764	41	8. 3
19	9.993768	9.993772	9.993775	9.993779	9.993782	9.993786	40	9. 3
20	9.993789	9.993793	9.993797	9.993800	9.993804	9.993807	39	
21	9.993811	9.993815	9.993818	9.993822	9.993825	9.993829	38	1 = 0
22	9.993832	9.993836	9.993840	9.993843	9.993847	9.993850	37	2. 1
23	9.993854	9.993857	9.993861	9.993865	9.993868	9.993872	36	3. 1
24	9.993875	9.993879	9.993882	9.993886	9.993889	9.993893	35	4. 1
25	9.993897	9.993900	9.993904	9.993907	9.993911	9.993914	34	5. 2
26	9.993918	9.993921	9.993925	9.993929	9.993932	9.993936	33	6. 2
27	9.993939	9.993943	9.993946	9.993950	9.993953	9.993957	32	7. 2
28	9.993960	9.993964	9.993967	9.993971	9.993975	9.993978	31	8. 3
29	9.993982	9.993985	9.993989	9.993992	9.993996	9.993999	30	9. 3
30	9.994003	9.994006	9.994010	9.994013	9.994017	9.994020	29	
31	9.994024	9.994027	9.994031	9.994034	9.994038	9.994041	28	1 = 0
32	9.994045	9.994048	9.994052	9.994055	9.994059	9.994062	27	2. 1
33	9.994066	9.994069	9.994073	9.994076	9.994080	9.994083	26	3. 1
34	9.994087	9.994090	9.994094	9.994097	9.994101	9.994104	25	4. 1
35	9.994108	9.994111	9.994115	9.994118	9.994122	9.994125	24	5. 2
36	9.994129	9.994132	9.994136	9.994139	9.994143	9.994146	23	6. 2
37	9.994150	9.994153	9.994157	9.994160	9.994164	9.994167	22	7. 2
38	9.994171	9.994174	9.994178	9.994181	9.994185	9.994188	21	8. 3
39	9.994191	9.994195	9.994198	9.994202	9.994205	9.994209	20	9. 3
40	9.994212	9.994216	9.994219	9.994223	9.994226	9.994230	19	
41	9.994233	9.994236	9.994240	9.994243	9.994247	9.994250	18	1 = 0
42	9.994254	9.994257	9.994261	9.994264	9.994267	9.994271	17	2. 1
43	9.994274	9.994278	9.994281	9.994285	9.994288	9.994292	16	3. 1
44	9.994295	9.994298	9.994302	9.994305	9.994309	9.994312	15	4. 1
45	9.994316	9.994319	9.994322	9.994326	9.994329	9.994333	14	5. 2
46	9.994336	9.994340	9.994343	9.994346	9.994350	9.994353	13	6. 2
47	9.994357	9.994360	9.994364	9.994367	9.994370	9.994374	12	7. 2
48	9.994377	9.994381	9.994384	9.994387	9.994391	9.994394	11	8. 3
49	9.994398	9.994401	9.994404	9.994408	9.994411	9.994415	10	9. 3
50	9.994418	9.994421	9.994425	9.994428	9.994432	9.994435	9	
51	9.994438	9.994442	9.994445	9.994449	9.994452	9.994455	8	1 = 0
52	9.994459	9.994462	9.994465	9.994469	9.994472	9.994476	7	2. 1
53	9.994479	9.994482	9.994486	9.994489	9.994492	9.994496	6	3. 1
54	9.994499	9.994503	9.994506	9.994509	9.994513	9.994516	5	4. 1
55	9.994519	9.994523	9.994526	9.994530	9.994533	9.994536	4	5. 2
56	9.994540	9.994543	9.994546	9.994550	9.994553	9.994556	3	6. 2
57	9.994560	9.994563	9.994566	9.994570	9.994573	9.994577	2	7. 2
58	9.994580	9.994583	9.994586	9.994590	9.994593	9.994597	1	8. 3
59	9.994600	9.994603	9.994607	9.994610	9.994613	9.994617	0	9. 3
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-sine of 9 degrees, or Sine of 99 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 81 degrees, or Co-sine of 171 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	9.994620	9.994623	9.994627	9.994630	9.994633	9.994637	59	
1	9.994640	9.994643	9.994647	9.994650	9.994653	9.994657	58	1″ = 0
2	9.994660	9.994663	9.994667	9.994670	9.994673	9.994677	57	2. 1
3	9.994680	9.994683	9.994686	9.994690	9.994693	9.994696	56	3. 1
4	9.994700	9.994703	9.994706	9.994710	9.994713	9.994716	55	4. 1
5	9.994720	9.994723	9.994726	9.994729	9.994733	9.994736	54	5. 2
6	9.994739	9.994743	9.994746	9.994749	9.994753	9.994756	53	6. 2
7	9.994759	9.994762	9.994766	9.994769	9.994772	9.994776	52	7. 2
8	9.994779	9.994782	9.994785	9.994789	9.994792	9.994795	51	8. 3
9	9.994798	9.994802	9.994805	9.994808	9.994812	9.994815	50	9. 3
10	9.994818	9.994821	9.994825	9.994828	9.994831	9.994834	49	
11	9.994838	9.994841	9.994844	9.994848	9.994851	9.994854	48	1 = 0
12	9.994857	9.994861	9.994864	9.994867	9.994870	9.994874	47	2. 1
13	9.994877	9.994880	9.994883	9.994887	9.994890	9.994893	46	3. 1
14	9.994896	9.994900	9.994903	9.994906	9.994909	9.994913	45	4. 1
15	9.994916	9.994919	9.994922	9.994926	9.994929	9.994932	44	5. 2
16	9.994935	9.994939	9.994942	9.994945	9.994948	9.994951	43	6. 2
17	9.994955	9.994958	9.994961	9.994964	9.994968	9.994971	42	7. 2
18	9.994974	9.994977	9.994980	9.994984	9.994987	9.994990	41	8. 3
19	9.994993	9.994997	9.995000	9.995003	9.995006	9.995009	40	9. 3
20	9.995013	9.995016	9.995019	9.995022	9.995025	9.995029	39	
21	9.995032	9.995035	9.995038	9.995041	9.995045	9.995048	38	1 = 0
22	9.995051	9.995054	9.995057	9.995061	9.995064	9.995067	37	2. 1
23	9.995070	9.995073	9.995077	9.995080	9.995083	9.995086	36	3. 1
24	9.995089	9.995093	9.995096	9.995099	9.995102	9.995105	35	4. 1
25	9.995108	9.995112	9.995115	9.995118	9.995121	9.995124	34	5. 2
26	9.995127	9.995131	9.995134	9.995137	9.995140	9.995143	33	6. 2
27	9.995146	9.995150	9.995153	9.995156	9.995159	9.995162	32	7. 2
28	9.995165	9.995169	9.995172	9.995175	9.995178	9.995181	31	8. 3
29	9.995184	9.995188	9.995191	9.995194	9.995197	9.995200	30	9. 3
30	9.995203	9.995206	9.995210	9.995213	9.995216	9.995219	29	
31	9.995222	9.995225	9.995228	9.995232	9.995235	9.995238	28	1 = 0
32	9.995241	9.995244	9.995247	9.995250	9.995254	9.995257	27	2. 1
33	9.995260	9.995263	9.995266	9.995269	9.995272	9.995275	26	3. 1
34	9.995278	9.995282	9.995285	9.995288	9.995291	9.995294	25	4. 1
35	9.995297	9.995300	9.995303	9.995307	9.995310	9.995313	24	5. 2
36	9.995316	9.995319	9.995322	9.995325	9.995328	9.995331	23	6. 2
37	9.995334	9.995338	9.995341	9.995344	9.995347	9.995350	22	7. 2
38	9.995353	9.995356	9.995359	9.995362	9.995366	9.995369	21	8. 3
39	9.995372	9.995375	9.995378	9.995381	9.995384	9.995387	20	9. 3
40	9.995390	9.995393	9.995396	9.995399	9.995403	9.995406	19	
41	9.995409	9.995412	9.995415	9.995418	9.995421	9.995424	18	1 = 0
42	9.995427	9.995430	9.995433	9.995436	9.995439	9.995443	17	2. 1
43	9.995446	9.995449	9.995452	9.995455	9.995458	9.995461	16	3. 1
44	9.995464	9.995467	9.995470	9.995473	9.995476	9.995479	15	4. 1
45	9.995482	9.995485	9.995488	9.995491	9.995494	9.995497	14	5. 2
46	9.995501	9.995504	9.995507	9.995510	9.995513	9.995516	13	6. 2
47	9.995519	9.995522	9.995525	9.995528	9.995531	9.995534	12	7. 2
48	9.995537	9.995540	9.995543	9.995546	9.995549	9.995552	11	8. 2
49	9.995555	9.995558	9.995561	9.995564	9.995567	9.995570	10	9. 3
50	9.995573	9.995576	9.995579	9.995582	9.995585	9.995588	9	
51	9.995591	9.995594	9.995597	9.995600	9.995604	9.995607	8	1 = 0
52	9.995610	9.995613	9.995616	9.995619	9.995622	9.995625	7	2. 1
53	9.995628	9.995631	9.995634	9.995637	9.995640	9.995643	6	3. 1
54	9.995646	9.995649	9.995652	9.995655	9.995658	9.995661	5	4. 1
55	9.995664	9.995667	9.995670	9.995672	9.995675	9.995678	4	5. 2
56	9.995681	9.995684	9.995687	9.995690	9.995693	9.995696	3	6. 2
57	9.995699	9.995702	9.995705	9.995708	9.995711	9.995714	2	7. 2
58	9.995717	9.995720	9.995723	9.995726	9.995729	9.995732	1	8. 2
59	9.995735	9.995738	9.995741	9.995744	9.995747	9.995750	0	9. 3
	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-sine of 8 degrees, or Sine of 98 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 82 degrees, or Co-sine of 172 degrees.						Minutes	Proper. parts.
	0″	10″	20″	30″	40″	50″		
0	9.995753	9.995756	9.995759	9.995762	9.995765	9.995768	59	
1	9.995771	9.995773	9.995776	9.995779	9.995782	9.995785	58	1″ = 0
2	9.995788	9.995791	9.995794	9.995797	9.995800	9.995803	57	2. 1
3	9.995806	9.995809	9.995812	9.995815	9.995818	9.995821	56	3. 1
4	9.995823	9.995826	9.995829	9.995832	9.995835	9.995838	55	4. 1
5	9.995841	9.995844	9.995847	9.995850	9.995853	9.995856	54	5. 2
6	9.995859	9.995862	9.995864	9.995867	9.995870	9.995873	53	6. 2
7	9.995876	9.995879	9.995882	9.995885	9.995888	9.995891	52	7. 2
8	9.995894	9.995897	9.995899	9.995902	9.995905	9.995908	51	8. 2
9	9.995911	9.995914	9.995917	9.995920	9.995923	9.995926	50	9. 3
10	9.995928	9.995931	9.995934	9.995937	9.995940	9.995943	49	
11	9.995946	9.995949	9.995952	9.995954	9.995957	9.995960	48	1 = 0
12	9.995963	9.995966	9.995969	9.995972	9.995975	9.995978	47	2. 1
13	9.995980	9.995983	9.995986	9.995989	9.995992	9.995995	46	3. 1
14	9.995998	9.996001	9.996003	9.996006	9.996009	9.996012	45	4. 1
15	9.996015	9.996018	9.996021	9.996024	9.996026	9.996029	44	5. 1
16	9.996032	9.996035	9.996038	9.996041	9.996044	9.996046	43	6. 2
17	9.996049	9.996052	9.996055	9.996058	9.996061	9.996063	42	7. 2
18	9.996066	9.996069	9.996072	9.996075	9.996078	9.996081	41	8. 2
19	9.996083	9.996086	9.996089	9.996092	9.996095	9.996098	40	9. 3
20	9.996100	9.996103	9.996106	9.996109	9.996112	9.996115	39	
21	9.996117	9.996120	9.996123	9.996126	9.996129	9.996131	38	1 = 0
22	9.996134	9.996137	9.996140	9.996143	9.996146	9.996148	37	2. 1
23	9.996151	9.996154	9.996157	9.996160	9.996163	9.996165	36	3. 1
24	9.996168	9.996171	9.996174	9.996177	9.996179	9.996182	35	4. 1
25	9.996185	9.996188	9.996190	9.996193	9.996196	9.996199	34	5. 1
26	9.996202	9.996204	9.996207	9.996210	9.996213	9.996216	33	6. 2
27	9.996219	9.996221	9.996224	9.996227	9.996230	9.996232	32	7. 2
28	9.996235	9.996238	9.996241	9.996244	9.996246	9.996249	31	8. 2
29	9.996252	9.996255	9.996257	9.996260	9.996263	9.996266	30	9. 3
30	9.996269	9.996271	9.996274	9.996277	9.996280	9.996282	29	
31	9.996285	9.996288	9.996291	9.996293	9.996296	9.996299	28	1 = 0
32	9.996302	9.996305	9.996307	9.996310	9.996313	9.996316	27	2. 1
33	9.996318	9.996321	9.996324	9.996327	9.996329	9.996332	26	3. 1
34	9.996335	9.996338	9.996340	9.996343	9.996346	9.996349	25	4. 1
35	9.996351	9.996354	9.996357	9.996360	9.996362	9.996365	24	5. 1
36	9.996368	9.996370	9.996373	9.996376	9.996379	9.996381	23	6. 2
37	9.996384	9.996387	9.996390	9.996392	9.996395	9.996398	22	7. 2
38	9.996400	9.996403	9.996406	9.996409	9.996411	9.996414	21	8. 2
39	9.996417	9.996419	9.996422	9.996425	9.996428	9.996430	20	9. 3
40	9.996433	9.996436	9.996438	9.996441	9.996444	9.996447	19	
41	9.996449	9.996452	9.996455	9.996457	9.996460	9.996463	18	1 = 0
42	9.996465	9.996468	9.996471	9.996473	9.996476	9.996479	17	2. 1
43	9.996482	9.996484	9.996487	9.996490	9.996492	9.996495	16	3. 1
44	9.996498	9.996500	9.996503	9.996506	9.996508	9.996511	15	4. 1
45	9.996514	9.996516	9.996519	9.996522	9.996525	9.996527	14	5. 1
46	9.996530	9.996533	9.996535	9.996538	9.996541	9.996543	13	6. 2
47	9.996546	9.996549	9.996551	9.996554	9.996557	9.996559	12	7. 2
48	9.996562	9.996565	9.996567	9.996570	9.996573	9.996575	11	8. 2
49	9.996578	9.996581	9.996583	9.996586	9.996588	9.996591	10	9. 3
50	9.996594	9.996596	9.996599	9.996602	9.996604	9.996607	9	
51	9.996610	9.996612	9.996615	9.996618	9.996620	9.996623	8	1 = 0
52	9.996625	9.996628	9.996631	9.996633	9.996636	9.996639	7	2. 1
53	9.996641	9.996644	9.996647	9.996649	9.996652	9.996654	6	3. 1
54	9.996657	9.996660	9.996662	9.996665	9.996667	9.996670	5	4. 1
55	9.996673	9.996675	9.996678	9.996680	9.996683	9.996686	4	5. 1
56	9.996688	9.996691	9.996694	9.996696	9.996699	9.996701	3	6. 2
57	9.996704	9.996707	9.996709	9.996712	9.996714	9.996717	2	7. 2
58	9.996720	9.996722	9.996725	9.996727	9.996730	9.996733	1	8. 2
59	9.996735	9.996738	9.996740	9.996743	9.996745	9.996748	0	9. 2
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Proper. parts.
	Co-sine of 7 degrees, or Sine of 97 degrees.							

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LOGARITHMIC SINES:

Minutes	Sine of 83 degrees, or Co-sine of 173 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Proper. parts.
0	9.996751	9.996753	9.996756	9.996759	9.996761	9.996764	59	
1	9.996766	9.996769	9.996771	9.996774	9.996776	9.996779	58	1″ = 0
2	9.996782	9.996784	9.996787	9.996789	9.996792	9.996794	57	2. 1
3	9.996797	9.996800	9.996802	9.996805	9.996807	9.996810	56	3. 1
4	9.996812	9.996815	9.996818	9.996820	9.996823	9.996825	55	4. 1
5	9.996828	9.996830	9.996833	9.996835	9.996838	9.996841	54	5. 1
6	9.996843	9.996846	9.996848	9.996851	9.996853	9.996856	53	6. 2
7	9.996858	9.996861	9.996863	9.996866	9.996868	9.996871	52	7. 2
8	9.996874	9.996876	9.996879	9.996881	9.996884	9.996886	51	8. 2
9	9.996889	9.996891	9.996894	9.996896	9.996899	9.996901	50	9. 2
10	9.996904	9.996906	9.996909	9.996911	9.996914	9.996917	49	
11	9.996919	9.996922	9.996924	9.996927	9.996929	9.996932	48	1 = 0
12	9.996934	9.996937	9.996939	9.996942	9.996944	9.996947	47	2. 1
13	9.996949	9.996952	9.996954	9.996957	9.996959	9.996962	46	3. 1
14	9.996964	9.996967	9.996969	9.996972	9.996974	9.996977	45	4. 1
15	9.996979	9.996982	9.996984	9.996987	9.996989	9.996992	44	5. 1
16	9.996994	9.996997	9.996999	9.997002	9.997004	9.997007	43	6. 2
17	9.997009	9.997011	9.997014	9.997016	9.997019	9.997021	42	7. 2
18	9.997024	9.997026	9.997029	9.997031	9.997034	9.997036	41	8. 2
19	9.997039	9.997041	9.997044	9.997046	9.997049	9.997051	40	9. 2
20	9.997053	9.997056	9.997058	9.997061	9.997063	9.997066	39	
21	9.997068	9.997071	9.997073	9.997076	9.997078	9.997080	38	1 = 0
22	9.997083	9.997085	9.997088	9.997090	9.997093	9.997095	37	2. 0
23	9.997098	9.997100	9.997102	9.997105	9.997107	9.997110	36	3. 1
24	9.997112	9.997115	9.997117	9.997120	9.997122	9.997124	35	4. 1
25	9.997127	9.997129	9.997132	9.997134	9.997137	9.997139	34	5. 1
26	9.997141	9.997144	9.997146	9.997149	9.997151	9.997153	33	6. 1
27	9.997156	9.997158	9.997161	9.997163	9.997166	9.997168	32	7. 2
28	9.997170	9.997173	9.997175	9.997178	9.997180	9.997182	31	8. 2
29	9.997185	9.997187	9.997190	9.997192	9.997194	9.997197	30	9. 2
30	9.997199	9.997202	9.997204	9.997206	9.997209	9.997211	29	
31	9.997214	9.997216	9.997218	9.997221	9.997223	9.997226	28	1 = 0
32	9.997228	9.997230	9.997233	9.997235	9.997237	9.997240	27	2. 0
33	9.997242	9.997245	9.997247	9.997249	9.997252	9.997254	26	3. 1
34	9.997257	9.997259	9.997261	9.997264	9.997266	9.997268	25	4. 1
35	9.997271	9.997273	9.997276	9.997278	9.997280	9.997283	24	5. 1
36	9.997285	9.997287	9.997290	9.997292	9.997294	9.997297	23	6. 1
37	9.997299	9.997301	9.997304	9.997306	9.997309	9.997311	22	7. 2
38	9.997313	9.997316	9.997318	9.997320	9.997323	9.997325	21	8. 2
39	9.997327	9.997330	9.997332	9.997334	9.997337	9.997339	20	9. 2
40	9.997341	9.997344	9.997346	9.997348	9.997351	9.997353	19	
41	9.997355	9.997358	9.997360	9.997362	9.997365	9.997367	18	1 = 0
42	9.997369	9.997372	9.997374	9.997376	9.997379	9.997381	17	2. 0
43	9.997383	9.997386	9.997388	9.997390	9.997392	9.997395	16	3. 1
44	9.997397	9.997399	9.997402	9.997404	9.997406	9.997409	15	4. 1
45	9.997411	9.997413	9.997416	9.997418	9.997420	9.997422	14	5. 1
46	9.997425	9.997427	9.997429	9.997432	9.997434	9.997436	13	6. 1
47	9.997439	9.997441	9.997443	9.997445	9.997448	9.997450	12	7. 2
48	9.997452	9.997455	9.997457	9.997459	9.997461	9.997464	11	8. 2
49	9.997466	9.997468	9.997471	9.997473	9.997475	9.997477	10	9. 2
50	9.997480	9.997482	9.997484	9.997487	9.997489	9.997491	9	
51	9.997493	9.997496	9.997498	9.997500	9.997502	9.997505	8	1 = 0
52	9.997507	9.997509	9.997511	9.997514	9.997516	9.997518	7	2. 0
53	9.997520	9.997523	9.997525	9.997527	9.997529	9.997532	6	3. 1
54	9.997534	9.997536	9.997539	9.997541	9.997543	9.997545	5	4. 1
55	9.997547	9.997550	9.997552	9.997554	9.997556	9.997559	4	5. 1
56	9.997561	9.997563	9.997565	9.997568	9.997570	9.997572	3	6. 1
57	9.997574	9.997577	9.997579	9.997581	9.997583	9.997585	2	7. 2
58	9.997588	9.997590	9.997592	9.997594	9.997597	9.997599	1	8. 2
59	9.997601	9.997603	9.997605	9.997608	9.997610	9.997612	0	9. 2
Minutes	60″	50″	40′	30′	20″	10″	Minutes	Proper. parts.
	Co-sine of 6 degrees, or Sine of 96 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 84 degrees, or Co-sine of 174 degrees.						Minutes	Propor. parts.
	0″	10″	20″	30″	40″	50″		
0	9.997614	9.997617	9.997619	9.997621	9.997623	9.997625	59	
1	9.997628	9.997630	9.997632	9.997634	9.997636	9.997639	58	1″ = 0
2	9.997641	9.997643	9.997645	9.997647	9.997650	9.997652	57	2. 0
3	9.997654	9.997656	9.997658	9.997661	9.997663	9.997665	56	3. 1
4	9.997667	9.997669	9.997672	9.997674	9.997676	9.997678	55	4. 1
5	9.997680	9.997682	9.997685	9.997687	9.997689	9.997691	54	5. 1
6	9.997693	9.997695	9.997698	9.997700	9.997702	9.997704	53	6. 1
7	9.997706	9.997709	9.997711	9.997713	9.997715	9.997717	52	7. 1
8	9.997719	9.997722	9.997724	9.997726	9.997728	9.997730	51	8. 1
9	9.997732	9.997734	9.997737	9.997739	9.997741	9.997743	50	9. 1
10	9.997745	9.997747	9.997750	9.997752	9.997754	9.997756	49	
11	9.997758	9.997760	9.997762	9.997765	9.997767	9.997769	48	1 = 0
12	9.997771	9.997773	9.997775	9.997777	9.997780	9.997782	47	2. 0
13	9.997784	9.997786	9.997788	9.997790	9.997792	9.997794	46	3. 1
14	9.997797	9.997799	9.997801	9.997803	9.997805	9.997807	45	4. 1
15	9.997809	9.997811	9.997814	9.997816	9.997818	9.997820	44	5. 1
16	9.997822	9.997824	9.997826	9.997828	9.997830	9.997833	43	6. 1
17	9.997835	9.997837	9.997839	9.997841	9.997843	9.997845	42	7. 1
18	9.997847	9.997849	9.997851	9.997854	9.997856	9.997858	41	8. 1
19	9.997860	9.997862	9.997864	9.997866	9.997868	9.997870	40	9. 1
20	9.997872	9.997875	9.997877	9.997879	9.997881	9.997883	39	
21	9.997885	9.997887	9.997889	9.997891	9.997893	9.997895	38	1 = 0
22	9.997897	9.997900	9.997902	9.997904	9.997906	9.997908	37	2. 0
23	9.997910	9.997912	9.997914	9.997916	9.997918	9.997920	36	3. 1
24	9.997922	9.997924	9.997926	9.997929	9.997931	9.997933	35	4. 1
25	9.997935	9.997937	9.997939	9.997941	9.997943	9.997945	34	5. 1
26	9.997947	9.997949	9.997951	9.997953	9.997955	9.997957	33	6. 1
27	9.997959	9.997961	9.997963	9.997965	9.997967	9.997970	32	7. 1
28	9.997972	9.997974	9.997976	9.997978	9.997980	9.997982	31	8. 1
29	9.997984	9.997986	9.997988	9.997990	9.997992	9.997994	30	9. 1
30	9.997996	9.997998	9.998000	9.998002	9.998004	9.998006	29	
31	9.998008	9.998010	9.998012	9.998014	9.998016	9.998018	28	1 = 0
32	9.998020	9.998022	9.998024	9.998026	9.998028	9.998030	27	2. 0
33	9.998032	9.998034	9.998036	9.998038	9.998040	9.998042	26	3. 1
34	9.998044	9.998046	9.998048	9.998050	9.998052	9.998054	25	4. 1
35	9.998056	9.998058	9.998060	9.998062	9.998064	9.998066	24	5. 1
36	9.998068	9.998070	9.998072	9.998074	9.998076	9.998078	23	6. 1
37	9.998080	9.998082	9.998084	9.998086	9.998088	9.998090	22	7. 1
38	9.998092	9.998094	9.998096	9.998098	9.998100	9.998102	21	8. 1
39	9.998104	9.998106	9.998108	9.998110	9.998112	9.998114	20	9. 1
40	9.998116	9.998118	9.998120	9.998122	9.998124	9.998126	19	
41	9.998128	9.998129	9.998131	9.998133	9.998135	9.998137	18	1 = 0
42	9.998139	9.998141	9.998143	9.998145	9.998147	9.998149	17	2. 0
43	9.998151	9.998153	9.998156	9.998157	9.998159	9.998161	16	3. 1
44	9.998163	9.998165	9.998167	9.998168	9.998170	9.998172	15	4. 1
45	9.998174	9.998176	9.998178	9.998180	9.998182	9.998184	14	5. 1
46	9.998186	9.998188	9.998190	9.998192	9.998194	9.998195	13	6. 1
47	9.998197	9.998199	9.998201	9.998203	9.998205	9.998207	12	7. 1
48	9.998209	9.998211	9.998213	9.998215	9.998217	9.998218	11	8. 1
49	9.998220	9.998222	9.998224	9.998226	9.998228	9.998230	10	9. 1
50	9.998232	9.998234	9.998236	9.998238	9.998239	9.998241	9	
51	9.998243	9.998245	9.998247	9.998249	9.998251	9.998253	8	1 = 0
52	9.998255	9.998256	9.998258	9.998260	9.998262	9.998264	7	2. 0
53	9.998266	9.998268	9.998270	9.998272	9.998273	9.998275	6	3. 1
54	9.998277	9.998279	9.998281	9.998283	9.998285	9.998287	5	4. 1
55	9.998289	9.998290	9.998292	9.998294	9.998296	9.998298	4	5. 1
56	9.998300	9.998302	9.998303	9.998305	9.998307	9.998309	3	6. 1
57	9.998311	9.998313	9.998315	9.998316	9.998318	9.998320	2	7. 1
58	9.998322	9.998324	9.998326	9.998328	9.998329	9.998331	1	8. 1
59	9.998333	9.998335	9.998337	9.998339	9.998341	9.998342	0	9. 2
Minutes	60″	50″	40′	30″	20″	10″	Minutes	Propor. parts.
	Co-sine of 5 degrees, or sine of 95 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 85 degrees, or Co-sine of 175 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	9.998344	9.998346	9.998348	9.998350	9.998352	9.998353	59	
1	9.998355	9.998357	9.998359	9.998361	9.998363	9.998364	58	1″ = 0
2	9.998366	9.998368	9.998370	9.998372	9.998374	9.998375	57	2. 0
3	9.998377	9.998379	9.998381	9.998383	9.998384	9.998386	56	3. 1
4	9.998388	9.998390	9.998392	9.998394	9.998395	9.998397	55	4. 1
5	9.998399	9 998401	9.998403	9.998404	9.998406	9.998408	54	5. 1
6	9.998410	9.998412	9.998413	9.998415	9.998417	9.998419	53	6. 1
7	9.998421	9.998422	9.998424	9.998426	9.998428	9.998430	52	7. 1
8	9.998431	9.998433	9.998435	9.998437	9.998439	9.998440	51	8. 1
9	9.998442	9.998444	9.998446	9.998448	9.998449	9.998451	50	9. 2
10	9.998453	9.998455	9.998456	9.998458	9.998460	9.998462	49	
11	9.998464	9.998465	9.998467	9.998469	9.998471	9.998472	48	1 = 0′
12	9.998474	9.998476	9.998478	9.998479	9.998481	9.998483	47	2. 0
13	9.998485	9.998487	9.998488	9.998490	9.998492	9.998494	46	3. 1
14	9.998495	9.998497	9.998499	9.998501	9.998502	9.998504	45	4. 1
15	9.998506	9.998508	9.998509	9.998511	9.998513	9.998515	44	5. 1
16	9.998516	9.998518	9.998520	9.998522	9.998523	9.998525	43	6. 1
17	9.998527	9.998528	9.998530	9.998532	9.998534	9.998535	42	7. 1
18	9.998537	9.998539	9.998541	9.998542	9.998544	9.998546	41	8. 1
19	9.998548	9.998549	9.998551	9.998553	9.998554	9.998556	40	9. 2
20	9.998558	9.998560	9.998561	9.998563	9.998565	9.998566	39	
21	9.998568	9.998570	9.998572	9.998573	9.998575	9.998577	38	1 = 0
22	9.998578	9.998580	9.998582	9.998583	9.998585	9.998587	37	2. 0
23	9.998589	9.998590	9.998592	9.998594	9.998595	9.998597	36	3. 0
24	9.998599	9.998600	9.998602	9.998604	9.998606	9.998607	35	4. 1
25	9.998609	9.998611	9.998612	9.998614	9.998616	9.998617	34	5. 1
26	9.998619	9.998621	9.998622	9.998624	9.998626	9.998627	33	6. 1
27	9.998629	9.998631	9.998632	9.998634	9.998636	9.998637	32	7. 1
28	9.998639	9.998641	9.998642	9.998644	9.998646	9.998647	31	8. 1
29	9.998649	9.998651	9.998652	9.998654	9.998656	9.998657	30	9. 2
30	9.998659	9.998661	9.998662	9.998664	9.998666	9.998667	29	
31	9.998669	9.998671	9.998672	9.998674	9.998676	9.998677	28	1 = 0
32	9.998679	9.998681	9.998682	9.998684	9.998686	9.998687	27	2. 0
33	9.998689	9.998690	9.998692	9.998694	9.998695	9.998697	26	3. 0
34	9.998699	9.998700	9.998702	9.998703	9.998705	9.998707	25	4. 1
35	9.998708	9.998710	9.998712	9.998713	9.998715	9.998716	24	5. 1
36	9.998718	9.998720	9.998721	9.998723	9.998725	9.998726	23	6. 1
37	9.998728	9.998729	9.998731	9.998733	9.998734	9.998736	22	7. 1
38	9.998738	9.998739	9.998741	9.998742	9.998744	9.998745	21	8. 1
39	9.998747	9.998749	9.998750	9.998752	9.998753	9.998755	20	9. 1
40	9.998757	9.998758	9.998760	9.998761	9.998763	9.998765	19	
41	9.998766	9.998768	9.998769	9.998771	9.998773	9.998774	18	1 = 0
42	9.998776	9.998777	9.998779	9.998781	9.998782	9.998784	17	2. 0
43	9.998785	9.998787	9.998788	9.998790	9.998792	9.998793	16	3. 0
44	9.998795	9.998796	9.998798	9.998799	9.998801	9.998803	15	4. 1
45	9.998804	9.998806	9.998807	9.998809	9.998810	9.998812	14	5. 1
46	9.998813	9.998815	9.998817	9.998818	9.998820	9.998821	13	6. 1
47	9.998823	9.998824	9.998826	9.998827	9.998829	9.998831	12	7. 1
48	9.998832	9.998834	9.998835	9.998837	9.998838	9.998840	11	8. 1
49	9.998841	9.998843	9.998844	9.998846	9.998847	9.998849	10	9. 1
50	9.998851	9.998852	9.998854	9.998855	9.998857	9.998858	9	
51	9.998860	9.998861	9.998863	9.998864	9.998866	9.998867	8	1 = 0
52	9.998869	9.998870	9.998872	9.998873	9.998875	9.998876	7	2. 0
53	9.998878	9.998880	9.998881	9.998883	9.998884	9.998886	6	3. 0
54	9.998887	9.998889	9.998890	9.998892	9.998893	9.998895	5	4. 1
55	9.998896	9.998898	9.998899	9.998901	9.998902	9.998904	4	5. 1
56	9.998905	9.998907	9.998908	9.998910	9.998911	9.998913	3	6. 1
57	9.998914	9.998916	9.998917	9.998919	9.998920	9.998922	2	7. 1
58	9.998923	9.998924	9.998926	9.998927	9.998929	9.998930	1	8. 1
59	9.998932	9.998933	9.998935	9.998936	9.998938	9.998939	0	9. 1
	60	50″	40′	30″	20″	10″	Minutes	Propor. parts.
	Co-sine of 4 degrees, or sine of 94 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 86 degrees, or Co-sine of 176 degrees.						Minutes	Proper parts.
	0″	10″	20″	30″	40″	50″		
0	9.998941	9.998942	9.998944	9.998945	9.998947	9.998948	59	
1	9.998950	9.998951	9.998953	9.998954	9.998955	9.998957	58	1″= 0
2	9.998958	9.998960	9.998961	9.998963	9.998964	9.998966	57	2. 0
3	9.998967	9.998969	9.998970	9.998971	9.998973	9.998974	56	3. 0
4	9.998976	9.998977	9.998979	9.998980	9.998982	9.998983	55	4. 1
5	9.998984	9.998986	9.998987	9.998989	9.998990	9.998992	54	5. 1
6	9.998993	9.998995	9.998996	9.998997	9.998999	9.999000	53	6. 1
7	9.999002	9.999003	9.999005	9.999006	9.999007	9.999009	52	7. 1
8	9.999010	9.999012	9.999013	9.999015	9.999016	9.999017	51	8. 1
9	9.999019	9.999020	9.999022	9.999023	9.999024	9.999026	50	9. 1
10	9.999027	9.999029	9.999030	9.999031	9.999033	9.999034	49	
11	9.999036	9.999037	9.999038	9.999040	9.999041	9.999043	48	1 = 0
12	9.999044	9.999045	9.999047	9.999048	9.999050	9.999051	47	2. 0
13	9.999053	9.999054	9.999055	9.999057	9.999058	9.999059	46	3. 0
14	9.999061	9.999062	9.999064	9.999065	9.999066	9.999068	45	4. 1
15	9.999069	9.999070	9.999072	9.999073	9.999075	9.999076	44	5. 1
16	9.999077	9.999079	9.999080	9.999082	9.999083	9.999084	43	6. 1
17	9.999086	9.999087	9.999088	9.999090	9.999091	9.999092	42	7. 1
18	9.999094	9.999095	9.999096	9.999098	9.999099	9.999101	41	8. 1
19	9.999102	9.999103	9.999105	9.999106	9.999107	9.999109	40	9. 1
20	9.999110	9.999111	9.999113	9.999114	9.999115	9.999117	39	
21	9.999118	9.999119	9.999121	9.999122	9.999124	9.999125	38	1 = 0
22	9.999126	9.999128	9.999129	9.999130	9.999132	9.999133	37	2. 0
23	9.999134	9.999136	9.999137	9.999138	9.999139	9.999141	36	3. 0
24	9.999142	9.999143	9.999145	9.999146	9.999147	9.999149	35	4. 1
25	9.999150	9.999151	9.999153	9.999154	9.999155	9.999157	34	5. 1
26	9.999158	9.999159	9.999161	9.999162	9.999163	9.999165	33	6. 1
27	9.999166	9.999167	9.999168	9.999170	9.999171	9.999172	32	7. 1
28	9.999174	9.999175	9.999176	9.999178	9.999179	9.999180	31	8. 1
29	9.999181	9.999183	9.999184	9.999185	9.999187	9.999188	30	9. 1
30	9.999189	9.999190	9.999192	9.999193	9.999194	9.999196	29	
31	9.999197	9.999198	9.999199	9.999201	9.999202	9.999203	28	1 = 0
32	9.999205	9.999206	9.999207	9.999208	9.999210	9.999211	27	2. 0
33	9.999212	9.999213	9.999215	9.999216	9.999217	9.999219	26	3. 0
34	9.999220	9.999221	9.999222	9.999224	9.999225	9.999226	25	4. 1
35	9.999227	9.999229	9.999230	9.999231	9.999232	9.999234	24	5. 1
36	9.999235	9.999236	9.999237	9.999239	9.999240	9.999241	23	6. 1
37	9.999242	9.999244	9.999245	9.999246	9.999247	9.999249	22	7. 1
38	9.999250	9.999251	9.999252	9.999254	9.999255	9.999256	21	8. 1
39	9.999257	9.999258	9.999260	9.999261	9.999262	9.999263	20	9. 1
40	9.999265	9.999266	9.999267	9.999268	9.999269	9.999271	19	
41	9.999272	9.999273	9.999274	9.999276	9.999277	9.999278	18	1 = 0
42	9.999279	9.999280	9.999282	9.999283	9.999284	9.999285	17	2. 0
43	9.999286	9.999288	9.999289	9.999290	9.999291	9.999293	16	3. 0
44	9.999294	9.999295	9.999296	9.999297	9.999299	9.999300	15	4. 1
45	9.999301	9.999302	9.999303	9.999304	9.999306	9.999307	14	5. 1
46	9.999308	9.999309	9.999310	9.999312	9.999313	9.999314	13	6. 1
47	9.999315	9.999316	9.999318	9.999319	9.999320	9.999321	12	7. 1
48	9.999322	9.999323	9.999325	9.999326	9.999327	9.999328	11	8. 1
49	9.999329	9.999330	9.999332	9.999333	9.999334	9.999335	10	9. 1
50	9.999336	9.999338	9.999339	9.999340	9.999341	9.999342	9	
51	9.999343	9.999344	9.999346	9.999347	9.999348	9.999349	8	1 =
52	9.999350	9.999351	9.999353	9.999354	9.999355	9.999356	7	2.
53	9.999357	9.999358	9.999359	9.999361	9.999362	9.999363	6	3.
54	9.999364	9.999365	9.999366	9.999367	9.999369	9.999370	5	4.
55	9.999371	9.999372	9.999373	9.999374	9.999375	9.999376	4	5.
56	9.999378	9.999379	9.999380	9.999381	9.999382	9.999383	3	6.
57	9.999384	9.999385	9.999387	9.999388	9.999389	9.999390	2	7.
58	9.999391	9.999392	9.999393	9.999394	9.999396	9.999397	1	8.
59	9.999398	9.999399	9.999400	9.999401	9.999402	9.999403	0	9.
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Proper parts.
	Co-sine of 3 degrees, or sine of 93 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 87 degrees, or Co-sine of 177 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	9.999404	9.999405	9.999407	9.999408	9.999409	9.999410	59	
1	9.999411	9.999412	9.999413	9.999414	9.999415	9.999416	58	1″ = 0
2	9.999418	9.999419	9.999420	9.999421	9.999422	9.999423	57	2. 0
3	9.999424	9.999425	9.999426	9.999427	9.999428	9.999429	56	3. 0
4	9.999431	9.999432	9.999433	9.999434	9.999435	9.999436	55	4. 0
5	9.999437	9.999438	9.999439	9.999440	9.999441	9.999442	54	5. 1
6	9.999443	9.999445	9.999446	9.999447	9.999448	9.999449	53	6. 1
7	9.999450	9.999451	9.999452	9.999453	9.999454	9.999455	52	7. 1
8	9.999456	9.999457	9.999458	9.999459	9.999460	9.999461	51	8. 1
9	9.999463	9.999464	9.999465	9.999466	9.999467	9.999468	50	9. 1
10	9.999469	9.999470	9.999471	9.999472	9.999473	9.999474	49	
11	9.999475	9.999476	9.999477	9.999478	9.999479	9.999480	48	1 = 0
12	9.999481	9.999482	9.999483	9.999484	9.999485	9.999486	47	2. 0
13	9.999487	9.999488	9.999489	9.999490	9.999491	9.999492	46	3. 0
14	9.999493	9.999494	9.999495	9.999497	9.999498	9.999499	45	4. 0
15	9.999500	9.999501	9.999502	9.999503	9.999504	9.999505	44	5. 1
16	9.999506	9.999507	9.999508	9.999509	9.999510	9.999511	43	6. 1
17	9.999512	9.999513	9.999514	9.999515	9.999516	9.999517	42	7. 1
18	9.999518	9.999519	9.999520	9.999521	9.999522	9.999523	41	8. 1
19	9.999524	9.999524	9.999525	9.999526	9.999527	9.999528	40	9. 1
20	9.999529	9.999530	9.999531	9.999532	9.999533	9.999534	39	
21	9.999535	9.999536	9.999537	9.999538	9.999539	9.999540	38	1 = 0
22	9.999541	9.999542	9.999543	9.999544	9.999545	9.999546	37	2. 0
23	9.999547	9.999548	9.999549	9.999550	9.999551	9.999552	36	3. 0
24	9.999553	9.999554	9.999555	9.999556	9.999557	9.999557	35	4. 0
25	9.999558	9.999559	9.999560	9.999561	9.999562	9.999563	34	5. 0
26	9.999564	9.999565	9.999566	9.999567	9.999568	9.999569	33	6. 1
27	9.999570	9.999571	9.999572	9.999573	9.999573	9.999574	32	7. 1
28	9.999575	9.999576	9.999577	9.999578	9.999579	9.999580	31	8. 1
29	9.999581	9.999582	9.999583	9.999584	9.999585	9.999586	30	9. 1
30	9.999586	9.999587	9.999588	9.999589	9.999590	9.999591	29	
31	9.999592	9.999593	9.999594	9.999595	9.999596	9.999596	28	1 = 0
32	9.999597	9.999598	9.999599	9.999600	9.999601	9.999602	27	2. 0
33	9.999603	9.999604	9.999605	9.999606	9.999606	9.999607	26	3. 0
34	9.999608	9.999609	9.999610	9.999611	9.999612	9.999613	25	4. 0
35	9.999614	9.999615	9.999615	9.999616	9.999617	9.999618	24	5. 0
36	9.999619	9.999620	9.999621	9.999621	9.999622	9.999623	23	6. 1
37	9.999624	9.999625	9.999626	9.999627	9.999628	9.999628	22	7. 1
38	9.999629	9.999630	9.999631	9.999632	9.999633	9.999634	21	8. 1
39	9.999635	9.999635	9.999636	9.999637	9.999638	9.999639	20	9. 1
40	9.999640	9.999641	9.999641	9.999642	9.999643	9.999644	19	
41	9.999645	9.999646	9.999647	9.999647	9.999648	9.999649	18	1 = 0
42	9.999650	9.999651	9.999652	9.999653	9.999653	9.999654	17	2. 0
43	9.999655	9.999656	9.999657	9.999658	9.999658	9.999659	16	3. 0
44	9.999660	9.999661	9.999662	9.999663	9.999663	9.999664	15	4. 0
45	9.999665	9.999666	9.999667	9.999667	9.999668	9.999669	14	5. 0
46	9.999670	9.999671	9.999672	9.999672	9.999673	9.999674	13	6. 0
47	9.999675	9.999676	9.999676	9.999677	9.999678	9.999679	12	7. 1
48	9.999680	9.999681	9.999681	9.999682	9.999683	9.999684	11	8. 1
49	9.999685	9.999685	9.999686	9.999687	9.999688	9.999689	10	9. 1
50	9.999689	9.999690	9.999691	9.999692	9.999693	9.999693	9	
51	9.999694	9.999695	9.999696	9.999696	9.999697	9.999698	8	1 = 0
52	9.999699	9.999700	9.999700	9.999701	9.999702	9.999703	7	2. 0
53	9.999704	9.999704	9.999705	9.999706	9.999707	9.999707	6	3. 0
54	9.999708	9.999709	9.999710	9.999711	9.999711	9.999712	5	4. 0
55	9.999713	9.999714	9.999714	9.999715	9.999716	9.999717	4	5. 0
56	9.999717	9.999718	9.999719	9.999720	9.999720	9.999721	3	6. 0
57	9.999722	9.999723	9.999723	9.999724	9.999725	9.999726	2	7. 0
58	9.999726	9.999727	9.999728	9.999729	9.999729	9.999730	1	8. 1
59	9.999731	9.999732	9.999732	9.999733	9.999734	9.999735	0	9. 1
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-sine of 2 degrees, or Sine of 92 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 88 degrees, or Co-sine of 178 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	9.999735	9.999736	9.999737	9.999738	9.999738	9.999739	59	
1	9.999740	9.999740	9.999741	9.999742	9.999743	9.999743	58	1″ = 0
2	9.999744	9.999745	9.999746	9.999746	9.999747	9.999748	57	2. 0
3	9.999748	9.999749	9.999750	9.999751	9.999751	9.999752	56	3. 0
4	9.999753	9.999753	9.999754	9.999755	9.999756	9.999756	55	4. 0
5	9.999757	9.999758	9.999758	9.999759	9.999760	9.999760	54	5. 0
6	9.999761	9.999762	9.999763	9.999763	9.999764	9.999765	53	6. 0
7	9.999765	9.999766	9.999767	9.999767	9.999768	9.999769	52	7. 0
8	9.999769	9.999770	9.999771	9.999771	9.999772	9.999773	51	8. 1
9	9.999774	9.999774	9.999775	9.999776	9.999776	9.999777	50	9. 1
10	9.999778	9.999778	9.999779	9.999780	9.999780	9.999781	49	
11	9.999782	9.999782	9.999783	9.999784	9.999784	9.999785	48	1 = 0
12	9.999786	9.999786	9.999787	9.999788	9.999788	9.999789	47	2. 0
13	9.999790	9.999790	9.999791	9.999792	9.999792	9.999793	46	3. 0
14	9.999794	9.999794	9.999795	9.999795	9.999796	9.999797	45	4. 0
15	9.999797	9.999798	9.999799	9.999799	9.999800	9.999801	44	5. 0
16	9.999801	9.999802	9.999802	9.999803	9.999804	9.999804	43	6. 0
17	9.999805	9.999806	9.999806	9.999807	9.999808	9.999808	42	7. 0
18	9.999809	9.999809	9.999810	9.999811	9.999811	9.999812	41	8. 0
19	9.999813	9.999813	9.999814	9.999814	9.999815	9.999816	40	9. 1
20	9.999816	9.999817	9.999817	9.999818	9.999819	9.999819	39	
21	9.999820	9.999820	9.999821	9.999822	9.999822	9.999823	38	1 = 0
22	9.999823	9.999824	9.999825	9.999825	9.999826	9.999826	37	2. 0
23	9.999827	9.999828	9.999828	9.999829	9.999829	9.999830	36	3. 0
24	9.999831	9.999831	9.999832	9.999832	9.999833	9.999834	35	4. 0
25	9.999834	9.999835	9.999835	9.999836	9.999836	9.999837	34	5. 0
26	9.999838	9.999838	9.999839	9.999839	9.999840	9.999840	33	6. 0
27	9.999841	9.999842	9.999842	9.999843	9.999843	9.999844	32	7. 0
28	9.999844	9.999845	9.999846	9.999846	9.999847	9.999847	31	8. 0
29	9.999848	9.999848	9.999849	9.999849	9.999850	9.999851	30	9. 1
30	9.999851	9.999852	9.999852	9.999853	9.999853	9.999854	29	
31	9.999854	9.999855	9.999856	9.999856	9.999857	9.999857	28	1 = 0
32	9.999858	9.999858	9.999859	9.999859	9.999860	9.999860	27	2. 0
33	9.999861	9.999861	9.999862	9.999862	9.999863	9.999864	26	3. 0
34	9.999864	9.999865	9.999865	9.999866	9.999866	9.999867	25	4. 0
35	9.999867	9.999868	9.999868	9.999869	9.999869	9.999870	24	5. 0
36	9.999870	9.999871	9.999871	9.999872	9.999872	9.999873	23	6. 0
37	9.999873	9.999874	9.999874	9.999875	9.999875	9.999876	22	7. 0
38	9.999876	9.999877	9.999877	9.999878	9.999878	9.999879	21	8. 0
39	9.999879	9.999880	9.999880	9.999881	9.999881	9.999882	20	9. 1
40	9.999882	9.999883	9.999883	9.999884	9.999884	9.999885	19	
41	9.999885	9.999886	9.999886	9.999887	9.999887	9.999888	18	1 = 0
42	9.999888	9.999889	9.999889	9.999890	9.999890	9.999891	17	2. 0
43	9.999891	9.999892	9.999892	9.999892	9.999893	9.999893	16	3. 0
44	9.999894	9.999894	9.999895	9.999895	9.999896	9.999896	15	4. 0
45	9.999897	9.999897	9.999898	9.999898	9.999898	9.999899	14	5. 0
46	9.999899	9.999900	9.999900	9.999901	9.999901	9.999902	13	6. 0
47	9.999902	9.999903	9.999903	9.999903	9.999904	9.999904	12	7. 0
48	9.999905	9.999905	9.999906	9.999906	9.999906	9.999907	11	8. 0
49	9.999907	9.999908	9.999908	9.999909	9.999909	9.999910	10	9. 0
50	9.999910	9.999910	9.999911	9.999911	9.999912	9.999912	9	
51	9.999913	9.999913	9.999913	9.999914	9.999914	9.999915	8	1 = 0
52	9.999915	9.999915	9.999916	9.999916	9.999917	9.999917	7	2. 0
53	9.999918	9.999918	9.999918	9.999919	9.999919	9.999920	6	3. 0
54	9.999920	9.999920	9.999921	9.999921	9.999922	9.999922	5	4. 0
55	9.999922	9.999923	9.999923	9.999924	9.999924	9.999924	4	5. 0
56	9.999925	9.999925	9.999925	9.999926	9.999926	9.999927	3	6. 0
57	9.999927	9.999927	9.999928	9.999928	9.999929	9.999929	2	7. 0
58	9.999929	9.999930	9.999930	9.999930	9.999931	9.999931	1	8. 0
59	9.999932	9.999932	9.999932	9.999933	9.999933	9.999933	0	9. 0
Minutes	60′	50′	40′	30′	20′	10′	Minutes	Propor. parts.
	Co-sine of 1 degree, or Sine of 91 degrees.							

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LOGARITHMIC SINES.

Minutes	Sine of 89 degrees, or Co-sine of 179 degrees. 0″	10″	20″	30″	40″	50″	Minutes	Propor. parts.
0	9.999934	9.999934	9.999935	9.999935	9.999935	9.999936	59	
1	9.999936	9.999936	9.999937	9.999937	9.999937	9.999938	58	1″ = 0
2	9.999938	9.999939	9.999939	9.999939	9.999940	9.999940	57	2. 0
3	9.999940	9.999941	9.999941	9.999941	9.999942	9.999942	56	3. 0
4	9.999942	9.999943	9.999943	9.999943	9.999944	9.999944	55	4. 0
5	9.999944	9.999945	9.999945	9.999945	9.999946	9.999946	54	5. 0
6	9.999946	9.999947	9.999947	9.999947	9.999948	9.999948	53	6. 0
7	9.999948	9.999949	9.999949	9.999949	9.999950	9.999950	52	7. 0
8	9.999950	9.999951	9.999951	9.999951	9.999952	9.999952	51	8. 0
9	9.999952	9.999952	9.999953	9.999953	9.999953	9.999954	50	9. 0
10	9.999954	9.999954	9.999955	9.999955	9.999955	9.999956	49	
11	9.999956	9.999956	9.999956	9.999957	9.999957	9.999957	48	1 = 0
12	9.999958	9.999958	9.999958	9.999959	9.999959	9.999959	47	2. 0
13	9.999959	9.999960	9.999960	9.999960	9.999961	9.999961	46	3. 0
14	9.999961	9.999961	9.999962	9.999962	9.999962	9.999962	45	4. 0
15	9.999963	9.999963	9.999963	9.999964	9.999964	9.999964	44	5. 0
16	9.999964	9.999965	9.999965	9.999965	9.999965	9.999966	43	6. 0
17	9.999966	9.999966	9.999967	9.999967	9.999967	9.999967	42	7. 0
18	9.999968	9.999968	9.999968	9.999968	9.999969	9.999969	41	8. 0
19	9.999969	9.999969	9.999970	9.999970	9.999970	9.999970	40	9. 0
20	9.999971	9.999971	9.999971	9.999971	9.999972	9.999972	39	
21	9.999972	9.999972	9.999973	9.999973	9.999973	9.999973	38	1 = 0
22	9.999973	9.999974	9.999974	9.999974	9.999974	9.999975	37	2. 0
23	9.999975	9.999975	9.999975	9.999976	9.999976	9.999976	36	3. 0
24	9.999976	9.999976	9.999977	9.999977	9.999977	9.999977	35	4. 0
25	9.999977	9.999978	9.999978	9.999978	9.999978	9.999979	34	5. 0
26	9.999979	9.999979	9.999979	9.999979	9.999980	9.999980	33	6. 0
27	9.999980	9.999980	9.999980	9.999981	9.999981	9.999981	32	7. 0
28	9.999981	9.999981	9.999982	9.999982	9.999982	9.999982	31	8. 0
29	9.999982	9.999982	9.999983	9.999983	9.999983	9.999983	30	9. 0
30	9.999983	9.999984	9.999984	9.999984	9.999984	9.999984	29	
31	9.999985	9.999985	9.999985	9.999985	9.999985	9.999985	28	1 = 0
32	9.999986	9.999986	9.999986	9.999986	9.999986	9.999986	27	2. 0
33	9.999987	9.999987	9.999987	9.999987	9.999987	9.999987	26	3. 0
34	9.999988	9.999988	9.999988	9.999988	9.999988	9.999988	25	4. 0
35	9.999988	9.999989	9.999989	9.999989	9.999989	9.999989	24	5. 0
36	9.999989	9.999990	9.999990	9.999990	9.999990	9.999990	23	6. 0
37	9.999990	9.999990	9.999991	9.999991	9.999991	9.999991	22	7. 0
38	9.999991	9.999991	9.999991	9.999991	9.999992	9.999992	21	8. 0
39	9.999992	9.999992	9.999992	9.999992	9.999992	9.999992	20	9. 0
40	9.999993	9.999993	9.999993	9.999993	9.999993	9.999993	19	
41	9.999993	9.999993	9.999994	9.999994	9.999994	9.999994	18	1 = 0
42	9.999994	9.999994	9.999994	9.999994	9.999994	9.999995	17	2. 0
43	9.999995	9.999995	9.999995	9.999995	9.999995	9.999995	16	3. 0
44	9.999995	9.999995	9.999995	9.999996	9.999996	9.999996	15	4. 0
45	9.999996	9.999996	9.999996	9.999996	9.999996	9.999996	14	5. 0
46	9.999996	9.999996	9.999997	9.999997	9.999997	9.999997	13	6. 0
47	9.999997	9.999997	9.999997	9.999997	9.999997	9.999997	12	7. 0
48	9.999997	9.999997	9.999997	9.999998	9.999998	9.999998	11	8. 0
49	9.999998	9.999998	9.999998	9.999998	9.999998	9.999998	10	9. 0
50	9.999998	9.999998	9.999998	9.999998	9.999998	9.999998	9	
51	9.999999	9.999999	9.999999	9.999999	9.999999	9.999999	8	1 = 0
52	9.999999	9.999999	9.999999	9.999999	9.999999	9.999999	7	2. 0
53	9.999999	9.999999	9.999999	9.999999	9.999999	9.999999	6	3. 0
54	9.999999	9.999999	9.999999	9.999999	9.999999	9.999999	5	4. 0
55	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	4	5. 0
56	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	3	6. 0
57	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	2	7. 0
58	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	1	8. 0
59	10.000000	10.000000	10.000000	10.000000	10.000000	10.000000	0	9. 0
Minutes	60″	50″	40″	30″	20″	10″	Minutes	Propor. parts.
	Co-sine of 0 degree, or Sine of 90 degrees.							

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Tangent of 0 degree, or Co-tangent of 90 degrees.										
0	0	0.000000	4.685575	4.986605	5.162696	5.287635	5.384545	5.463726	5.530673	5.588665	5.639817	50
	10	5.685575	5.726968	5.764756	5.799518	5.831703	5.861666	5.889695	5.916024	5.940847	5.964329	40
	20	5.986605	6.007794	6.027998	6.047303	6.065786	6.083515	6.100548	6.116939	6.132733	6.147973	30
	30	6.162696	6.176937	6.190725	6.204089	6.217054	6.229643	6.241877	6.253777	6.265359	6.276640	20
	40	6.287635	6.298359	6.308824	6.319043	6.329028	6.338787	6.348333	6.357673	6.366816	6.375771	10
	50	6.384545	6.393145	6.401578	6.409851	6.417969	6.425938	6.433763	6.441450	6.449003	6.456427	0
1	0	6.463726	6.470905	6.477967	6.484915	6.491755	6.498488	6.505119	6.511650	6.518084	6.524424	50
	10	6.530673	6.536833	6.542907	6.548898	6.554807	6.560636	6.566389	6.572066	6.577670	6.583202	40
	20	6.588665	6.594060	6.599389	6.604653	6.609854	6.614994	6.620073	6.625094	6.630058	6.634965	30
	30	6.639817	6.644616	6.649363	6.654058	6.658703	6.663299	6.667846	6.672347	6.676801	6.681210	20
	40	6.685575	6.689896	6.694175	6.698412	6.702608	6.706764	6.710881	6.714959	6.718999	6.723001	10
	50	6.726968	6.730898	6.734793	6.738653	6.742480	6.746273	6.750033	6.753761	6.757457	6.761122	0
2	0	6.764756	6.768360	6.771935	6.775480	6.778997	6.782485	6.785946	6.789379	6.792785	6.796165	50
	10	6.799518	6.802846	6.806149	6.809427	6.812680	6.815909	6.819114	6.822296	6.825454	6.828590	40
	20	6.831703	6.834794	6.837863	6.840911	6.843937	6.846943	6.849928	6.852892	6.855837	6.858761	30
	30	6.861666	6.864552	6.867419	6.870266	6.873096	6.875907	6.878700	6.881475	6.884232	6.886972	20
	40	6.889695	6.892401	6.895090	6.897763	6.900419	6.903059	6.905683	6.908291	6.910884	6.913462	10
	50	6.916024	6.918571	6.921103	6.923621	6.926124	6.928613	6.931088	6.933548	6.935995	6.938428	0
3	0	6.940848	6.943254	6.945646	6.948026	6.950393	6.952747	6.955088	6.957417	6.959733	6.962037	50
	10	6.964329	6.966608	6.968876	6.971132	6.973377	6.975610	6.977831	6.980041	6.982240	6.984428	40
	20	6.986605	6.988771	6.990926	6.993071	6.995205	6.997329	6.999442	7.001545	7.003638	7.005721	30
	30	7.007794	7.009858	7.011911	7.013955	7.015989	7.018014	7.020029	7.022035	7.024032	7.026019	20
	40	7.027998	7.029967	7.031928	7.033880	7.035823	7.037758	7.039684	7.041601	7.043510	7.045411	10
	50	7.047303	7.049187	7.051063	7.052931	7.054791	7.056643	7.058487	7.060323	7.062152	7.063973	0
4	0	7.065786	7.067592	7.069390	7.071181	7.072965	7.074741	7.076510	7.078272	7.080027	7.081774	50
	10	7.083515	7.085249	7.086976	7.088696	7.090409	7.092115	7.093815	7.095508	7.097195	7.098875	40
	20	7.100548	7.102216	7.103876	7.105531	7.107179	7.108821	7.110457	7.112086	7.113710	7.115327	30
	30	7.116939	7.118544	7.120144	7.121738	7.123326	7.124908	7.126484	7.128055	7.129620	7.131179	20
	40	7.132733	7.134282	7.135824	7.137362	7.138894	7.140420	7.141941	7.143457	7.144968	7.146473	10
	50	7.147973	7.149468	7.150958	7.152443	7.153923	7.155397	7.156867	7.158332	7.159791	7.161246	0
5	0	7.162696	7.164142	7.165582	7.167018	7.168449	7.169875	7.171297	7.172714	7.174126	7.175534	50
	10	7.176937	7.178336	7.179730	7.181120	7.182505	7.183886	7.185262	7.186635	7.188002	7.189366	40
	20	7.190725	7.192080	7.193431	7.194778	7.196120	7.197459	7.198793	7.200123	7.201449	7.202771	30
	30	7.204089	7.205403	7.206713	7.208020	7.209322	7.210620	7.211915	7.213205	7.214492	7.215775	20
	40	7.217054	7.218330	7.219601	7.220869	7.222134	7.223394	7.224651	7.225905	7.227155	7.228401	10
	50	7.229643	7.230882	7.232118	7.233350	7.234579	7.235804	7.237025	7.238244	7.239458	7.240670	0
6	0	7.241878	7.243083	7.244284	7.245482	7.246677	7.247868	7.249056	7.250241	7.251423	7.252602	50
	10	7.253777	7.254949	7.256118	7.257284	7.258447	7.259607	7.260763	7.261917	7.263067	7.264215	40
	20	7.265359	7.266500	7.267639	7.268774	7.269907	7.271036	7.272163	7.273286	7.274407	7.275525	30
	30	7.276640	7.277752	7.278862	7.279968	7.281072	7.282173	7.283271	7.284366	7.285459	7.286548	20
	40	7.287635	7.288720	7.289802	7.290881	7.291957	7.293030	7.294102	7.295170	7.296236	7.297299	10
	50	7.298359	7.299417	7.300473	7.301526	7.302576	7.303624	7.304669	7.305712	7.306752	7.307790	0
7	0	7.308825	7.309858	7.310888	7.311916	7.312941	7.313964	7.314985	7.316003	7.317019	7.318033	50
	10	7.319044	7.320053	7.321059	7.322063	7.323065	7.324065	7.325062	7.326057	7.327050	7.328040	40
	20	7.329028	7.330014	7.330998	7.331979	7.332959	7.333936	7.334910	7.335883	7.336854	7.337822	30
	30	7.338788	7.339752	7.340714	7.341674	7.342631	7.343587	7.344540	7.345492	7.346441	7.347388	20
	40	7.348333	7.349277	7.350218	7.351157	7.352094	7.353029	7.353962	7.354893	7.355822	7.356749	10
	50	7.357674	7.358597	7.359518	7.360437	7.361354	7.362269	7.363183	7.364094	7.365004	7.365911	0
8	0	7.366817	7.367721	7.368623	7.369523	7.370421	7.371317	7.372212	7.373105	7.373996	7.374884	50
	10	7.375772	7.376657	7.377541	7.378423	7.379303	7.380181	7.381057	7.381932	7.382805	7.383676	40
	20	7.384546	7.385413	7.386279	7.387144	7.388006	7.388867	7.389726	7.390584	7.391440	7.392294	30
	30	7.393146	7.393997	7.394846	7.395693	7.396539	7.397383	7.398226	7.399066	7.399906	7.400743	20
	40	7.401579	7.402414	7.403246	7.404078	7.404907	7.405735	7.406562	7.407386	7.408210	7.409032	10
	50	7.409852	7.410670	7.411488	7.412303	7.413117	7.413930	7.414741	7.415550	7.416358	7.417165	0
9	0	7.417970	7.418773	7.419575	7.420376	7.421175	7.421972	7.422769	7.423563	7.424356	7.425148	50
	10	7.425939	7.426728	7.427515	7.428301	7.429086	7.429869	7.430651	7.431431	7.432210	7.432988	40
	20	7.433764	7.434539	7.435312	7.436084	7.436855	7.437624	7.438392	7.439159	7.439924	7.440688	30
	30	7.441451	7.442212	7.442972	7.443731	7.444488	7.445244	7.445999	7.446752	7.447504	7.448255	20
	40	7.449004	7.449752	7.450499	7.451245	7.451989	7.452732	7.453474	7.454214	7.454953	7.455691	10
	50	7.456428	7.457164	7.457898	7.458631	7.459363	7.460093	7.460822	7.461550	7.462277	7.463003	0
	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-tangent of 89 degrees, or Tangent of 179 degrees.										

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 0 degree, or Co-tangent of 90 degrees.											
10	0	7.463727	7.464451	7.465173	7.465893	7.466613	7.467332	7.468049	7.468765	7.469480	7.470193	50	
	10	7.470906	7.471617	7.472328	7.473037	7.473745	7.474451	7.475157	7.475861	7.476565	7.477267	40	
	20	7.477968	7.478668	7.479367	7.480064	7.480761	7.481456	7.482151	7.482844	7.483536	7.484227	30	
	30	7.484917	7.485606	7.486293	7.486980	7.487666	7.488350	7.489033	7.489716	7.490397	7.491077	20	
	40	7.491756	7.492434	7.493111	7.493787	7.494462	7.495136	7.495809	7.496481	7.497151	7.497821	10	
	50	7.498490	7.499157	7.499824	7.500490	7.501154	7.501818	7.502480	7.503142	7.503802	7.504462	0	49
11	0	7.505120	7.505778	7.506434	7.507090	7.507744	7.508398	7.509051	7.509702	7.510353	7.511003	50	
	10	7.511651	7.512299	7.512946	7.513592	7.514236	7.514880	7.515523	7.516165	7.516806	7.517446	40	
	20	7.518085	7.518724	7.519361	7.519997	7.520633	7.521267	7.521901	7.522533	7.523165	7.523796	30	
	30	7.524426	7.525055	7.525683	7.526310	7.526936	7.527561	7.528186	7.528809	7.529432	7.530054	20	
	40	7.530675	7.531295	7.531914	7.532532	7.533149	7.533766	7.534381	7.534996	7.535610	7.536223	10	
	50	7.536835	7.537446	7.538057	7.538666	7.539275	7.539883	7.540490	7.541096	7.541701	7.542306	0	48
12	0	7.542909	7.543512	7.544114	7.544715	7.545315	7.545915	7.546513	7.547111	7.547708	7.548304	50	
	10	7.548900	7.549494	7.550088	7.550681	7.551273	7.551864	7.552455	7.553044	7.553633	7.554221	40	
	20	7.554808	7.555395	7.555981	7.556566	7.557150	7.557733	7.558316	7.558897	7.559478	7.560059	30	
	30	7.560638	7.561217	7.561795	7.562372	7.562948	7.563524	7.564099	7.564673	7.565246	7.565819	20	
	40	7.566390	7.566962	7.567532	7.568101	7.568670	7.569238	7.569806	7.570372	7.570938	7.571503	10	
	50	7.572068	7.572631	7.573194	7.573756	7.574318	7.574879	7.575439	7.575998	7.576557	7.577114	0	47
13	0	7.577672	7.578228	7.578784	7.579339	7.579893	7.580447	7.581000	7.581552	7.582103	7.582654	50	
	10	7.583204	7.583754	7.584302	7.584850	7.585398	7.585944	7.586490	7.587035	7.587580	7.588124	40	
	20	7.588667	7.589210	7.589751	7.590293	7.590833	7.591373	7.591912	7.592451	7.592988	7.593526	30	
	30	7.594062	7.594598	7.595133	7.595668	7.596202	7.596735	7.597267	7.597799	7.598330	7.598861	20	
	40	7.599391	7.599920	7.600449	7.600977	7.601504	7.602031	7.602557	7.603083	7.603608	7.604132	10	
	50	7.604656	7.605178	7.605701	7.606222	7.606743	7.607264	7.607784	7.608303	7.608821	7.609339	0	46
14	0	7.609857	7.610373	7.610889	7.611405	7.611920	7.612434	7.612948	7.613461	7.613973	7.614485	50	
	10	7.614996	7.615507	7.616017	7.616526	7.617035	7.617544	7.618051	7.618558	7.619065	7.619571	40	
	20	7.620076	7.620581	7.621085	7.621588	7.622091	7.622594	7.623095	7.623597	7.624097	7.624597	30	
	30	7.625097	7.625596	7.626094	7.626592	7.627089	7.627586	7.628082	7.628577	7.629072	7.629566	20	
	40	7.630060	7.630553	7.631046	7.631538	7.632030	7.632521	7.633011	7.633501	7.633991	7.634479	10	
	50	7.634968	7.635455	7.635942	7.636429	7.636915	7.637401	7.637886	7.638370	7.638854	7.639337	0	45
15	0	7.639820	7.640302	7.640784	7.641265	7.641746	7.642226	7.642706	7.643185	7.643664	7.644142	50	
	10	7.644619	7.645096	7.645573	7.646049	7.646524	7.646999	7.647473	7.647947	7.648420	7.648893	40	
	20	7.649366	7.649837	7.650309	7.650780	7.651250	7.651720	7.652189	7.652658	7.653126	7.653594	30	
	30	7.654061	7.654528	7.654994	7.655460	7.655925	7.656390	7.656854	7.657317	7.657781	7.658244	20	
	40	7.658706	7.659168	7.659629	7.660090	7.660550	7.661010	7.661469	7.661928	7.662386	7.662844	10	
	50	7.663302	7.663759	7.664215	7.664671	7.665126	7.665581	7.666036	7.666490	7.666944	7.667397	0	44
16	0	7.667849	7.668301	7.668753	7.669204	7.669655	7.670105	7.670555	7.671005	7.671453	7.671902	50	
	10	7.672350	7.672797	7.673244	7.673691	7.674137	7.674583	7.675028	7.675473	7.675917	7.676361	40	
	20	7.676804	7.677247	7.677690	7.678132	7.678573	7.679014	7.679455	7.679895	7.680335	7.680775	30	
	30	7.681213	7.681652	7.682090	7.682528	7.682965	7.683401	7.683838	7.684273	7.684709	7.685144	20	
	40	7.685578	7.686012	7.686446	7.686879	7.687312	7.687744	7.688176	7.688608	7.689039	7.689470	10	
	50	7.689900	7.690330	7.690759	7.691188	7.691616	7.692044	7.692472	7.692899	7.693326	7.693753	0	43
17	0	7.694179	7.694604	7.695029	7.695454	7.695878	7.696302	7.696726	7.697149	7.697572	7.697994	50	
	10	7.698416	7.698837	7.699258	7.699679	7.700099	7.700519	7.700938	7.701357	7.701776	7.702194	40	
	20	7.702612	7.703029	7.703446	7.703863	7.704279	7.704695	7.705110	7.705525	7.705940	7.706354	30	
	30	7.706768	7.707181	7.707594	7.708007	7.708419	7.708831	7.709243	7.709654	7.710064	7.710475	20	
	40	7.710885	7.711294	7.711703	7.712112	7.712520	7.712928	7.713336	7.713743	7.714150	7.714557	10	
	50	7.714963	7.715368	7.715774	7.716179	7.716583	7.716987	7.717391	7.717795	7.718198	7.718600	0	42
18	0	7.719003	7.719406	7.719806	7.720207	7.720608	7.721009	7.721409	7.721808	7.722208	7.722607	50	
	10	7.723005	7.723404	7.723802	7.724199	7.724596	7.724993	7.725390	7.725786	7.726181	7.726577	40	
	20	7.726972	7.727366	7.727761	7.728155	7.728548	7.728941	7.729334	7.729727	7.730119	7.730511	30	
	30	7.730902	7.731293	7.731684	7.732074	7.732464	7.732854	7.733243	7.733632	7.734021	7.734409	20	
	40	7.734797	7.735185	7.735572	7.735959	7.736346	7.736732	7.737118	7.737503	7.737888	7.738273	10	
	50	7.738658	7.739042	7.739426	7.739809	7.740192	7.740575	7.740958	7.741340	7.741722	7.742103	0	41
19	0	7.742484	7.742865	7.743245	7.743626	7.744005	7.744385	7.744764	7.745143	7.745521	7.745899	50	
	10	7.746277	7.746655	7.747032	7.747409	7.747785	7.748161	7.748537	7.748913	7.749288	7.749663	40	
	20	7.750037	7.750412	7.750786	7.751159	7.751533	7.751905	7.752278	7.752650	7.753022	7.753394	30	
	30	7.753765	7.754136	7.754507	7.754878	7.755248	7.755617	7.755987	7.756356	7.756725	7.757093	20	
	40	7.757462	7.757830	7.758197	7.758564	7.758931	7.759298	7.759664	7.760030	7.760396	7.760762	10	
	50	7.761127	7.761492	7.761856	7.762220	7.762584	7.762948	7.763311	7.763674	7.764037	7.764399	0	40
Seconds		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 89 degrees, or Tangent of 179 degrees.											

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LOGARITHMIC TANGENTS.

Tangent of 0 degree, or Co-tangent of 90 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
20	0	7.764761	7.765123	7.765484	7.765845	7.766206	7.766567	7.766927	7.767287	7.767647	7.768006	50
	10	7.768365	7.768724	7.769083	7.769441	7.769799	7.770156	7.770514	7.770871	7.771227	7.771584	40
	20	7.771940	7.772296	7.772651	7.773006	7.773361	7.773716	7.774071	7.774425	7.774778	7.775132	30
	30	7.775485	7.775838	7.776191	7.776543	7.776895	7.777247	7.777599	7.777950	7.778301	7.778651	20
	40	7.779002	7.779352	7.779702	7.780051	7.780401	7.780750	7.781098	7.781447	7.781795	7.782143	10
	50	7.782490	7.782838	7.783185	7.783531	7.783878	7.784224	7.784570	7.784916	7.785261	7.785606	0
21	0	7.785951	7.786295	7.786640	7.786984	7.787327	7.787671	7.788014	7.788357	7.788700	7.789042	50
	10	7.789384	7.789726	7.790068	7.790409	7.790750	7.791091	7.791431	7.791771	7.792111	7.792451	40
	20	7.792790	7.793130	7.793469	7.793807	7.794146	7.794484	7.794822	7.795159	7.795496	7.795833	30
	30	7.796170	7.796507	7.796843	7.797179	7.797515	7.797850	7.798186	7.798521	7.798855	7.799190	20
	40	7.799524	7.799858	7.800192	7.800525	7.800858	7.801191	7.801524	7.801856	7.802188	7.802520	10
	50	7.802852	7.803183	7.803515	7.803846	7.804176	7.804507	7.804837	7.805167	7.805496	7.805826	0
22	0	7.806155	7.806484	7.806812	7.807141	7.807469	7.807797	7.808124	7.808452	7.808779	7.809106	50
	10	7.809433	7.809759	7.810085	7.810411	7.810737	7.811062	7.811387	7.811712	7.812037	7.812362	40
	20	7.812686	7.813010	7.813334	7.813657	7.813980	7.814303	7.814626	7.814949	7.815271	7.815593	30
	30	7.815915	7.816236	7.816558	7.816879	7.817200	7.817520	7.817841	7.818161	7.818481	7.818801	20
	40	7.819120	7.819439	7.819758	7.820077	7.820396	7.820714	7.821032	7.821350	7.821667	7.821985	10
	50	7.822302	7.822619	7.822935	7.823252	7.823568	7.823884	7.824200	7.824515	7.824831	7.825146	0
23	0	7.825460	7.825775	7.826089	7.826404	7.826718	7.827031	7.827345	7.827658	7.827971	7.828284	50
	10	7.828596	7.828909	7.829221	7.829533	7.829844	7.830156	7.830467	7.830778	7.831089	7.831399	40
	20	7.831710	7.832020	7.832330	7.832639	7.832949	7.833258	7.833567	7.833876	7.834184	7.834493	30
	30	7.834801	7.835109	7.835416	7.835724	7.836031	7.836338	7.836645	7.836952	7.837258	7.837564	20
	40	7.837870	7.838176	7.838481	7.838787	7.839092	7.839397	7.839701	7.840006	7.840310	7.840614	10
	50	7.840918	7.841222	7.841525	7.841828	7.842131	7.842434	7.842736	7.843039	7.843341	7.843643	0
24	0	7.843944	7.844246	7.844547	7.844848	7.845149	7.845450	7.845750	7.846051	7.846351	7.846650	50
	10	7.846950	7.847249	7.847549	7.847848	7.848147	7.848445	7.848744	7.849042	7.849340	7.849637	40
	20	7.849935	7.850232	7.850530	7.850827	7.851123	7.851420	7.851716	7.852012	7.852308	7.852604	30
	30	7.852900	7.853195	7.853490	7.853785	7.854080	7.854374	7.854669	7.854963	7.855257	7.855551	20
	40	7.855844	7.856137	7.856431	7.856724	7.857016	7.857309	7.857601	7.857893	7.858185	7.858477	10
	50	7.858769	7.859060	7.859351	7.859642	7.859933	7.860224	7.860514	7.860804	7.861094	7.861384	0
25	0	7.861674	7.861963	7.862253	7.862542	7.862830	7.863119	7.863408	7.863696	7.863984	7.864272	50
	10	7.864560	7.864847	7.865134	7.865422	7.865709	7.865995	7.866282	7.866568	7.866855	7.867141	40
	20	7.867426	7.867712	7.867997	7.868283	7.868568	7.868853	7.869137	7.869422	7.869706	7.869990	30
	30	7.870274	7.870558	7.870842	7.871125	7.871408	7.871691	7.871974	7.872257	7.872539	7.872822	20
	40	7.873104	7.873386	7.873667	7.873949	7.874230	7.874512	7.874793	7.875073	7.875354	7.875634	10
	50	7.875915	7.876195	7.876475	7.876755	7.877034	7.877314	7.877593	7.877872	7.878151	7.878429	0
26	0	7.878708	7.878986	7.879264	7.879542	7.879820	7.880098	7.880375	7.880652	7.880929	7.881206	50
	10	7.881483	7.881759	7.882036	7.882312	7.882588	7.882864	7.883140	7.883415	7.883690	7.883966	40
	20	7.884240	7.884515	7.884790	7.885064	7.885339	7.885613	7.885887	7.886160	7.886434	7.886707	30
	30	7.886981	7.887254	7.887527	7.887799	7.888072	7.888344	7.888616	7.888889	7.889160	7.889432	20
	40	7.889704	7.889975	7.890246	7.890517	7.890788	7.891059	7.891329	7.891600	7.891870	7.892140	10
	50	7.892410	7.892679	7.892949	7.893218	7.893487	7.893756	7.894025	7.894294	7.894562	7.894831	0
27	0	7.895099	7.895367	7.895635	7.895902	7.896170	7.896437	7.896704	7.896971	7.897238	7.897505	50
	10	7.897772	7.898038	7.898304	7.898570	7.898836	7.899102	7.899367	7.899633	7.899898	7.900163	40
	20	7.900428	7.900693	7.900957	7.901222	7.901486	7.901750	7.902014	7.902278	7.902541	7.902805	30
	30	7.903068	7.903331	7.903594	7.903857	7.904120	7.904382	7.904645	7.904907	7.905169	7.905431	20
	40	7.905692	7.905954	7.906215	7.906477	7.906738	7.906999	7.907259	7.907520	7.907780	7.908041	10
	50	7.908301	7.908561	7.908821	7.909080	7.909340	7.909599	7.909858	7.910118	7.910376	7.910635	0
28	0	7.910894	7.911152	7.911411	7.911669	7.911927	7.912184	7.912442	7.912700	7.912957	7.913214	50
	10	7.913471	7.913728	7.913985	7.914242	7.914498	7.914754	7.915011	7.915267	7.915522	7.915778	40
	20	7.916034	7.916289	7.916544	7.916799	7.917054	7.917309	7.917564	7.917818	7.918073	7.918327	30
	30	7.918581	7.918835	7.919089	7.919342	7.919596	7.919849	7.920102	7.920355	7.920608	7.920861	20
	40	7.921113	7.921366	7.921618	7.921870	7.922122	7.922374	7.922626	7.922877	7.923129	7.923380	10
	50	7.923631	7.923882	7.924133	7.924384	7.924634	7.924885	7.925135	7.925385	7.925635	7.925885	0
29	0	7.926134	7.926384	7.926633	7.926883	7.927132	7.927381	7.927630	7.927878	7.928127	7.928375	50
	10	7.928623	7.928871	7.929119	7.929367	7.929615	7.929863	7.930110	7.930357	7.930604	7.930851	40
	20	7.931098	7.931345	7.931591	7.931838	7.932084	7.932330	7.932576	7.932822	7.933068	7.933313	30
	30	7.933559	7.933804	7.934049	7.934294	7.934539	7.934784	7.935029	7.935273	7.935517	7.935762	20
	40	7.936006	7.936250	7.936493	7.936737	7.936981	7.937224	7.937467	7.937710	7.937953	7.938196	10
	50	7.938439	7.938681	7.938924	7.939166	7.939408	7.939650	7.939892	7.940134	7.940376	7.940617	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds

Co-tangent of 89 degrees, or Tangent of 179 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 0 degree, or Co-tangent of 90 degrees.											
30	0	7.940858	7.941100	7.941341	7.941582	7.941823	7.942063	7.942304	7.942544	7.942784	7.943025	50	
	10	7.943265	7.943505	7.943744	7.943984	7.944223	7.944463	7.944702	7.944941	7.945180	7.945419	40	
	20	7.945658	7.945896	7.946135	7.946373	7.946611	7.946849	7.947087	7.947325	7.947562	7.947800	30	
	30	7.948037	7.948275	7.948512	7.948749	7.948986	7.949222	7.949459	7.949696	7.949932	7.950168	20	
	40	7.950404	7.950640	7.950876	7.951112	7.951347	7.951583	7.951818	7.952053	7.952289	7.952523	10	
	50	7.952758	7.952993	7.953228	7.953462	7.953696	7.953931	7.954165	7.954399	7.954632	7.954866	0	29
31	0	7.955100	7.955333	7.955566	7.955800	7.956033	7.956266	7.956498	7.956731	7.956964	7.957196	50	
	10	7.957428	7.957661	7.957893	7.958125	7.958356	7.958588	7.958820	7.959051	7.959283	7.959514	40	
	20	7.959745	7.959976	7.960207	7.960437	7.960668	7.960898	7.961129	7.961359	7.961589	7.961819	30	
	30	7.962049	7.962279	7.962508	7.962738	7.962967	7.963196	7.963425	7.963654	7.963883	7.964112	20	
	40	7.964341	7.964569	7.964798	7.965026	7.965254	7.965482	7.965710	7.965938	7.966166	7.966393	10	
	50	7.966621	7.966848	7.967075	7.967302	7.967529	7.967756	7.967983	7.968210	7.968436	7.968662	0	28
32	0	7.968889	7.969115	7.969341	7.969567	7.969793	7.970018	7.970244	7.970469	7.970695	7.970920	50	
	10	7.971145	7.971370	7.971595	7.971819	7.972044	7.972269	7.972493	7.972717	7.972941	7.973166	40	
	20	7.973389	7.973613	7.973837	7.974061	7.974284	7.974507	7.974731	7.974954	7.975177	7.975400	30	
	30	7.975622	7.975845	7.976068	7.976290	7.976512	7.976735	7.976957	7.977179	7.977401	7.977622	20	
	40	7.977844	7.978066	7.978287	7.978508	7.978730	7.978951	7.979172	7.979392	7.979613	7.979834	10	
	50	7.980054	7.980275	7.980495	7.980715	7.980935	7.981155	7.981375	7.981595	7.981815	7.982034	0	27
33	0	7.982253	7.982473	7.982692	7.982911	7.983130	7.983349	7.983568	7.983786	7.984005	7.984223	50	
	10	7.984441	7.984660	7.984878	7.985096	7.985314	7.985531	7.985749	7.985967	7.986184	7.986401	40	
	20	7.986619	7.986836	7.987053	7.987270	7.987486	7.987703	7.987920	7.988136	7.988352	7.988569	30	
	30	7.988785	7.989001	7.989217	7.989432	7.989648	7.989864	7.990079	7.990295	7.990510	7.990725	20	
	40	7.990940	7.991155	7.991370	7.991585	7.991799	7.992014	7.992228	7.992443	7.992657	7.992871	10	
	50	7.993085	7.993299	7.993513	7.993726	7.993940	7.994153	7.994367	7.994580	7.994793	7.995006	0	26
34	0	7.995219	7.995432	7.995645	7.995857	7.996070	7.996282	7.996495	7.996707	7.996919	7.997131	50	
	10	7.997343	7.997555	7.997767	7.997978	7.998190	7.998401	7.998612	7.998824	7.999035	7.999246	40	
	20	7.999457	7.999667	7.999878	8.000089	8.000299	8.000509	8.000720	8.000930	8.001140	8.001350	30	
	30	8.001560	8.001770	8.001979	8.002189	8.002398	8.002608	8.002817	8.003026	8.003235	8.003444	20	
	40	8.003653	8.003862	8.004070	8.004279	8.004487	8.004696	8.004904	8.005112	8.005320	8.005528	10	
	50	8.005736	8.005944	8.006151	8.006359	8.006567	8.006774	8.006981	8.007188	8.007395	8.007602	0	25
35	0	8.007809	8.008016	8.008223	8.008429	8.008636	8.008842	8.009048	8.009255	8.009461	8.009667	50	
	10	8.009873	8.010078	8.010284	8.010490	8.010695	8.010901	8.011106	8.011311	8.011516	8.011721	40	
	20	8.011926	8.012131	8.012336	8.012540	8.012745	8.012949	8.013154	8.013358	8.013562	8.013766	30	
	30	8.013970	8.014174	8.014378	8.014581	8.014785	8.014988	8.015192	8.015395	8.015598	8.015801	20	
	40	8.016004	8.016207	8.016410	8.016613	8.016815	8.017018	8.017220	8.017423	8.017625	8.017827	10	
	50	8.018029	8.018231	8.018433	8.018635	8.018836	8.019038	8.019239	8.019441	8.019642	8.019843	0	24
36	0	8.020045	8.020246	8.020447	8.020647	8.020848	8.021049	8.021249	8.021450	8.021650	8.021850	50	
	10	8.022051	8.022251	8.022451	8.022651	8.022851	8.023050	8.023250	8.023449	8.023649	8.023848	40	
	20	8.024048	8.024247	8.024446	8.024645	8.024844	8.025043	8.025241	8.025440	8.025639	8.025837	30	
	30	8.026035	8.026234	8.026432	8.026630	8.026828	8.027026	8.027224	8.027421	8.027619	8.027817	20	
	40	8.028014	8.028211	8.028409	8.028606	8.028803	8.029000	8.029197	8.029394	8.029591	8.029787	10	
	50	8.029984	8.030180	8.030377	8.030573	8.030769	8.030965	8.031161	8.031357	8.031553	8.031749	0	23
37	0	8.031945	8.032140	8.032336	8.032531	8.032727	8.032922	8.033117	8.033312	8.033507	8.033702	50	
	10	8.033897	8.034091	8.034286	8.034481	8.034675	8.034869	8.035064	8.035258	8.035452	8.035646	40	
	20	8.035840	8.036034	8.036228	8.036421	8.036615	8.036808	8.037002	8.037195	8.037388	8.037582	30	
	30	8.037775	8.037968	8.038161	8.038353	8.038546	8.038739	8.038931	8.039124	8.039316	8.039509	20	
	40	8.039701	8.039893	8.040085	8.040277	8.040469	8.040661	8.040852	8.041044	8.041235	8.041427	10	
	50	8.041618	8.041810	8.042001	8.042192	8.042383	8.042574	8.042765	8.042956	8.043146	8.043337	0	22
38	0	8.043527	8.043718	8.043908	8.044099	8.044289	8.044479	8.044669	8.044859	8.045049	8.045239	50	
	10	8.045428	8.045618	8.045807	8.045997	8.046186	8.046376	8.046565	8.046754	8.046943	8.047132	40	
	20	8.047321	8.047510	8.047698	8.047887	8.048075	8.048264	8.048452	8.048641	8.048829	8.049017	30	
	30	8.049205	8.049393	8.049581	8.049769	8.049956	8.050144	8.050332	8.050519	8.050707	8.050894	20	
	40	8.051081	8.051268	8.051455	8.051642	8.051829	8.052016	8.052203	8.052390	8.052576	8.052763	10	
	50	8.052949	8.053136	8.053322	8.053508	8.053694	8.053880	8.054066	8.054252	8.054438	8.054624	0	21
39	0	8.054809	8.054995	8.055180	8.055366	8.055551	8.055736	8.055922	8.056107	8.056292	8.056477	50	
	10	8.056662	8.056846	8.057031	8.057216	8.057400	8.057585	8.057769	8.057953	8.058138	8.058322	40	
	20	8.058506	8.058690	8.058874	8.059058	8.059241	8.059425	8.059609	8.059792	8.059976	8.060159	30	
	30	8.060342	8.060526	8.060709	8.060892	8.061075	8.061258	8.061441	8.061623	8.061806	8.061989	20	
	40	8.062171	8.062354	8.062536	8.062718	8.062901	8.063083	8.063265	8.063447	8.063629	8.063810	10	
	50	8.063992	8.064174	8.064356	8.064537	8.064719	8.064900	8.065081	8.065263	8.065444	8.065625	0	20
Seconds		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 89 degrees, or Tangent of 179 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Tangent of 0 degree, or Co-tangent of 90 degrees.										
40	0	8.065806	8.065987	8.066168	8.066348	8.066529	8.066710	8.066890	8.067071	8.067251	8.067431	50
	10	8.067612	8.067792	8.067972	8.068152	8.068332	8.068512	8.068692	8.068871	8.069051	8.069231	40
	20	8.069410	8.069590	8.069769	8.069948	8.070128	8.070307	8.070486	8.070665	8.070844	8.071023	30
	30	8.071201	8.071380	8.071559	8.071737	8.071916	8.072094	8.072272	8.072451	8.072629	8.072807	20
	40	8.072985	8.073163	8.073341	8.073519	8.073696	8.073874	8.074052	8.074229	8.074407	8.074584	10
	50	8.074761	8.074939	8.075116	8.075293	8.075470	8.075647	8.075824	8.076001	8.076177	8.076354	0
41	0	8.076531	8.076707	8.076884	8.077060	8.077236	8.077413	8.077589	8.077765	8.077941	8.078117	50
	10	8.078293	8.078468	8.078644	8.078820	8.078995	8.079171	8.079346	8.079522	8.079697	8.079872	40
	20	8.080048	8.080223	8.080398	8.080573	8.080748	8.080922	8.081097	8.081272	8.081446	8.081621	30
	30	8.081795	8.081970	8.082144	8.082318	8.082493	8.082667	8.082841	8.083015	8.083189	8.083362	20
	40	8.083536	8.083710	8.083884	8.084057	8.084231	8.084404	8.084577	8.084751	8.084924	8.085097	10
	50	8.085270	8.085443	8.085616	8.085789	8.085962	8.086134	8.086307	8.086480	8.086652	8.086825	0
42	0	8.086997	8.087169	8.087342	8.087514	8.087686	8.087858	8.088030	8.088202	8.088374	8.088546	50
	10	8.088717	8.088889	8.089060	8.089232	8.089403	8.089575	8.089746	8.089917	8.090088	8.090260	40
	20	8.090431	8.090602	8.090772	8.090943	8.091114	8.091285	8.091455	8.091626	8.091796	8.091967	30
	30	8.092137	8.092308	8.092478	8.092648	8.092818	8.092988	8.093158	8.093328	8.093498	8.093667	20
	40	8.093837	8.094007	8.094176	8.094346	8.094515	8.094685	8.094854	8.095023	8.095192	8.095361	10
	50	8.095531	8.095699	8.095868	8.096037	8.096206	8.096375	8.096543	8.096712	8.096880	8.097049	0
43	0	8.097217	8.097386	8.097554	8.097722	8.097890	8.098058	8.098226	8.098394	8.098562	8.098730	50
	10	8.098898	8.099065	8.099233	8.099400	8.099568	8.099735	8.099903	8.100070	8.100237	8.100404	40
	20	8.100571	8.100738	8.100905	8.101072	8.101239	8.101406	8.101572	8.101739	8.101906	8.102072	30
	30	8.102239	8.102405	8.102571	8.102738	8.102904	8.103070	8.103236	8.103402	8.103568	8.103734	20
	40	8.103900	8.104065	8.104231	8.104397	8.104562	8.104728	8.104893	8.105058	8.105224	8.105389	10
	50	8.105554	8.105719	8.105884	8.106049	8.106214	8.106379	8.106544	8.106709	8.106873	8.107038	0
44	0	8.107203	8.107367	8.107531	8.107696	8.107860	8.108024	8.108189	8.108353	8.108517	8.108681	50
	10	8.108845	8.109009	8.109172	8.109336	8.109500	8.109663	8.109827	8.109990	8.110154	8.110317	40
	20	8.110481	8.110644	8.110807	8.110970	8.111133	8.111296	8.111459	8.111622	8.111785	8.111948	30
	30	8.112110	8.112273	8.112436	8.112598	8.112761	8.112923	8.113085	8.113248	8.113410	8.113572	20
	40	8.113734	8.113896	8.114058	8.114220	8.114382	8.114544	8.114705	8.114867	8.115029	8.115190	10
	50	8.115352	8.115513	8.115675	8.115836	8.115997	8.116158	8.116320	8.116481	8.116642	8.116803	0
45	0	8.116963	8.117124	8.117285	8.117446	8.117606	8.117767	8.117928	8.118088	8.118249	8.118409	50
	10	8.118569	8.118729	8.118890	8.119050	8.119210	8.119370	8.119530	8.119690	8.119850	8.120009	40
	20	8.120169	8.120329	8.120488	8.120648	8.120807	8.120967	8.121126	8.121285	8.121445	8.121604	30
	30	8.121763	8.121922	8.122081	8.122240	8.122399	8.122558	8.122716	8.122875	8.123034	8.123192	20
	40	8.123351	8.123510	8.123668	8.123826	8.123985	8.124143	8.124301	8.124459	8.124617	8.124775	10
	50	8.124933	8.125091	8.125249	8.125407	8.125565	8.125722	8.125880	8.126038	8.126195	8.126353	0
46	0	8.126510	8.126667	8.126825	8.126982	8.127139	8.127296	8.127453	8.127610	8.127767	8.127924	50
	10	8.128081	8.128238	8.128394	8.128551	8.128708	8.128864	8.129021	8.129177	8.129333	8.129490	40
	20	8.129646	8.129802	8.129958	8.130114	8.130271	8.130427	8.130582	8.130738	8.130894	8.131050	30
	30	8.131206	8.131361	8.131517	8.131672	8.131828	8.131983	8.132139	8.132294	8.132449	8.132604	20
	40	8.132760	8.132915	8.133070	8.133225	8.133380	8.133535	8.133689	8.133844	8.133999	8.134154	10
	50	8.134308	8.134463	8.134617	8.134772	8.134926	8.135080	8.135235	8.135389	8.135543	8.135697	0
47	0	8.135851	8.136005	8.136159	8.136313	8.136467	8.136621	8.136774	8.136928	8.137082	8.137235	50
	10	8.137389	8.137542	8.137695	8.137849	8.138002	8.138155	8.138309	8.138462	8.138615	8.138768	40
	20	8.138921	8.139074	8.139226	8.139379	8.139532	8.139685	8.139837	8.139990	8.140143	8.140295	30
	30	8.140447	8.140600	8.140752	8.140904	8.141057	8.141209	8.141361	8.141513	8.141665	8.141817	20
	40	8.141969	8.142121	8.142272	8.142424	8.142576	8.142727	8.142879	8.143031	8.143182	8.143333	10
	50	8.143485	8.143636	8.143787	8.143939	8.144090	8.144241	8.144392	8.144543	8.144694	8.144845	0
48	0	8.144996	8.145146	8.145297	8.145448	8.145598	8.145749	8.145900	8.146050	8.146200	8.146351	50
	10	8.146501	8.146651	8.146802	8.146952	8.147102	8.147252	8.147402	8.147552	8.147702	8.147852	40
	20	8.148002	8.148151	8.148301	8.148451	8.148600	8.148750	8.148899	8.149049	8.149198	8.149347	30
	30	8.149497	8.149646	8.149795	8.149944	8.150093	8.150242	8.150391	8.150540	8.150689	8.150838	20
	40	8.150987	8.151136	8.151284	8.151433	8.151581	8.151730	8.151878	8.152027	8.152175	8.152323	10
	50	8.152472	8.152620	8.152768	8.152916	8.153064	8.153212	8.153360	8.153508	8.153656	8.153804	0
49	0	8.153952	8.154099	8.154247	8.154395	8.154542	8.154690	8.154837	8.154985	8.155132	8.155279	50
	10	8.155427	8.155574	8.155721	8.155868	8.156015	8.156162	8.156309	8.156456	8.156605	8.156750	40
	20	8.156896	8.157043	8.157190	8.157336	8.157483	8.157630	8.157776	8.157922	8.158069	8.158215	30
	30	8.158361	8.158508	8.158654	8.158800	8.158946	8.159092	8.159238	8.159384	8.159530	8.159676	20
	40	8.159821	8.159967	8.160113	8.160258	8.160404	8.160550	8.160695	8.160840	8.160986	8.161131	10
	50	8.161277	8.161422	8.161567	8.161712	8.161857	8.162002	8.162147	8.162292	8.162437	8.162582	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-tangent of 89 degrees, or Tangent of 179 degrees.										

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LOGARITHMIC TANGENTS.

Tangent of 0 degree, or Co-tangent of 90 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
50	0	8.162727	8.162872	8.163016	8.163161	8.163306	8.163450	8.163595	8.163739	8.163884	8.164028	50	
	10	8.164172	8.164317	8.164461	8.164605	8.164749	8.164893	8.165037	8.165181	8.165325	8.165469	40	
	20	8.165613	8.165757	8.165900	8.166044	8.166188	8.166331	8.166475	8.166619	8.166762	8.166905	30	
	30	8.167049	8.167192	8.167335	8.167479	8.167622	8.167765	8.167908	8.168051	8.168194	8.168337	20	
	40	8.168480	8.168623	8.168766	8.168908	8.169051	8.169194	8.169336	8.169479	8.169621	8.169764	10	
	50	8.169906	8.170049	8.170191	8.170333	8.170476	8.170618	8.170760	8.170902	8.171044	8.171186	0	9
51	0	8.171328	8.171470	8.171612	8.171754	8.171896	8.172037	8.172179	8.172321	8.172462	8.172604	50	
	10	8.172745	8.172887	8.173028	8.173170	8.173311	8.173452	8.173593	8.173735	8.173876	8.174017	40	
	20	8.174158	8.174299	8.174440	8.174581	8.174722	8.174862	8.175003	8.175144	8.175285	8.175425	30	
	30	8.175566	8.175706	8.175847	8.175987	8.176128	8.176268	8.176408	8.176549	8.176689	8.176829	20	
	40	8.176969	8.177109	8.177249	8.177389	8.177529	8.177669	8.177809	8.177949	8.178089	8.178229	10	
	50	8.178368	8.178508	8.178647	8.178787	8.178927	8.179066	8.179205	8.179345	8.179484	8.179623	0	8
52	0	8.179763	8.179902	8.180041	8.180180	8.180319	8.180458	8.180597	8.180736	8.180875	8.181014	50	
	10	8.181153	8.181291	8.181430	8.181569	8.181707	8.181846	8.181984	8.182123	8.182261	8.182400	40	
	20	8.182538	8.182676	8.182815	8.182953	8.183091	8.183229	8.183367	8.183505	8.183643	8.183781	30	
	30	8.183919	8.184057	8.184195	8.184333	8.184470	8.184608	8.184746	8.184883	8.185021	8.185158	20	
	40	8.185296	8.185433	8.185571	8.185708	8.185845	8.185983	8.186120	8.186257	8.186394	8.186531	10	
	50	8.186668	8.186805	8.186942	8.187079	8.187216	8.187353	8.187490	8.187626	8.187763	8.187900	0	7
53	0	8.188036	8.188173	8.188310	8.188446	8.188582	8.188719	8.188855	8.188992	8.189128	8.189264	50	
	10	8.189400	8.189536	8.189672	8.189809	8.189945	8.190081	8.190216	8.190352	8.190488	8.190624	40	
	20	8.190760	8.190895	8.191031	8.191167	8.191302	8.191438	8.191573	8.191709	8.191844	8.191980	30	
	30	8.192115	8.192250	8.192386	8.192521	8.192656	8.192791	8.192926	8.193061	8.193196	8.193331	20	
	40	8.193466	8.193601	8.193736	8.193871	8.194005	8.194140	8.194275	8.194409	8.194544	8.194678	10	
	50	8.194813	8.194947	8.195082	8.195216	8.195351	8.195485	8.195619	8.195753	8.195887	8.196022	0	6
54	0	8.196156	8.196290	8.196424	8.196558	8.196692	8.196825	8.196959	8.197093	8.197227	8.197361	50	
	10	8.197494	8.197628	8.197761	8.197895	8.198028	8.198162	8.198295	8.198429	8.198562	8.198695	40	
	20	8.198829	8.198962	8.199095	8.199228	8.199361	8.199494	8.199627	8.199760	8.199893	8.200026	30	
	30	8.200159	8.200292	8.200425	8.200557	8.200690	8.200823	8.200955	8.201088	8.201220	8.201353	20	
	40	8.201485	8.201618	8.201750	8.201882	8.202015	8.202147	8.202279	8.202411	8.202544	8.202676	10	
	50	8.202808	8.202940	8.203072	8.203204	8.203335	8.203467	8.203599	8.203731	8.203863	8.203994	0	5
55	0	8.204126	8.204258	8.204389	8.204521	8.204652	8.204784	8.204915	8.205046	8.205178	8.205309	50	
	10	8.205440	8.205571	8.205703	8.205834	8.205965	8.206096	8.206227	8.206358	8.206489	8.206620	40	
	20	8.206751	8.206881	8.207012	8.207143	8.207274	8.207404	8.207535	8.207665	8.207796	8.207926	30	
	30	8.208057	8.208187	8.208318	8.208448	8.208578	8.208709	8.208839	8.208969	8.209099	8.209229	20	
	40	8.209359	8.209489	8.209619	8.209749	8.209879	8.210009	8.210139	8.210269	8.210399	8.210528	10	
	50	8.210658	8.210788	8.210917	8.211047	8.211176	8.211306	8.211435	8.211565	8.211694	8.211823	0	4
56	0	8.211953	8.212082	8.212211	8.212340	8.212469	8.212599	8.212728	8.212857	8.212986	8.213115	50	
	10	8.213243	8.213372	8.213501	8.213630	8.213759	8.213887	8.214016	8.214145	8.214273	8.214402	40	
	20	8.214530	8.214659	8.214787	8.214916	8.215044	8.215173	8.215301	8.215429	8.215557	8.215686	30	
	30	8.215814	8.215942	8.216070	8.216198	8.216326	8.216454	8.216582	8.216710	8.216838	8.216965	20	
	40	8.217093	8.217221	8.217349	8.217476	8.217604	8.217731	8.217859	8.217987	8.218114	8.218241	10	
	50	8.218369	8.218496	8.218624	8.218751	8.218878	8.219005	8.219132	8.219260	8.219387	8.219514	0	3
57	0	8.219641	8.219768	8.219895	8.220022	8.220149	8.220275	8.220402	8.220529	8.220656	8.220782	50	
	10	8.220909	8.221036	8.221162	8.221289	8.221415	8.221542	8.221668	8.221795	8.221921	8.222047	40	
	20	8.222174	8.222300	8.222426	8.222552	8.222678	8.222805	8.222931	8.223057	8.223183	8.223309	30	
	30	8.223435	8.223560	8.223686	8.223812	8.223938	8.224064	8.224189	8.224315	8.224441	8.224566	20	
	40	8.224692	8.224817	8.224943	8.225068	8.225194	8.225319	8.225444	8.225570	8.225695	8.225820	10	
	50	8.225945	8.226071	8.226196	8.226321	8.226446	8.226571	8.226696	8.226821	8.226946	8.227071	0	2
58	0	8.227195	8.227320	8.227445	8.227570	8.227694	8.227819	8.227944	8.228068	8.228193	8.228317	50	
	10	8.228442	8.228566	8.228691	8.228815	8.228939	8.229064	8.229188	8.229312	8.229436	8.229561	40	
	20	8.229685	8.229809	8.229933	8.230057	8.230181	8.230305	8.230429	8.230553	8.230676	8.230800	30	
	30	8.230924	8.231048	8.231171	8.231295	8.231419	8.231542	8.231666	8.231789	8.231913	8.232036	20	
	40	8.232160	8.232283	8.232406	8.232530	8.232653	8.232776	8.232900	8.233023	8.233146	8.233269	10	
	50	8.233392	8.233515	8.233638	8.233761	8.233884	8.234007	8.234130	8.234253	8.234375	8.234498	0	1
59	0	8.234621	8.234744	8.234866	8.234989	8.235111	8.235234	8.235356	8.235479	8.235601	8.235724	50	
	10	8.235846	8.235968	8.236091	8.236213	8.236335	8.236458	8.236580	8.236702	8.236824	8.236946	40	
	20	8.237068	8.237190	8.237312	8.237434	8.237556	8.237678	8.237800	8.237921	8.238043	8.238165	30	
	30	8.238287	8.238408	8.238530	8.238651	8.238773	8.238894	8.239016	8.239137	8.239259	8.239380	20	
	40	8.239502	8.239623	8.239744	8.239865	8.239987	8.240108	8.240229	8.240350	8.240471	8.240592	10	
	50	8.240713	8.240834	8.240955	8.241076	8.241197	8.241318	8.241439	8.241559	8.241680	8.241801	0	0
Seconds	Minutes	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes

Co-tangent of 89 degrees, or Tangent of 179 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
		Tangent of 1 degree, or Co-tangent of 91 degrees.										
0	0	8. 241922	8. 242042	8. 242163	8. 242283	8. 242404	8. 242524	8. 242645	8. 242765	8. 242886	8. 243006	50
	10	8. 243126	8. 243247	8. 243367	8. 243487	8. 243608	8. 243728	8. 243848	8. 243968	8. 244088	8. 244208	40
	20	8. 244328	8. 244448	8. 244568	8. 244688	8. 244808	8. 244928	8. 245047	8. 245167	8. 245287	8. 245407	30
	30	8. 245526	8. 245646	8. 245766	8. 245885	8. 246005	8. 246124	8. 246244	8. 246363	8. 246483	8. 246602	20
	40	8. 246721	8. 246841	8. 246960	8. 247079	8. 247198	8. 247318	8. 247437	8. 247556	8. 247675	8. 247794	10
	50	8. 247913	8. 248032	8. 248151	8. 248270	8. 248389	8. 248508	8. 248627	8. 248745	8. 248864	8. 248983	0
1	0	8. 249102	8. 249220	8. 249339	8. 249457	8. 249576	8. 249695	8. 249813	8. 249932	8. 250050	8. 250168	50
	10	8. 250287	8. 250405	8. 250523	8. 250642	8. 250760	8. 250878	8. 250996	8. 251115	8. 251233	8. 251351	40
	20	8. 251469	8. 251587	8. 251705	8. 251823	8. 251941	8. 252059	8. 252176	8. 252294	8. 252412	8. 252530	30
	30	8. 252648	8. 252765	8. 252883	8. 253001	8. 253118	8. 253236	8. 253353	8. 253471	8. 253588	8. 253706	20
	40	8. 253823	8. 253941	8. 254058	8. 254175	8. 254293	8. 254410	8. 254527	8. 254644	8. 254761	8. 254879	10
	50	8. 254996	8. 255113	8. 255230	8. 255347	8. 255464	8. 255581	8. 255698	8. 255814	8. 255931	8. 256048	0
2	0	8. 256165	8. 256282	8. 256398	8. 256515	8. 256632	8. 256748	8. 256865	8. 256982	8. 257098	8. 257215	50
	10	8. 257331	8. 257448	8. 257564	8. 257680	8. 257797	8. 257913	8. 258029	8. 258146	8. 258262	8. 258378	40
	20	8. 258494	8. 258610	8. 258726	8. 258842	8. 258958	8. 259074	8. 259190	8. 259306	8. 259422	8. 259538	30
	30	8. 259654	8. 259770	8. 259886	8. 260001	8. 260117	8. 260233	8. 260349	8. 260464	8. 260580	8. 260695	20
	40	8. 260811	8. 260926	8. 261042	8. 261157	8. 261273	8. 261388	8. 261503	8. 261619	8. 261734	8. 261849	10
	50	8. 261965	8. 262080	8. 262195	8. 262310	8. 262425	8. 262540	8. 262655	8. 262770	8. 262885	8. 263000	0
3	0	8. 263115	8. 263230	8. 263345	8. 263460	8. 263575	8. 263690	8. 263804	8. 263919	8. 264034	8. 264148	50
	10	8. 264263	8. 264378	8. 264492	8. 264607	8. 264721	8. 264836	8. 264950	8. 265065	8. 265179	8. 265293	40
	20	8. 265408	8. 265522	8. 265636	8. 265750	8. 265865	8. 265979	8. 266093	8. 266207	8. 266321	8. 266435	30
	30	8. 266549	8. 266663	8. 266777	8. 266891	8. 267005	8. 267119	8. 267233	8. 267347	8. 267460	8. 267574	20
	40	8. 267688	8. 267802	8. 267915	8. 268029	8. 268143	8. 268256	8. 268370	8. 268483	8. 268597	8. 268710	10
	50	8. 268824	8. 268937	8. 269050	8. 269164	8. 269277	8. 269390	8. 269504	8. 269617	8. 269730	8. 269843	0
4	0	8. 269956	8. 270069	8. 270183	8. 270296	8. 270409	8. 270522	8. 270635	8. 270747	8. 270860	8. 270973	50
	10	8. 271086	8. 271199	8. 271312	8. 271424	8. 271537	8. 271650	8. 271763	8. 271875	8. 271988	8. 272100	40
	20	8. 272213	8. 272325	8. 272438	8. 272550	8. 272663	8. 272775	8. 272888	8. 273000	8. 273112	8. 273225	30
	30	8. 273337	8. 273449	8. 273561	8. 273673	8. 273786	8. 273898	8. 274010	8. 274122	8. 274234	8. 274346	20
	40	8. 274458	8. 274570	8. 274682	8. 274794	8. 274905	8. 275017	8. 275129	8. 275241	8. 275353	8. 275464	10
	50	8. 275576	8. 275688	8. 275799	8. 275911	8. 276022	8. 276134	8. 276246	8. 276357	8. 276468	8. 276580	0
5	0	8. 276691	8. 276803	8. 276914	8. 277025	8. 277137	8. 277248	8. 277359	8. 277470	8. 277581	8. 277693	50
	10	8. 277804	8. 277915	8. 278026	8. 278137	8. 278248	8. 278359	8. 278470	8. 278581	8. 278692	8. 278802	40
	20	8. 278913	8. 279024	8. 279135	8. 279246	8. 279356	8. 279467	8. 279578	8. 279688	8. 279799	8. 279909	30
	30	8. 280020	8. 280131	8. 280241	8. 280352	8. 280462	8. 280572	8. 280683	8. 280793	8. 280903	8. 281014	20
	40	8. 281124	8. 281234	8. 281344	8. 281455	8. 281565	8. 281675	8. 281785	8. 281895	8. 282005	8. 282115	10
	50	8. 282225	8. 282335	8. 282445	8. 282555	8. 282665	8. 282775	8. 282884	8. 282994	8. 283104	8. 283214	0
6	0	8. 283323	8. 283433	8. 283543	8. 283652	8. 283762	8. 283872	8. 283981	8. 284091	8. 284200	8. 284310	50
	10	8. 284419	8. 284528	8. 284638	8. 284747	8. 284857	8. 284966	8. 285075	8. 285184	8. 285294	8. 285403	40
	20	8. 285512	8. 285621	8. 285730	8. 285839	8. 285948	8. 286057	8. 286166	8. 286275	8. 286384	8. 286493	30
	30	8. 286602	8. 286711	8. 286820	8. 286928	8. 287037	8. 287146	8. 287255	8. 287363	8. 287472	8. 287581	20
	40	8. 287689	8. 287798	8. 287906	8. 288015	8. 288124	8. 288232	8. 288340	8. 288449	8. 288557	8. 288666	10
	50	8. 288774	8. 288882	8. 288991	8. 289099	8. 289207	8. 289315	8. 289424	8. 289532	8. 289640	8. 289748	0
7	0	8. 289856	8. 289964	8. 290072	8. 290180	8. 290288	8. 290396	8. 290504	8. 290612	8. 290720	8. 290827	50
	10	8. 290935	8. 291043	8. 291151	8. 291258	8. 291366	8. 291474	8. 291582	8. 291689	8. 291797	8. 291904	40
	20	8. 292012	8. 292119	8. 292227	8. 292334	8. 292442	8. 292549	8. 292657	8. 292764	8. 292871	8. 292978	30
	30	8. 293086	8. 293193	8. 293300	8. 293407	8. 293515	8. 293622	8. 293729	8. 293836	8. 293943	8. 294050	20
	40	8. 294157	8. 294264	8. 294371	8. 294478	8. 294585	8. 294692	8. 294799	8. 294905	8. 295012	8. 295119	10
	50	8. 295226	8. 295332	8. 295439	8. 295546	8. 295652	8. 295759	8. 295866	8. 295972	8. 296079	8. 296185	0
8	0	8. 296292	8. 296398	8. 296505	8. 296611	8. 296717	8. 296824	8. 296930	8. 297036	8. 297143	8. 297249	50
	10	8. 297355	8. 297461	8. 297568	8. 297674	8. 297780	8. 297886	8. 297992	8. 298098	8. 298204	8. 298310	40
	20	8. 298416	8. 298522	8. 298628	8. 298734	8. 298840	8. 298945	8. 299051	8. 299157	8. 299263	8. 299369	30
	30	8. 299474	8. 299580	8. 299686	8. 299791	8. 299897	8. 300002	8. 300108	8. 300213	8. 300319	8. 300424	20
	40	8. 300530	8. 300635	8. 300741	8. 300846	8. 300951	8. 301057	8. 301162	8. 301267	8. 301373	8. 301478	10
	50	8. 301583	8. 301688	8. 301793	8. 301898	8. 302004	8. 302109	8. 302214	8. 302319	8. 302424	8. 302529	0
9	0	8. 302634	8. 302739	8. 302843	8. 302948	8. 303053	8. 303158	8. 303263	8. 303367	8. 303472	8. 303577	50
	10	8. 303682	8. 303786	8. 303891	8. 303996	8. 304100	8. 304205	8. 304309	8. 304414	8. 304518	8. 304623	40
	20	8. 304727	8. 304832	8. 304936	8. 305040	8. 305145	8. 305249	8. 305353	8. 305458	8. 305562	8. 305666	30
	30	8. 305770	8. 305874	8. 305978	8. 306083	8. 306187	8. 306291	8. 306395	8. 306499	8. 306603	8. 306707	20
	40	8. 306811	8. 306915	8. 307018	8. 307122	8. 307226	8. 307330	8. 307434	8. 307538	8. 307641	8. 307745	10
	50	8. 307849	8. 307952	8. 308056	8. 308160	8. 308263	8. 308367	8. 308470	8. 308574	8. 308677	8. 308781	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds
		Co-tangent of 88 degrees, or Tangent of 178 degrees.										

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 1 degree, or Co-tangent of 91 degrees.											
10	0	8.308884	8.308988	8.309091	8.309194	8.309298	8.309401	8.309504	8.309608	8.309711	8.309814	50	
	10	8.309917	8.310021	8.310124	8.310227	8.310330	8.310433	8.310536	8.310639	8.310742	8.310845	40	
	20	8.310948	8.311051	8.311154	8.311257	8.311360	8.311462	8.311565	8.311668	8.311771	8.311873	30	
	30	8.311976	8.312079	8.312182	8.312284	8.312387	8.312489	8.312592	8.312694	8.312797	8.312899	20	
	40	8.313002	8.313104	8.313207	8.313309	8.313412	8.313514	8.313616	8.313719	8.313821	8.313923	10	
	50	8.314025	8.314128	8.314230	8.314332	8.314434	8.314536	8.314638	8.314740	8.314842	8.314944	0	49
11	0	8.315046	8.315148	8.315250	8.315352	8.315454	8.315556	8.315658	8.315760	8.315861	8.315963	50	
	10	8.316065	8.316166	8.316268	8.316370	8.316472	8.316573	8.316675	8.316776	8.316878	8.316980	40	
	20	8.317081	8.317183	8.317284	8.317385	8.317487	8.317588	8.317690	8.317791	8.317892	8.317994	30	
	30	8.318095	8.318196	8.318297	8.318399	8.318500	8.318601	8.318702	8.318803	8.318904	8.319005	20	
	40	8.319106	8.319207	8.319308	8.319409	8.319510	8.319611	8.319712	8.319813	8.319914	8.320015	10	
	50	8.320115	8.320216	8.320317	8.320418	8.320518	8.320619	8.320720	8.320820	8.320921	8.321022	0	48
12	0	8.321122	8.321223	8.321323	8.321424	8.321524	8.321625	8.321725	8.321826	8.321926	8.322026	50	
	10	8.322127	8.322227	8.322327	8.322427	8.322528	8.322628	8.322728	8.322828	8.322929	8.323029	40	
	20	8.323129	8.323229	8.323329	8.323429	8.323529	8.323629	8.323729	8.323829	8.323929	8.324029	30	
	30	8.324129	8.324228	8.324328	8.324428	8.324528	8.324628	8.324727	8.324827	8.324927	8.325026	20	
	40	8.325126	8.325226	8.325325	8.325425	8.325524	8.325624	8.325724	8.325823	8.325922	8.326022	10	
	50	8.326121	8.326221	8.326320	8.326419	8.326519	8.326618	8.326717	8.326817	8.326916	8.327015	0	47
13	0	8.327114	8.327213	8.327313	8.327412	8.327511	8.327610	8.327709	8.327808	8.327907	8.328006	50	
	10	8.328105	8.328204	8.328303	8.328402	8.328501	8.328600	8.328698	8.328797	8.328896	8.328995	40	
	20	8.329093	8.329192	8.329291	8.329390	8.329488	8.329587	8.329685	8.329784	8.329883	8.329981	30	
	30	8.330080	8.330178	8.330277	8.330375	8.330474	8.330572	8.330670	8.330769	8.330867	8.330965	20	
	40	8.331064	8.331162	8.331260	8.331358	8.331457	8.331555	8.331653	8.331751	8.331849	8.331947	10	
	50	8.332045	8.332143	8.332242	8.332340	8.332438	8.332535	8.332633	8.332731	8.332829	8.332927	0	46
14	0	8.333025	8.333123	8.333221	8.333318	8.333416	8.333514	8.333612	8.333709	8.333807	8.333905	50	
	10	8.334002	8.334100	8.334198	8.334295	8.334393	8.334490	8.334588	8.334685	8.334783	8.334880	40	
	20	8.334977	8.335075	8.335172	8.335270	8.335367	8.335464	8.335562	8.335659	8.335756	8.335853	30	
	30	8.335950	8.336048	8.336145	8.336242	8.336339	8.336436	8.336533	8.336630	8.336727	8.336824	20	
	40	8.336921	8.337018	8.337115	8.337212	8.337309	8.337406	8.337503	8.337599	8.337696	8.337793	10	
	50	8.337890	8.337987	8.338083	8.338180	8.338277	8.338373	8.338470	8.338567	8.338663	8.338760	0	45
15	0	8.338856	8.338953	8.339049	8.339146	8.339242	8.339339	8.339435	8.339532	8.339628	8.339724	50	
	10	8.339821	8.339917	8.340013	8.340110	8.340206	8.340302	8.340398	8.340494	8.340591	8.340687	40	
	20	8.340783	8.340879	8.340975	8.341071	8.341167	8.341263	8.341359	8.341455	8.341551	8.341647	30	
	30	8.341743	8.341839	8.341935	8.342031	8.342126	8.342222	8.342318	8.342414	8.342509	8.342605	20	
	40	8.342701	8.342797	8.342892	8.342988	8.343084	8.343179	8.343275	8.343370	8.343466	8.343561	10	
	50	8.343657	8.343752	8.343848	8.343943	8.344039	8.344134	8.344229	8.344325	8.344420	8.344515	0	44
16	0	8.344611	8.344706	8.344801	8.344896	8.344991	8.345087	8.345182	8.345277	8.345372	8.345467	50	
	10	8.345562	8.345657	8.345752	8.345847	8.345942	8.346037	8.346132	8.346227	8.346322	8.346417	40	
	20	8.346512	8.346607	8.346701	8.346796	8.346891	8.346986	8.347081	8.347175	8.347270	8.347365	30	
	30	8.347459	8.347554	8.347649	8.347743	8.347838	8.347932	8.348027	8.348121	8.348216	8.348310	20	
	40	8.348405	8.348499	8.348594	8.348688	8.348782	8.348877	8.348971	8.349065	8.349160	8.349254	10	
	50	8.349348	8.349442	8.349537	8.349631	8.349725	8.349819	8.349913	8.350007	8.350101	8.350195	0	43
17	0	8.350290	8.350384	8.350478	8.350572	8.350666	8.350759	8.350853	8.350947	8.351041	8.351135	50	
	10	8.351229	8.351323	8.351416	8.351510	8.351604	8.351698	8.351791	8.351885	8.351979	8.352073	40	
	20	8.352166	8.352260	8.352353	8.352447	8.352541	8.352634	8.352728	8.352821	8.352915	8.353008	30	
	30	8.353101	8.353195	8.353288	8.353382	8.353475	8.353568	8.353662	8.353755	8.353848	8.353941	20	
	40	8.354035	8.354128	8.354221	8.354314	8.354407	8.354501	8.354594	8.354687	8.354780	8.354873	10	
	50	8.354966	8.355059	8.355152	8.355245	8.355338	8.355431	8.355524	8.355617	8.355710	8.355802	0	42
18	0	8.355895	8.355988	8.356081	8.356174	8.356266	8.356359	8.356452	8.356545	8.356637	8.356730	50	
	10	8.356823	8.356915	8.357008	8.357100	8.357193	8.357286	8.357378	8.357471	8.357563	8.357656	40	
	20	8.357748	8.357840	8.357933	8.358025	8.358118	8.358210	8.358302	8.358395	8.358487	8.358579	30	
	30	8.358671	8.358764	8.358856	8.358948	8.359040	8.359132	8.359224	8.359317	8.359409	8.359501	20	
	40	8.359593	8.359685	8.359777	8.359869	8.359961	8.360053	8.360145	8.360237	8.360328	8.360420	10	
	50	8.360512	8.360604	8.360696	8.360788	8.360879	8.360971	8.361063	8.361155	8.361246	8.361338	0	41
19	0	8.361430	8.361521	8.361613	8.361705	8.361796	8.361888	8.361979	8.362071	8.362162	8.362254	50	
	10	8.362345	8.362437	8.362528	8.362620	8.362711	8.362802	8.362894	8.362985	8.363076	8.363168	40	
	20	8.363259	8.363350	8.363441	8.363533	8.363624	8.363715	8.363806	8.363897	8.363989	8.364080	30	
	30	8.364171	8.364262	8.364353	8.364444	8.364535	8.364626	8.364717	8.364808	8.364899	8.364990	20	
	40	8.365081	8.365171	8.365262	8.365353	8.365444	8.365535	8.365626	8.365716	8.365807	8.365898	10	
	50	8.365989	8.366079	8.366170	8.366261	8.366351	8.366442	8.366532	8.366623	8.366714	8.366804	0	40
Minutes / Seconds		10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 88 degrees, or Tangent of 178 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 1 degree, or Co-tangent of 91 degrees.											
20	0	8.366895	8.366985	8.367076	8.367166	8.367256	8.367347	8.367437	8.367528	8.367618	8.367708	50	
	10	8.367799	8.367889	8.367979	8.368070	8.368160	8.368250	8.368340	8.368431	8.368521	8.368611	40	
	20	8.368701	8.368791	8.368881	8.368971	8.369061	8.369151	8.369241	8.369332	8.369422	8.369511	30	
	30	8.369601	8.369691	8.369781	8.369871	8.369961	8.370051	8.370141	8.370231	8.370320	8.370410	20	
	40	8.370500	8.370590	8.370679	8.370769	8.370859	8.370949	8.371038	8.371128	8.371218	8.371307	10	
	50	8.371397	8.371486	8.371576	8.371665	8.371755	8.371844	8.371934	8.372023	8.372113	8.372202	0	
21	0	8.372292	8.372381	8.372470	8.372560	8.372649	8.372738	8.372828	8.372917	8.373006	8.373095	50	
	10	8.373185	8.373274	8.373363	8.373452	8.373541	8.373630	8.373720	8.373809	8.373898	8.373987	40	
	20	8.374076	8.374165	8.374254	8.374343	8.374432	8.374521	8.374610	8.374699	8.374787	8.374876	30	
	30	8.374965	8.375054	8.375143	8.375232	8.375320	8.375409	8.375498	8.375587	8.375675	8.375764	20	
	40	8.375853	8.375941	8.376030	8.376119	8.376207	8.376296	8.376384	8.376473	8.376561	8.376650	10	
	50	8.376738	8.376827	8.376915	8.377004	8.377092	8.377181	8.377269	8.377357	8.377446	8.377534	0	
22	0	8.377622	8.377711	8.377799	8.377887	8.377975	8.378064	8.378152	8.378240	8.378328	8.378416	50	
	10	8.378505	8.378593	8.378681	8.378769	8.378857	8.378945	8.379033	8.379121	8.379209	8.379297	40	
	20	8.379385	8.379473	8.379561	8.379649	8.379737	8.379824	8.379912	8.380000	8.380088	8.380176	30	
	30	8.380263	8.380351	8.380439	8.380527	8.380614	8.380702	8.380790	8.380877	8.380965	8.381053	20	
	40	8.381140	8.381228	8.381315	8.381403	8.381491	8.381578	8.381666	8.381753	8.381840	8.381928	10	
	50	8.382015	8.382103	8.382190	8.382278	8.382365	8.382452	8.382540	8.382627	8.382714	8.382801	0	
23	0	8.382889	8.382976	8.383063	8.383150	8.383237	8.383325	8.383412	8.383499	8.383586	8.383673	50	
	10	8.383760	8.383847	8.383934	8.384021	8.384108	8.384195	8.384282	8.384369	8.384456	8.384543	40	
	20	8.384630	8.384717	8.384804	8.384891	8.384977	8.385064	8.385151	8.385238	8.385325	8.385411	30	
	30	8.385498	8.385585	8.385671	8.385758	8.385845	8.385931	8.386018	8.386105	8.386191	8.386278	20	
	40	8.386364	8.386451	8.386537	8.386624	8.386710	8.386797	8.386883	8.386970	8.387056	8.387143	10	
	50	8.387229	8.387315	8.387402	8.387488	8.387574	8.387661	8.387747	8.387833	8.387919	8.388006	0	
24	0	8.388092	8.388178	8.388264	8.388350	8.388437	8.388523	8.388609	8.388695	8.388781	8.388867	50	
	10	8.388953	8.389039	8.389125	8.389211	8.389297	8.389383	8.389469	8.389555	8.389641	8.389727	40	
	20	8.389813	8.389898	8.389984	8.390070	8.390156	8.390242	8.390327	8.390413	8.390499	8.390585	30	
	30	8.390670	8.390756	8.390842	8.390927	8.391013	8.391099	8.391184	8.391270	8.391355	8.391441	20	
	40	8.391526	8.391612	8.391697	8.391783	8.391868	8.391954	8.392039	8.392125	8.392210	8.392296	10	
	50	8.392381	8.392466	8.392552	8.392637	8.392722	8.392807	8.392893	8.392978	8.393063	8.393148	0	
25	0	8.393234	8.393319	8.393404	8.393489	8.393574	8.393659	8.393744	8.393830	8.393915	8.394000	50	
	10	8.394085	8.394170	8.394255	8.394340	8.394425	8.394510	8.394595	8.394679	8.394764	8.394849	40	
	20	8.394934	8.395019	8.395104	8.395189	8.395273	8.395358	8.395443	8.395528	8.395612	8.395697	30	
	30	8.395782	8.395867	8.395951	8.396036	8.396120	8.396205	8.396290	8.396374	8.396459	8.396543	20	
	40	8.396628	8.396712	8.396797	8.396881	8.396966	8.397050	8.397135	8.397219	8.397304	8.397388	10	
	50	8.397472	8.397557	8.397641	8.397725	8.397810	8.397894	8.397978	8.398063	8.398147	8.398231	0	
26	0	8.398315	8.398399	8.398484	8.398568	8.398652	8.398736	8.398820	8.398904	8.398988	8.399072	50	
	10	8.399156	8.399240	8.399324	8.399408	8.399492	8.399576	8.399660	8.399744	8.399828	8.399912	40	
	20	8.399996	8.400080	8.400164	8.400248	8.400331	8.400415	8.400499	8.400583	8.400666	8.400750	30	
	30	8.400834	8.400918	8.401001	8.401085	8.401169	8.401252	8.401336	8.401420	8.401503	8.401587	20	
	40	8.401670	8.401754	8.401837	8.401921	8.402004	8.402088	8.402171	8.402255	8.402338	8.402422	10	
	50	8.402505	8.402588	8.402672	8.402755	8.402838	8.402922	8.403005	8.403088	8.403172	8.403255	0	
27	0	8.403338	8.403421	8.403505	8.403588	8.403671	8.403754	8.403837	8.403920	8.404004	8.404087	50	
	10	8.404170	8.404253	8.404336	8.404419	8.404502	8.404585	8.404668	8.404751	8.404834	8.404917	40	
	20	8.405000	8.405083	8.405165	8.405248	8.405331	8.405414	8.405497	8.405580	8.405662	8.405745	30	
	30	8.405828	8.405911	8.405994	8.406076	8.406159	8.406242	8.406324	8.406407	8.406490	8.406572	20	
	40	8.406655	8.406737	8.406820	8.406903	8.406985	8.407068	8.407150	8.407233	8.407315	8.407398	10	
	50	8.407480	8.407562	8.407645	8.407727	8.407810	8.407892	8.407974	8.408057	8.408139	8.408221	0	
28	0	8.408304	8.408386	8.408468	8.408551	8.408633	8.408715	8.408797	8.408879	8.408962	8.409044	50	
	10	8.409126	8.409208	8.409290	8.409372	8.409454	8.409536	8.409618	8.409700	8.409782	8.409864	40	
	20	8.409946	8.410028	8.410110	8.410192	8.410274	8.410356	8.410438	8.410520	8.410602	8.410684	30	
	30	8.410765	8.410847	8.410929	8.411011	8.411093	8.411174	8.411256	8.411338	8.411419	8.411501	20	
	40	8.411583	8.411665	8.411746	8.411828	8.411909	8.411991	8.412073	8.412154	8.412236	8.412317	10	
	50	8.412399	8.412480	8.412562	8.412643	8.412725	8.412806	8.412888	8.412969	8.413050	8.413132	0	
29	0	8.413213	8.413295	8.413376	8.413457	8.413539	8.413620	8.413701	8.413782	8.413864	8.413945	50	
	10	8.414026	8.414107	8.414189	8.414270	8.414351	8.414432	8.414513	8.414594	8.414675	8.414756	40	
	20	8.414837	8.414919	8.415000	8.415081	8.415162	8.415243	8.415324	8.415405	8.415485	8.415566	30	
	30	8.415647	8.415728	8.415809	8.415890	8.415971	8.416052	8.416133	8.416213	8.416294	8.416375	20	
	40	8.416456	8.416536	8.416617	8.416698	8.416779	8.416859	8.416940	8.417021	8.417101	8.417182	10	
	50	8.417263	8.417343	8.417424	8.417504	8.417585	8.417665	8.417746	8.417826	8.417907	8.417987	0	
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 88 degrees, or Tangent of 178 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 1 degree, or Co-tangent of 91 degrees.											
30	0	8.418068	8.418148	8.418229	8.418309	8.418390	8.418470	8.418550	8.418631	8.418711	8.418791	50	
	10	8.418872	8.418952	8.419032	8.419113	8.419193	8.419273	8.419353	8.419434	8.419514	8.419594	40	
	20	8.419674	8.419754	8.419834	8.419915	8.419995	8.420075	8.420155	8.420235	8.420315	8.420395	30	
	30	8.420475	8.420555	8.420635	8.420715	8.420795	8.420875	8.420955	8.421035	8.421115	8.421195	20	
	40	8.421275	8.421354	8.421434	8.421514	8.421594	8.421674	8.421753	8.421833	8.421913	8.421993	10	
	50	8.422073	8.422152	8.422232	8.422312	8.422391	8.422471	8.422551	8.422630	8.422710	8.422789	0	29
31	0	8.422869	8.422949	8.423028	8.423108	8.423187	8.423267	8.423346	8.423426	8.423505	8.423585	50	
	10	8.423664	8.423743	8.423823	8.423902	8.423982	8.424061	8.424140	8.424220	8.424299	8.424378	40	
	20	8.424458	8.424537	8.424616	8.424695	8.424775	8.424854	8.424933	8.425012	8.425091	8.425171	30	
	30	8.425250	8.425329	8.425408	8.425487	8.425566	8.425645	8.425724	8.425803	8.425883	8.425962	20	
	40	8.426041	8.426120	8.426199	8.426277	8.426356	8.426435	8.426514	8.426593	8.426672	8.426751	10	
	50	8.426830	8.426909	8.426988	8.427066	8.427145	8.427224	8.427303	8.427381	8.427460	8.427539	0	28
32	0	8.427618	8.427696	8.427775	8.427854	8.427932	8.428011	8.428090	8.428168	8.428247	8.428326	50	
	10	8.428404	8.428483	8.428561	8.428640	8.428718	8.428797	8.428875	8.428954	8.429032	8.429111	40	
	20	8.429189	8.429268	8.429346	8.429424	8.429503	8.429581	8.429659	8.429738	8.429816	8.429894	30	
	30	8.429973	8.430051	8.430129	8.430208	8.430286	8.430364	8.430442	8.430520	8.430599	8.430677	20	
	40	8.430755	8.430833	8.430911	8.430989	8.431067	8.431145	8.431224	8.431302	8.431380	8.431458	10	
	50	8.431536	8.431614	8.431692	8.431770	8.431848	8.431926	8.432003	8.432081	8.432159	8.432237	0	27
33	0	8.432315	8.432393	8.432471	8.432549	8.432626	8.432704	8.432782	8.432860	8.432938	8.433015	50	
	10	8.433093	8.433171	8.433248	8.433326	8.433404	8.433482	8.433559	8.433637	8.433714	8.433792	40	
	20	8.433870	8.433947	8.434025	8.434102	8.434180	8.434257	8.434335	8.434412	8.434490	8.434567	30	
	30	8.434645	8.434722	8.434800	8.434877	8.434955	8.435032	8.435109	8.435187	8.435264	8.435341	20	
	40	8.435419	8.435496	8.435573	8.435651	8.435728	8.435805	8.435882	8.435960	8.436037	8.436114	10	
	50	8.436191	8.436268	8.436346	8.436423	8.436500	8.436577	8.436654	8.436731	8.436808	8.436885	0	26
34	0	8.436962	8.437039	8.437116	8.437193	8.437270	8.437347	8.437424	8.437501	8.437578	8.437655	50	
	10	8.437732	8.437809	8.437886	8.437963	8.438040	8.438116	8.438193	8.438270	8.438347	8.438424	40	
	20	8.438500	8.438577	8.438654	8.438731	8.438807	8.438884	8.438961	8.439037	8.439114	8.439191	30	
	30	8.439267	8.439344	8.439421	8.439497	8.439574	8.439650	8.439727	8.439803	8.439880	8.439957	20	
	40	8.440033	8.440110	8.440186	8.440262	8.440339	8.440415	8.440492	8.440568	8.440645	8.440721	10	
	50	8.440797	8.440874	8.440950	8.441026	8.441103	8.441179	8.441255	8.441332	8.441408	8.441484	0	25
35	0	8.441560	8.441637	8.441713	8.441789	8.441865	8.441941	8.442017	8.442094	8.442170	8.442246	50	
	10	8.442322	8.442398	8.442474	8.442550	8.442626	8.442702	8.442778	8.442854	8.442930	8.443006	40	
	20	8.443082	8.443158	8.443234	8.443310	8.443386	8.443462	8.443538	8.443614	8.443690	8.443765	30	
	30	8.443841	8.443917	8.443993	8.444069	8.444144	8.444220	8.444296	8.444372	8.444448	8.444523	20	
	40	8.444599	8.444675	8.444750	8.444826	8.444902	8.444977	8.445053	8.445129	8.445204	8.445280	10	
	50	8.445355	8.445431	8.445506	8.445582	8.445657	8.445733	8.445808	8.445884	8.445959	8.446035	0	24
36	0	8.446110	8.446186	8.446261	8.446337	8.446412	8.446487	8.446563	8.446638	8.446713	8.446789	50	
	10	8.446864	8.446939	8.447015	8.447090	8.447165	8.447240	8.447316	8.447391	8.447466	8.447541	40	
	20	8.447616	8.447692	8.447767	8.447842	8.447917	8.447992	8.448067	8.448142	8.448217	8.448293	30	
	30	8.448368	8.448443	8.448518	8.448593	8.448668	8.448743	8.448818	8.448893	8.448968	8.449042	20	
	40	8.449117	8.449192	8.449267	8.449342	8.449417	8.449492	8.449567	8.449642	8.449716	8.449791	10	
	50	8.449866	8.449941	8.450015	8.450090	8.450165	8.450240	8.450314	8.450389	8.450464	8.450539	0	23
37	0	8.450613	8.450688	8.450762	8.450837	8.450912	8.450986	8.451061	8.451135	8.451210	8.451285	50	
	10	8.451359	8.451434	8.451508	8.451583	8.451657	8.451732	8.451806	8.451881	8.451955	8.452029	40	
	20	8.452104	8.452178	8.452253	8.452327	8.452401	8.452476	8.452550	8.452624	8.452699	8.452773	30	
	30	8.452847	8.452922	8.452996	8.453070	8.453144	8.453218	8.453293	8.453367	8.453441	8.453515	20	
	40	8.453589	8.453664	8.453738	8.453812	8.453886	8.453960	8.454034	8.454108	8.454182	8.454256	10	
	50	8.454330	8.454404	8.454478	8.454552	8.454626	8.454700	8.454774	8.454848	8.454922	8.454996	0	22
38	0	8.455070	8.455144	8.455218	8.455292	8.455365	8.455439	8.455513	8.455587	8.455661	8.455734	50	
	10	8.455808	8.455882	8.455956	8.456030	8.456103	8.456177	8.456251	8.456324	8.456398	8.456472	40	
	20	8.456545	8.456619	8.456693	8.456766	8.456840	8.456913	8.456987	8.457061	8.457134	8.457208	30	
	30	8.457281	8.457355	8.457428	8.457502	8.457575	8.457649	8.457722	8.457796	8.457869	8.457942	20	
	40	8.458016	8.458089	8.458163	8.458236	8.458309	8.458383	8.458456	8.458529	8.458603	8.458676	10	
	50	8.458749	8.458823	8.458896	8.458969	8.459042	8.459116	8.459189	8.459262	8.459335	8.459408	0	21
39	0	8.459481	8.459555	8.459628	8.459701	8.459774	8.459847	8.459920	8.459993	8.460066	8.460139	50	
	10	8.460212	8.460285	8.460358	8.460431	8.460504	8.460577	8.460650	8.460723	8.460796	8.460869	40	
	20	8.460942	8.461015	8.461088	8.461161	8.461234	8.461306	8.461379	8.461452	8.461525	8.461598	30	
	30	8.461671	8.461743	8.461816	8.461889	8.461962	8.462034	8.462107	8.462180	8.462252	8.462325	20	
	40	8.462398	8.462470	8.462543	8.462616	8.462688	8.462761	8.462834	8.462906	8.462979	8.463051	10	
	50	8.463124	8.463196	8.463269	8.463341	8.463414	8.463486	8.463559	8.463631	8.463704	8.463776	0	20
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 88 degrees, or Tangent of 178 degrees.											

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LOGARITHMIC TANGENTS.

Tangent of 1 degree, or Co-tangent of 91 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds
40	0	8.463849	8.463921	8.463994	8.464066	8.464138	8.464211	8.464283	8.464355	8.464428	8.464500	50
	10	8.464572	8.464645	8.464717	8.464789	8.464861	8.464934	8.465006	8.465078	8.465150	8.465223	40
	20	8.465295	8.465367	8.465439	8.465511	8.465583	8.465656	8.465728	8.465800	8.465872	8.465944	30
	30	8.466016	8.466088	8.466160	8.466232	8.466304	8.466376	8.466448	8.466520	8.466592	8.466664	20
	40	8.466736	8.466808	8.466880	8.466952	8.467024	8.467096	8.467167	8.467239	8.467311	8.467383	10
	50	8.467455	8.467527	8.467598	8.467670	8.467742	8.467814	8.467886	8.467957	8.468029	8.468101	0
41	0	8.468173	8.468244	8.468316	8.468388	8.468459	8.468531	8.468603	8.468674	8.468746	8.468817	50
	10	8.468889	8.468961	8.469032	8.469104	8.469175	8.469247	8.469318	8.469390	8.469461	8.469533	40
	20	8.469604	8.469676	8.469747	8.469819	8.469890	8.469962	8.470033	8.470104	8.470176	8.470247	30
	30	8.470318	8.470390	8.470461	8.470532	8.470604	8.470675	8.470746	8.470818	8.470889	8.470960	20
	40	8.471031	8.471103	8.471174	8.471245	8.471316	8.471387	8.471459	8.471530	8.471601	8.471672	10
	50	8.471743	8.471814	8.471885	8.471956	8.472028	8.472099	8.472170	8.472241	8.472312	8.472383	0
42	0	8.472454	8.472525	8.472596	8.472667	8.472738	8.472809	8.472880	8.472951	8.473021	8.473092	50
	10	8.473163	8.473234	8.473305	8.473376	8.473447	8.473518	8.473588	8.473659	8.473730	8.473801	40
	20	8.473872	8.473942	8.474013	8.474084	8.474155	8.474225	8.474296	8.474367	8.474437	8.474508	30
	30	8.474579	8.474649	8.474720	8.474791	8.474861	8.474932	8.475003	8.475073	8.475144	8.475214	20
	40	8.475285	8.475355	8.475426	8.475496	8.475567	8.475637	8.475708	8.475778	8.475849	8.475919	10
	50	8.475990	8.476060	8.476130	8.476201	8.476271	8.476342	8.476412	8.476482	8.476553	8.476623	0
43	0	8.476693	8.476764	8.476834	8.476904	8.476975	8.477045	8.477115	8.477185	8.477256	8.477326	50
	10	8.477396	8.477466	8.477536	8.477606	8.477677	8.477747	8.477817	8.477887	8.477957	8.478027	40
	20	8.478097	8.478168	8.478238	8.478308	8.478378	8.478448	8.478518	8.478588	8.478658	8.478728	30
	30	8.478798	8.478868	8.478938	8.479008	8.479078	8.479148	8.479217	8.479287	8.479357	8.479427	20
	40	8.479497	8.479567	8.479637	8.479707	8.479776	8.479846	8.479916	8.479986	8.480056	8.480125	10
	50	8.480195	8.480265	8.480335	8.480404	8.480474	8.480544	8.480613	8.480683	8.480753	8.480822	0
44	0	8.480892	8.480962	8.481031	8.481101	8.481170	8.481240	8.481310	8.481379	8.481449	8.481518	50
	10	8.481588	8.481657	8.481727	8.481796	8.481866	8.481935	8.482005	8.482074	8.482144	8.482213	40
	20	8.482283	8.482352	8.482421	8.482491	8.482560	8.482630	8.482699	8.482768	8.482838	8.482907	30
	30	8.482976	8.483046	8.483115	8.483184	8.483253	8.483323	8.483392	8.483461	8.483530	8.483600	20
	40	8.483669	8.483738	8.483807	8.483876	8.483945	8.484015	8.484084	8.484153	8.484222	8.484291	10
	50	8.484360	8.484429	8.484498	8.484567	8.484636	8.484706	8.484775	8.484844	8.484913	8.484982	0
45	0	8.485051	8.485120	8.485188	8.485257	8.485326	8.485395	8.485464	8.485533	8.485602	8.485671	50
	10	8.485740	8.485809	8.485878	8.485946	8.486015	8.486084	8.486153	8.486222	8.486290	8.486359	40
	20	8.486428	8.486497	8.486565	8.486634	8.486703	8.486772	8.486840	8.486909	8.486978	8.487046	30
	30	8.487115	8.487184	8.487252	8.487321	8.487390	8.487458	8.487527	8.487595	8.487664	8.487732	20
	40	8.487801	8.487870	8.487938	8.488007	8.488075	8.488144	8.488212	8.488281	8.488349	8.488417	10
	50	8.488486	8.488554	8.488623	8.488691	8.488760	8.488828	8.488896	8.488965	8.489033	8.489101	0
46	0	8.489170	8.489238	8.489306	8.489375	8.489443	8.489511	8.489579	8.489648	8.489716	8.489784	50
	10	8.489852	8.489921	8.489989	8.490057	8.490125	8.490193	8.490262	8.490330	8.490398	8.490466	40
	20	8.490534	8.490602	8.490670	8.490738	8.490807	8.490875	8.490943	8.491011	8.491079	8.491147	30
	30	8.491215	8.491283	8.491351	8.491419	8.491487	8.491555	8.491623	8.491691	8.491758	8.491826	20
	40	8.491894	8.491962	8.492030	8.492098	8.492166	8.492234	8.492302	8.492369	8.492437	8.492505	10
	50	8.492573	8.492641	8.492708	8.492776	8.492844	8.492912	8.492979	8.493047	8.493115	8.493183	0
47	0	8.493250	8.493318	8.493386	8.493453	8.493521	8.493589	8.493656	8.493724	8.493791	8.493859	50
	10	8.493927	8.493994	8.494062	8.494129	8.494197	8.494264	8.494332	8.494399	8.494467	8.494534	40
	20	8.494602	8.494669	8.494737	8.494804	8.494872	8.494939	8.495007	8.495074	8.495141	8.495209	30
	30	8.495276	8.495344	8.495411	8.495478	8.495546	8.495613	8.495680	8.495748	8.495815	8.495882	20
	40	8.495949	8.496017	8.496084	8.496151	8.496218	8.496286	8.496353	8.496420	8.496487	8.496554	10
	50	8.496622	8.496689	8.496756	8.496823	8.496890	8.496957	8.497024	8.497092	8.497159	8.497226	0
48	0	8.497293	8.497360	8.497427	8.497494	8.497561	8.497628	8.497695	8.497762	8.497829	8.497896	50
	10	8.497963	8.498030	8.498097	8.498164	8.498231	8.498298	8.498365	8.498431	8.498498	8.498565	40
	20	8.498632	8.498699	8.498766	8.498833	8.498899	8.498966	8.499033	8.499100	8.499167	8.499233	30
	30	8.499300	8.499367	8.499434	8.499500	8.499567	8.499634	8.499700	8.499767	8.499834	8.499901	20
	40	8.499967	8.500034	8.500100	8.500167	8.500234	8.500300	8.500367	8.500434	8.500500	8.500567	10
	50	8.500633	8.500700	8.500766	8.500833	8.500899	8.500966	8.501032	8.501099	8.501165	8.501232	0
49	0	8.501298	8.501365	8.501431	8.501498	8.501564	8.501630	8.501697	8.501763	8.501830	8.501896	50
	10	8.501962	8.502029	8.502095	8.502161	8.502228	8.502294	8.502360	8.502426	8.502493	8.502559	40
	20	8.502625	8.502691	8.502758	8.502824	8.502890	8.502956	8.503023	8.503089	8.503155	8.503222	30
	30	8.503287	8.503353	8.503419	8.503486	8.503552	8.503618	8.503684	8.503750	8.503816	8.503882	20
	40	8.503948	8.504014	8.504080	8.504146	8.504212	8.504278	8.504344	8.504410	8.504476	8.504541	10
	50	8.504608	8.504674	8.504740	8.504806	8.504872	8.504938	8.505004	8.505070	8.505135	8.505201	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	

Co-tangent of 88 degrees, or Tangent of 178 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 1 degree, or Co-tangent of 91 degrees.											
50	0	8.505267	8.505333	8.505399	8.505465	8.505530	8.505596	8.505662	8.505728	8.505794	8.505859	50	9
	10	8.505925	8.505991	8.506057	8.506122	8.506188	8.506254	8.506319	8.506385	8.506451	8.506516	40	
	20	8.506582	8.506648	8.506713	8.506779	8.506845	8.506910	8.506976	8.507041	8.507107	8.507172	30	
	30	8.507238	8.507304	8.507369	8.507435	8.507500	8.507566	8.507631	8.507697	8.507762	8.507828	20	
	40	8.507893	8.507958	8.508024	8.508089	8.508155	8.508220	8.508286	8.508351	8.508416	8.508482	10	
	50	8.508547	8.508612	8.508678	8.508743	8.508808	8.508874	8.508939	8.509004	8.509070	8.509135	0	
51	0	8.509200	8.509265	8.509331	8.509396	8.509461	8.509526	8.509591	8.509657	8.509722	8.509787	50	8
	10	8.509852	8.509917	8.509982	8.510048	8.510113	8.510178	8.510243	8.510308	8.510373	8.510438	40	
	20	8.510503	8.510568	8.510633	8.510698	8.510763	8.510828	8.510893	8.510958	8.511023	8.511088	30	
	30	8.511153	8.511218	8.511283	8.511348	8.511413	8.511478	8.511543	8.511608	8.511673	8.511738	20	
	40	8.511803	8.511867	8.511932	8.511997	8.512062	8.512127	8.512192	8.512256	8.512321	8.512386	10	
	50	8.512451	8.512515	8.512580	8.512645	8.512710	8.512774	8.512839	8.512904	8.512969	8.513033	0	
52	0	8.513098	8.513163	8.513227	8.513292	8.513356	8.513421	8.513486	8.513550	8.513615	8.513680	50	7
	10	8.513744	8.513809	8.513873	8.513938	8.514002	8.514067	8.514131	8.514196	8.514260	8.514325	40	
	20	8.514389	8.514454	8.514518	8.514583	8.514647	8.514712	8.514776	8.514841	8.514905	8.514969	30	
	30	8.515034	8.515098	8.515163	8.515227	8.515291	8.515356	8.515420	8.515484	8.515549	8.515613	20	
	40	8.515677	8.515741	8.515806	8.515870	8.515934	8.515998	8.516063	8.516127	8.516191	8.516255	10	
	50	8.516320	8.516384	8.516448	8.516512	8.516576	8.516640	8.516705	8.516769	8.516833	8.516897	0	
53	0	8.516961	8.517025	8.517089	8.517153	8.517217	8.517281	8.517346	8.517410	8.517474	8.517538	50	6
	10	8.517602	8.517666	8.517730	8.517794	8.517858	8.517922	8.517985	8.518049	8.518113	8.518177	40	
	20	8.518241	8.518305	8.518369	8.518433	8.518497	8.518561	8.518625	8.518688	8.518752	8.518816	30	
	30	8.518880	8.518944	8.519007	8.519071	8.519135	8.519199	8.519263	8.519326	8.519390	8.519454	20	
	40	8.519518	8.519581	8.519645	8.519709	8.519772	8.519836	8.519900	8.519963	8.520027	8.520091	10	
	50	8.520154	8.520218	8.520282	8.520345	8.520409	8.520472	8.520536	8.520600	8.520663	8.520727	0	
54	0	8.520790	8.520854	8.520917	8.520981	8.521044	8.521108	8.521171	8.521235	8.521298	8.521362	50	5
	10	8.521425	8.521489	8.521552	8.521615	8.521679	8.521742	8.521806	8.521869	8.521932	8.521996	40	
	20	8.522059	8.522123	8.522186	8.522249	8.522313	8.522376	8.522439	8.522502	8.522566	8.522629	30	
	30	8.522692	8.522756	8.522819	8.522882	8.522945	8.523008	8.523072	8.523135	8.523198	8.523261	20	
	40	8.523324	8.523388	8.523451	8.523514	8.523577	8.523640	8.523703	8.523766	8.523830	8.523893	10	
	50	8.523956	8.524019	8.524082	8.524145	8.524208	8.524271	8.524334	8.524397	8.524460	8.524523	0	
55	0	8.524586	8.524649	8.524712	8.524775	8.524838	8.524901	8.524964	8.525027	8.525090	8.525153	50	4
	10	8.525215	8.525278	8.525341	8.525404	8.525467	8.525530	8.525593	8.525656	8.525718	8.525781	40	
	20	8.525844	8.525907	8.525970	8.526032	8.526095	8.526158	8.526221	8.526283	8.526346	8.526409	30	
	30	8.526472	8.526534	8.526597	8.526660	8.526722	8.526785	8.526848	8.526910	8.526973	8.527036	20	
	40	8.527098	8.527161	8.527224	8.527286	8.527349	8.527411	8.527474	8.527536	8.527599	8.527662	10	
	50	8.527724	8.527787	8.527849	8.527912	8.527974	8.528037	8.528099	8.528162	8.528224	8.528287	0	
56	0	8.528349	8.528411	8.528474	8.528536	8.528599	8.528661	8.528724	8.528786	8.528848	8.528911	50	3
	10	8.528973	8.529035	8.529098	8.529160	8.529222	8.529285	8.529347	8.529409	8.529472	8.529534	40	
	20	8.529596	8.529658	8.529721	8.529783	8.529845	8.529907	8.529970	8.530032	8.530094	8.530156	30	
	30	8.530218	8.530281	8.530343	8.530405	8.530467	8.530529	8.530591	8.530653	8.530716	8.530778	20	
	40	8.530840	8.530902	8.530964	8.531026	8.531088	8.531150	8.531212	8.531274	8.531336	8.531398	10	
	50	8.531460	8.531522	8.531584	8.531646	8.531708	8.531770	8.531832	8.531894	8.531956	8.532018	0	
57	0	8.532080	8.532142	8.532204	8.532265	8.532327	8.532389	8.532451	8.532513	8.532575	8.532637	50	2
	10	8.532698	8.532760	8.532822	8.532884	8.532946	8.533007	8.533069	8.533131	8.533193	8.533255	40	
	20	8.533316	8.533378	8.533440	8.533501	8.533563	8.533625	8.533687	8.533748	8.533810	8.533872	30	
	30	8.533933	8.533995	8.534056	8.534118	8.534180	8.534241	8.534303	8.534365	8.534426	8.534488	20	
	40	8.534549	8.534611	8.534672	8.534734	8.534795	8.534857	8.534918	8.534980	8.535041	8.535103	10	
	50	8.535164	8.535226	8.535287	8.535349	8.535410	8.535472	8.535533	8.535595	8.535656	8.535717	0	
58	0	8.535779	8.535840	8.535902	8.535963	8.536024	8.536086	8.536147	8.536208	8.536270	8.536331	50	1
	10	8.536392	8.536454	8.536515	8.536576	8.536637	8.536699	8.536760	8.536821	8.536882	8.536944	40	
	20	8.537005	8.537066	8.537127	8.537188	8.537250	8.537311	8.537372	8.537433	8.537494	8.537555	30	
	30	8.537617	8.537678	8.537739	8.537800	8.537861	8.537922	8.537983	8.538044	8.538105	8.538166	20	
	40	8.538227	8.538288	8.538350	8.538411	8.538472	8.538533	8.538594	8.538655	8.538716	8.538777	10	
	50	8.538837	8.538898	8.538959	8.539020	8.539081	8.539142	8.539203	8.539264	8.539325	8.539386	0	
59	0	8.539447	8.539508	8.539568	8.539629	8.539690	8.539751	8.539812	8.539873	8.539933	8.539994	50	0
	10	8.540055	8.540116	8.540177	8.540237	8.540298	8.540359	8.540420	8.540480	8.540541	8.540602	40	
	20	8.540662	8.540723	8.540784	8.540845	8.540905	8.540966	8.541026	8.541087	8.541148	8.541208	30	
	30	8.541269	8.541330	8.541390	8.541451	8.541511	8.541572	8.541633	8.541693	8.541754	8.541814	20	
	40	8.541875	8.541935	8.541996	8.542056	8.542117	8.542177	8.542238	8.542298	8.542359	8.542419	10	
	50	8.542480	8.542540	8.542601	8.542661	8.542721	8.542782	8.542842	8.542903	8.542963	8.543023	0	
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 88 degrees, or Tangent of 178 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 2 degrees, or Co-tangent of 92 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
0	0	8. 543084	8. 543386	8. 543687	45		1″ = 60
	15	8. 543988	8. 544290	8. 544590	30		2. 120
	30	8. 544891	8. 545192	8. 545492	15		3. 180
	45	8. 545792	8. 546092	8. 546391	0	59	4. 240
1	0	8. 546691	8. 546990	8. 547289	45		1 = 60
	15	8. 547588	8. 547887	8. 548185	30		2. 119
	30	8. 548483	8. 548781	8. 549079	15		3. 179
	45	8. 549377	8. 549674	8. 549971	0	58	4. 238
2	0	8. 550268	8. 550565	8. 550862	45		1 = 59
	15	8. 551158	8. 551454	8. 551750	30		2. 118
	30	8. 552046	8. 552342	8. 552637	15		3. 177
	45	8. 552932	8. 553227	8. 553522	0	57	4. 236
3	0	8. 553817	8. 554111	8. 554405	45		1 = 59
	15	8. 554699	8. 554993	8. 555287	30		2. 117
	30	8. 555580	8. 555873	8. 556166	15		3. 176
	45	8. 556459	8. 556752	8. 557044	0	56	4. 234
4	0	8. 557336	8. 557628	8. 557920	45		1 = 58
	15	8. 558212	8. 558503	8. 558794	30		2. 116
	30	8. 559085	8. 559376	8. 559667	15		3. 174
	45	8. 559957	8. 560248	8. 560538	0	55	4. 233
5	0	8. 560828	8. 561117	8. 561407	45		1 = 58
	15	8. 561696	8. 561985	8. 562274	30		2. 115
	30	8. 562563	8. 562851	8. 563140	15		3. 173
	45	8. 563428	8. 563716	8. 564004	0	54	4. 231
6	0	8. 564291	8. 564579	8. 564866	45		1 = 57
	15	8. 565153	8. 565440	8. 565726	30		2. 114
	30	8. 566013	8. 566299	8. 566585	15		3. 172
	45	8. 566871	8. 567157	8. 567442	0	53	4. 229
7	0	8. 567728	8. 568013	8. 568298	45		1 = 57
	15	8. 568582	8. 568867	8. 569151	30		2. 114
	30	8. 569436	8. 569720	8. 570003	15		3. 170
	45	8. 570287	8. 570571	8. 570854	0	52	4. 227
8	0	8. 571137	8. 571420	8. 571703	45		1 = 56
	15	8. 571985	8. 572267	8. 572550	30		2. 113
	30	8. 572832	8. 573113	8. 573395	15		3. 169
	45	8. 573677	8. 573958	8. 574239	0	51	4. 225
9	0	8. 574520	8. 574801	8. 575081	45		1 = 56
	15	8. 575361	8. 575642	8. 575922	30		2. 112
	30	8. 576201	8. 576481	8. 576761	15		3. 168
	45	8. 577040	8. 577319	8. 577598	0	50	4. 224
10	0	8. 577877	8. 578155	8. 578434	45		1 = 55
	15	8. 578712	8. 578990	8. 579268	30		2. 111
	30	8. 579545	8. 579823	8. 580100	15		3. 166
	45	8. 580377	8. 580654	8. 580931	0	49	4. 222
11	0	8. 581208	8. 581484	8. 581760	15		1 = 55
	15	8. 582037	8. 582312	8. 582588	30		2. 110
	30	8. 582864	8. 583139	8. 583414	15		3. 165
	45	8. 583689	8. 583964	8. 584239	0	48	4. 220
12	0	8. 584514	8. 584788	8. 585062	45		1 = 55
	15	8. 585336	8. 585610	8. 585884	30		2. 109
	30	8. 586157	8. 586430	8. 586704	15		3. 164
	45	8. 586977	8. 587249	8. 587522	0	47	4. 219
13	0	8. 587795	8. 588067	8. 588339	45		1 = 54
	15	8. 588611	8. 588883	8. 589154	30		2. 108
	30	8. 589426	8. 589697	8. 589968	15		3. 163
	45	8. 590239	8. 590510	8. 590781	0	46	4. 217
14	0	8. 591051	8. 591321	8. 591591	45		1 = 54
	15	8. 591861	8. 592131	8. 592401	30		2. 108
	30	8. 592670	8. 592939	8. 593209	15		3. 162
	45	8. 593477	8. 593746	8. 594015	0	45	4. 215
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-tangent of 87 degrees, or Tangent of 177 degrees.					

Minutes	Seconds	Tangent of 2 degrees, or Co-tangent of 92 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
15	0	8. 594283	8. 594552	8. 594820	45		1″ = 5
	15	8. 595088	8. 595355	8. 595623	30		2. 10
	30	8. 595890	8. 596158	8. 596425	15		3. 16
	45	8. 596692	8. 596959	8. 597225	0	44	4. 21
16	0	8. 597492	8. 597758	8. 598024	45		1 = 5
	15	8. 598290	8. 598556	8. 598822	30		2. 10
	30	8. 599087	8. 599352	8. 599618	15		3. 15
	45	8. 599883	8. 600148	8. 600412	0	43	4. 21
17	0	8. 600677	8. 600941	8. 601205	45		1 = 5
	15	8. 601469	8. 601733	8. 601997	30		2. 10
	30	8. 602261	8. 602524	8. 602787	15		3. 15
	45	8. 603050	8. 603313	8. 603576	0	42	4. 21
18	0	8. 603839	8. 604101	8. 604363	45		1 = 5
	15	8. 604626	8. 604888	8. 605149	30		2. 10
	30	8. 605411	8. 605673	8. 605934	15		3. 15
	45	8. 606195	8. 606456	8. 606717	0	41	4. 20
19	0	8. 606978	8. 607238	8. 607499	45		1 = 5
	15	8. 607759	8. 608019	8. 608279	30		2. 10
	30	8. 608539	8. 608798	8. 609058	15		3. 15
	45	8. 609317	8. 609576	8. 609836	0	40	4. 20
20	0	8. 610094	8. 610353	8. 610612	45		1 = 5
	15	8. 610870	8. 611128	8. 611386	30		2. 10
	30	8. 611644	8. 611902	8. 612160	15		3. 15
	45	8. 612417	8. 612675	8. 612932	0	39	4. 20
21	0	8. 613189	8. 613446	8. 613703	45		1 = 5
	15	8. 613959	8. 614216	8. 614472	30		2. 10
	30	8. 614728	8. 614984	8. 615240	15		3. 15
	45	8. 615495	8. 615751	8. 616006	0	38	4. 20
22	0	8. 616262	8. 616517	8. 616772	45		1 = 5
	15	8. 617026	8. 617281	8. 617536	30		2. 10
	30	8. 617790	8. 618044	8. 618298	15		3. 15
	45	8. 618552	8. 618806	8. 619059	0	37	4. 20
23	0	8. 619313	8. 619566	8. 619819	45		1 = 5
	15	8. 620072	8. 620325	8. 620578	30		2. 10
	30	8. 620830	8. 621083	8. 621335	15		3. 15
	45	8. 621587	8. 621839	8. 622091	0	36	4. 20
24	0	8. 622343	8. 622594	8. 622846	45		1 = 5
	15	8. 623097	8. 623348	8. 623599	30		2. 10
	30	8. 623850	8. 624101	8. 624351	15		3. 15
	45	8. 624602	8. 624852	8. 625102	0	35	4. 20
25	0	8. 625352	8. 625602	8. 625851	45		1 = 5
	15	8. 626101	8. 626350	8. 626599	30		2. 10
	30	8. 626849	8. 627098	8. 627346	15		3. 15
	45	8. 627595	8. 627844	8. 628092	0	34	4. 19
26	0	8. 628340	8. 628588	8. 628836	45		1 = 5
	15	8. 629084	8. 629332	8. 629579	30		2. 9
	30	8. 629827	8. 630074	8. 630321	15		3. 14
	45	8. 630568	8. 630815	8. 631062	0	33	4. 19
27	0	8. 631308	8. 631555	8. 631801	45		1 = 5
	15	8. 632047	8. 632293	8. 632539	30		2. 9
	30	8. 632785	8. 633030	8. 633276	15		3. 14
	45	8. 633521	8. 633766	8. 634011	0	32	4. 19
28	0	8. 634256	8. 634501	8. 634746	45		1 = 5
	15	8. 634990	8. 635235	8. 635479	30		2. 9
	30	8. 635723	8. 635967	8. 636211	15		3. 14
	45	8. 636454	8. 636698	8. 636941	0	31	4. 19
29	0	8. 637185	8. 637428	8. 637671	45		1 = 5
	15	8. 637913	8. 638156	8. 638399	30		2. 9
	30	8. 638641	8. 638884	8. 639126	15		3. 14
	45	8. 639368	8. 639610	8. 639852	0	30	4. 19
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-tangent of 87 degrees, or Tangent of 177 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 2 degrees, or Co-tangent of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.640093	8.640335	8.640576	45		1″=48
	15	8.640817	8.641058	8.641299	30		2. 96
	30	8.641540	8.641781	8.642022	15		3. 144
	45	8.642262	8.642502	8.642742	0	29	4. 193
31	0	8.642983	8.643222	8.643462	45		1= 48
	15	8.643702	8.643941	8.644181	30		2. 96
	30	8.644420	8.644659	8.644898	15		3. 143
	45	8.645137	8.645376	8.645614	0	28	4. 191
32	0	8.645853	8.646091	8.646329	45		1= 48
	15	8.646568	8.646805	8.647043	30		2. 95
	30	8.647281	8.647519	8.647756	15		3. 143
	45	8.647993	8.648231	8.648468	0	27	4. 190
33	0	8.648704	8.648941	8.649178	45		1= 47
	15	8.649414	8.649651	8.649887	30		2. 94
	30	8.650123	8.650359	8.650595	15		3. 142
	45	8.650831	8.651067	8.651302	0	26	4. 189
34	0	8.651538	8.651773	8.652008	45		1= 47
	15	8.652243	8.652478	8.652713	30		2. 94
	30	8.652947	8.653182	8.653416	15		3. 141
	45	8.653650	8.653884	8.654118	0	25	4. 188
35	0	8.654352	8.654586	8.654820	45		1= 47
	15	8.655053	8.655287	8.655520	30		2. 93
	30	8.655753	8.655986	8.656219	15		3. 140
	45	8.656452	8.656684	8.656917	0	24	4. 186
36	0	8.657149	8.657381	8.657613	45		1= 46
	15	8.657845	8.658077	8.658309	30		2. 93
	30	8.658541	8.658772	8.659004	15		3. 139
	45	8.659235	8.659466	8.659697	0	23	4. 185
37	0	8.659928	8.660159	8.660389	45		1= 46
	15	8.660620	8.660850	8.661081	30		2. 92
	30	8.661311	8.661541	8.661771	15		3. 138
	45	8.662001	8.662230	8.662460	0	22	4. 184
38	0	8.662689	8.662919	8.663148	45		1= 46
	15	8.663377	8.663606	8.663835	30		2. 91
	30	8.664063	8.664292	8.664520	15		3. 137
	45	8.664749	8.664977	8.665205	0	21	4. 183
39	0	8.665433	8.665661	8.665889	45		1= 45
	15	8.666116	8.666344	8.666571	30		2. 91
	30	8.666799	8.667026	8.667253	15		3. 136
	45	8.667480	8.667707	8.667933	0	20	4. 182
40	0	8.668160	8.668386	8.668613	45		1= 45
	15	8.668839	8.669065	8.669291	30		2. 90
	30	8.669517	8.669743	8.669968	15		3. 135
	45	8.670194	8.670419	8.670645	0	19	4. 181
41	0	8.670870	8.671095	8.671320	45		1= 45
	15	8.671545	8.671769	8.671994	30		2. 90
	30	8.672218	8.672443	8.672667	15		3. 135
	45	8.672891	8.673115	8.673339	0	18	4. 179
42	0	8.673563	8.673786	8.674010	45		1= 45
	15	8.674234	8.674457	8.674680	30		2. 89
	30	8.674903	8.675126	8.675349	15		3. 134
	45	8.675572	8.675794	8.676017	0	17	4. 178
43	0	8.676239	8.676462	8.676684	45		1= 44
	15	8.676906	8.677128	8.677350	30		2. 89
	30	8.677572	8.677793	8.678015	15		3. 133
	45	8.678236	8.678457	8.678679	0	16	4. 177
44	0	8.678900	8.679121	8.679341	45		1= 44
	15	8.679562	8.679783	8.680003	30		2. 88
	30	8.680224	8.680444	8.680664	15		3. 132
	45	8.680884	8.681104	8.681324	0	15	4. 176
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 87 degrees, or Tangent of 177 degrees.					

Minutes	Seconds	Tangent of 2 degrees, or Co-tangent of 92 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.681544	8.681763	8.681983	45		1″=44
	15	8.682202	8.682422	8.682641	30		2. 88
	30	8.682860	8.683079	8.683298	15		3. 131
	45	8.683516	8.683735	8.683954	0	14	4. 175
46	0	8.684172	8.684390	8.684608	45		1= 44
	15	8.684827	8.685045	8.685262	30		2. 87
	30	8.685480	8.685698	8.685915	15		3. 131
	45	8.686133	8.686350	8.686567	0	13	4. 174
47	0	8.686784	8.687001	8.687218	45		1= 43
	15	8.687435	8.687652	8.687868	30		2. 87
	30	8.688085	8.688301	8.688517	15		3. 130
	45	8.688734	8.688950	8.689166	0	12	4. 173
48	0	8.689381	8.689597	8.689813	45		1= 43
	15	8.690028	8.690244	8.690459	30		2. 86
	30	8.690674	8.690889	8.691104	15		3. 129
	45	8.691319	8.691534	8.691748	0	11	4. 172
49	0	8.691963	8.692177	8.692392	45		1= 43
	15	8.692606	8.692820	8.693034	30		2. 86
	30	8.693248	8.693462	8.693676	15		3. 128
	45	8.693889	8.694103	8.694316	0	10	4. 171
50	0	8.694529	8.694742	8.694956	45		1= 43
	15	8.695169	8.695381	8.695594	30		2. 85
	30	8.695807	8.696019	8.696232	15		3. 128
	45	8.696444	8.696656	8.696869	0	9	4. 170
51	0	8.697081	8.697293	8.697504	45		1= 42
	15	8.697716	8.697928	8.698139	30		2. 85
	30	8.698351	8.698562	8.698773	15		3. 127
	45	8.698984	8.699195	8.699406	0	8	4. 169
52	0	8.699617	8.699828	8.700039	45		1= 42
	15	8.700249	8.700459	8.700670	30		2. 84
	30	8.700880	8.701090	8.701300	15		3. 126
	45	8.701510	8.701720	8.701929	0	7	4. 168
53	0	8.702139	8.702349	8.702558	45		1= 42
	15	8.702767	8.702977	8.703186	30		2. 84
	30	8.703395	8.703603	8.703812	15		3. 125
	45	8.704021	8.704230	8.704438	0	6	4. 167
54	0	8.704647	8.704855	8.705063	45		1= 42
	15	8.705271	8.705479	8.705687	30		2. 83
	30	8.705895	8.706103	8.706310	15		3. 125
	45	8.706518	8.706725	8.706932	0	5	4. 166
55	0	8.707140	8.707347	8.707554	45		1= 41
	15	8.707761	8.707967	8.708174	30		2. 83
	30	8.708381	8.708587	8.708794	15		3. 124
	45	8.709000	8.709206	8.709412	0	4	4. 165
56	0	8.709619	8.709824	8.710030	45		1= 41
	15	8.710236	8.710442	8.710647	30		2. 82
	30	8.710853	8.711058	8.711263	15		3. 123
	45	8.711469	8.711674	8.711879	0	3	4. 164
57	0	8.712083	8.712288	8.712493	45		1= 41
	15	8.712697	8.712902	8.713106	30		2. 82
	30	8.713311	8.713515	8.713719	15		3. 123
	45	8.713923	8.714127	8.714331	0	2	4. 163
58	0	8.714535	8.714738	8.714942	45		1= 41
	15	8.715145	8.715349	8.715552	30		2. 81
	30	8.715755	8.715958	8.716161	15		3. 122
	45	8.716364	8.716567	8.716769	0	1	4. 162
59	0	8.716972	8.717174	8.717377	45		1= 40
	15	8.717579	8.717781	8.717984	30		2. 81
	30	8.718186	8.718387	8.718589	15		3. 121
	45	8.718791	8.718993	8.719194	0	0	4. 162
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 87 degrees, or Tangent of 177 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 3 degrees, or Co-tangent of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.719396	8.719597	8.719798	45		1″=40
	15	8.720000	8.720201	8.720402	30		2. 80
	30	8.720603	8.720804	8.721004	15		3. 120
	45	8.721205	8.721405	8.721606	0	59	4. 161
1	0	8.721806	8.722007	8.722207	45		1= 40
	15	8.722407	8.722607	8.722807	30		2. 80
	30	8.723007	8.723206	8.723406	15		3. 120
	45	8.723605	8.723805	8.724004	0	58	4. 160
2	0	8.724204	8.724403	8.724602	45		1= 40
	15	8.724801	8.725000	8.725199	30		2. 79
	30	8.725397	8.725596	8.725794	15		3. 119
	45	8.725993	8.726191	8.726390	0	57	4. 159
3	0	8.726588	8.726786	8.726984	45		1= 40
	15	8.727182	8.727380	8.727577	30		2. 79
	30	8.727775	8.727973	8.728170	15		3. 119
	45	8.728367	8.728565	8.728762	0	56	4. 158
4	0	8.728959	8.729156	8.729353	45		1= 39
	15	8.729550	8.729747	8.729943	30		2. 79
	30	8.730140	8.730336	8.730533	15		3. 118
	45	8.730729	8.730925	8.731121	0	55	4. 157
5	0	8.731317	8.731513	8.731709	45		1= 39
	15	8.731905	8.732101	8.732296	30		2. 78
	30	8.732492	8.732687	8.732883	15		3. 117
	45	8.733078	8.733273	8.733468	0	54	4. 156
6	0	8.733663	8.733858	8.734053	45		1= 39
	15	8.734248	8.734442	8.734637	30		2. 78
	30	8.734831	8.735026	8.735220	15		3. 117
	45	8.735414	8.735608	8.735802	0	53	4. 155
7	0	8.735996	8.736190	8.736384	45		1= 39
	15	8.736578	8.736771	8.736965	30		2. 77
	30	8.737158	8.737352	8.737545	15		3. 116
	45	8.737738	8.737931	8.738124	0	52	4. 155
8	0	8.738317	8.738510	8.738703	45		1= 38
	15	8.738896	8.739088	8.739281	30		2. 77
	30	8.739473	8.739665	8.739858	15		3. 115
	45	8.740050	8.740242	8.740434	0	51	4. 154
9	0	8.740626	8.740818	8.741009	45		1= 38
	15	8.741201	8.741393	8.741584	30		2. 77
	30	8.741776	8.741967	8.742158	15		3. 115
	45	8.742349	8.742540	8.742731	0	50	4. 153
10	0	8.742922	8.743113	8.743304	45		1= 38
	15	8.743495	8.743685	8.743876	30		2. 76
	30	8.744066	8.744256	8.744447	15		3. 114
	45	8.744637	8.744827	8.745017	0	49	4. 152
11	0	8.745207	8.745397	8.745586	45		1= 38
	15	8.745776	8.745966	8.746155	30		2. 76
	30	8.746344	8.746534	8.746723	15		3. 114
	45	8.746912	8.747101	8.747290	0	48	4. 151
12	0	8.747479	8.747668	8.747857	45		1= 38
	15	8.748046	8.748234	8.748423	30		2. 75
	30	8.748611	8.748800	8.748988	15		3. 113
	45	8.749176	8.749364	8.749552	0	47	4. 151
13	0	8.749740	8.749928	8.750116	45		1= 37
	15	8.750303	8.750491	8.750679	30		2. 75
	30	8.750866	8.751054	8.751241	15		3. 112
	45	8.751428	8.751615	8.751802	0	46	4. 150
14	0	8.751989	8.752176	8.752363	45		1= 37
	15	8.752550	8.752736	8.752923	30		2. 75
	30	8.753110	8.753296	8.753482	15		3. 112
	45	8.753669	8.753855	8.754041	0	45	4. 149
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 86 degrees, or Tangent of 176 degrees.					

Minutes	Seconds	Tangent of 3 degrees, or Co-tangent of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.754227	8.754413	8.754599	45		1″= [illegible]
	15	8.754785	8.754970	8.755156	30		2. [illegible]
	30	8.755341	8.755527	8.755712	15		3. [illegible]
	45	8.755898	8.756083	8.756268	0	44	4. [illegible]
16	0	8.756453	8.756638	8.756823	45		1= [illegible]
	15	8.757008	8.757193	8.757377	30		2. [illegible]
	30	8.757562	8.757747	8.757931	15		3. [illegible]
	45	8.758115	8.758300	8.758484	0	43	4. [illegible]
17	0	8.758668	8.758852	8.759036	45		1= [illegible]
	15	8.759220	8.759404	8.759588	30		2. [illegible]
	30	8.759771	8.759955	8.760139	15		3. [illegible]
	45	8.760322	8.760505	8.760689	0	42	4. [illegible]
18	0	8.760872	8.761055	8.761238	45		1= [illegible]
	15	8.761421	8.761604	8.761787	30		2. [illegible]
	30	8.761970	8.762152	8.762335	15		3. [illegible]
	45	8.762518	8.762700	8.762882	0	41	4. [illegible]
19	0	8.763065	8.763247	8.763429	45		1= [illegible]
	15	8.763611	8.763793	8.763975	30		2. [illegible]
	30	8.764157	8.764339	8.764520	15		3. [illegible]
	45	8.764702	8.764884	8.765065	0	40	4. [illegible]
20	0	8.765247	8.765428	8.765609	45		1= [illegible]
	15	8.765790	8.765971	8.766152	30		2. [illegible]
	30	8.766333	8.766514	8.766695	15		3. [illegible]
	45	8.766876	8.767056	8.767237	0	39	4. [illegible]
21	0	8.767418	8.767598	8.767778	45		1= [illegible]
	15	8.767959	8.768139	8.768319	30		2. [illegible]
	30	8.768499	8.768679	8.768859	15		3. [illegible]
	45	8.769039	8.769218	8.769398	0	38	4. [illegible]
22	0	8.769578	8.769757	8.769937	45		1= [illegible]
	15	8.770116	8.770295	8.770475	30		2. [illegible]
	30	8.770654	8.770833	8.771012	15		3. [illegible]
	45	8.771191	8.771370	8.771549	0	37	4. [illegible]
23	0	8.771727	8.771906	8.772085	45		1= [illegible]
	15	8.772263	8.772442	8.772620	30		2. [illegible]
	30	8.772798	8.772976	8.773155	15		3. [illegible]
	45	8.773333	8.773511	8.773689	0	36	4. [illegible]
24	0	8.773867	8.774044	8.774222	45		1= [illegible]
	15	8.774400	8.774577	8.774755	30		2. [illegible]
	30	8.774932	8.775110	8.775287	15		3. [illegible]
	45	8.775464	8.775641	8.775818	0	35	4. [illegible]
25	0	8.775995	8.776172	8.776349	45		1= [illegible]
	15	8.776526	8.776703	8.776879	30		2. [illegible]
	30	8.777056	8.777232	8.777409	15		3. [illegible]
	45	8.777585	8.777761	8.777937	0	34	4. [illegible]
26	0	8.778114	8.778290	8.778466	45		1= [illegible]
	15	8.778642	8.778818	8.778993	30		2. [illegible]
	30	8.779169	8.779345	8.779520	15		3. [illegible]
	45	8.779696	8.779871	8.780047	0	33	4. [illegible]
27	0	8.780222	8.780397	8.780572	45		1= [illegible]
	15	8.780747	8.780922	8.781097	30		2. [illegible]
	30	8.781272	8.781447	8.781622	15		3. [illegible]
	45	8.781796	8.781971	8.782145	0	32	4. [illegible]
28	0	8.782320	8.782494	8.782669	45		1= [illegible]
	15	8.782843	8.783017	8.783191	30		2. [illegible]
	30	8.783365	8.783539	8.783713	15		3. [illegible]
	45	8.783887	8.784061	8.784234	0	31	4. [illegible]
29	0	8.784408	8.784582	8.784755	45		1= [illegible]
	15	8.784928	8.785102	8.785275	30		2. [illegible]
	30	8.785448	8.785621	8.785795	15		3. [illegible]
	45	8.785968	8.786140	8.786313	0	30	4. [illegible]
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 86 degrees, or Tangent of 176 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 3 degrees, or Co-tangent of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.786486	8.786659	8.786832	45		1″=34
	15	8.787004	8.787177	8.787349	30		2. 69
	30	8.787522	8.787694	8.787866	15		3. 103
	45	8.788038	8.788210	8.788382	0	29	4. 138
31	0	8.788554	8.788726	8.788898	45		1= 34
	15	8.789070	8.789242	8.789413	30		2. 69
	30	8.789585	8.789756	8.789928	15		3. 103
	45	8.790099	8.790271	8.790442	0	28	4. 137
32	0	8.790613	8.790784	8.790955	45		1= 34
	15	8.791126	8.791297	8.791468	30		2. 68
	30	8.791639	8.791809	8.791980	15		3. 102
	45	8.792151	8.792321	8.792492	0	27	4. 137
33	0	8.792662	8.792832	8.793003	45		1= 34
	15	8.793173	8.793343	8.793513	30		2. 68
	30	8.793683	8.793853	8.794023	15		3. 102
	45	8.794192	8.794362	8.794532	0	26	4. 136
34	0	8.794701	8.794871	8.795040	45		1= 34
	15	8.795210	8.795379	8.795548	30		2. 68
	30	8.795718	8.795887	8.796056	15		3. 101
	45	8.796225	8.796394	8.796563	0	25	4. 136
35	0	8.796731	8.796900	8.797069	45		1= 34
	15	8.797237	8.797406	8.797574	30		2. 67
	30	8.797743	8.797911	8.798079	15		3. 101
	45	8.798248	8.798416	8.798584	0	24	4. 135
36	0	8.798752	8.798920	8.799088	45		1= 34
	15	8.799256	8.799423	8.799591	30		2. 67
	30	8.799759	8.799926	8.800094	15		3. 101
	45	8.800261	8.800429	8.800596	0	23	4. 134
37	0	8.800763	8.800930	8.801098	45		1= 33
	15	8.801265	8.801432	8.801599	30		2. 67
	30	8.801765	8.801932	8.802099	15		3. 100
	45	8.802266	8.802432	8.802599	0	22	4. 133
38	0	8.802765	8.802932	8.803098	45		1= 33
	15	8.803264	8.803431	8.803597	30		2. 66
	30	8.803763	8.803929	8.804095	15		3. 100
	45	8.804261	8.804427	8.804593	0	21	4. 133
39	0	8.804758	8.804924	8.805090	45		1= 33
	15	8.805255	8.805421	8.805586	30		2. 66
	30	8.805751	8.805917	8.806082	15		3. 99
	45	8.806247	8.806412	8.806577	0	20	4. 132
40	0	8.806742	8.806907	8.807072	45		1= 33
	15	8.807237	8.807402	8.807566	30		2. 66
	30	8.807731	8.807895	8.808060	15		3. 99
	45	8.808224	8.808389	8.808553	0	19	4. 132
41	0	8.808717	8.808881	8.809046	45		1= 33
	15	8.809210	8.809374	8.809538	30		2. 66
	30	8.809701	8.809865	8.810029	15		3. 98
	45	8.810193	8.810356	8.810520	0	18	4. 131
42	0	8.810683	8.810847	8.811010	45		1= 33
	15	8.811174	8.811337	8.811500	30		2. 65
	30	8.811663	8.811826	8.811989	15		3. 98
	45	8.812152	8.812315	8.812478	0	17	4. 130
43	0	8.812641	8.812803	8.812966	45		1= 32
	15	8.813129	8.813291	8.813454	30		2. 65
	30	8.813616	8.813779	8.813941	15		3. 97
	45	8.814103	8.814265	8.814427	0	16	4. 130
44	0	8.814589	8.814751	8.814913	45		1= 32
	15	8.815075	8.815237	8.815399	30		2. 65
	30	8.815561	8.815722	8.815884	15		3. 97
	45	8.816045	8.816207	8.816368	0	15	4. 129
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 86 degrees, or Tangent of 176 degrees.					

Minutes	Seconds	Tangent of 3 degrees, or Co-tangent of 93 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.816529	8.816691	8.816852	45		1″=32
	15	8.817013	8.817174	8.817335	30		2. 64
	30	8.817496	8.817657	8.817818	15		3. 97
	45	8.817979	8.818140	8.818300	0	14	4. 129
46	0	8.818461	8.818621	8.818782	45		1= 32
	15	8.818942	8.819103	8.819263	30		2. 64
	30	8.819423	8.819584	8.819744	15		3. 96
	45	8.819904	8.820064	8.820224	0	13	4. 128
47	0	8.820384	8.820544	8.820704	45		1= 32
	15	8.820863	8.821023	8.821183	30		2. 64
	30	8.821342	8.821502	8.821661	15		3. 96
	45	8.821821	8.821980	8.822139	0	12	4. 128
48	0	8.822298	8.822458	8.822617	45		1= 32
	15	8.822776	8.822935	8.823094	30		2. 64
	30	8.823253	8.823411	8.823570	15		3. 95
	45	8.823729	8.823888	8.824046	0	11	4. 127
49	0	8.824205	8.824363	8.824522	45		1= 32
	15	8.824680	8.824838	8.824997	30		2. 63
	30	8.825155	8.825313	8.825471	15		3. 95
	45	8.825629	8.825787	8.825945	0	10	4. 126
50	0	8.826103	8.826260	8.826418	45		1= 31
	15	8.826576	8.826734	8.826891	30		2. 63
	30	8.827049	8.827206	8.827363	15		3. 94
	45	8.827521	8.827678	8.827835	0	9	4. 126
51	0	8.827992	8.828150	8.828307	45		1= 31
	15	8.828464	8.828621	8.828777	30		2. 63
	30	8.828934	8.829091	8.829248	15		3. 94
	45	8.829405	8.829561	8.829718	0	8	4. 125
52	0	8.829874	8.830031	8.830187	45		1= 31
	15	8.830343	8.830500	8.830656	30		2. 62
	30	8.830812	8.830968	8.831124	15		3. 94
	45	8.831280	8.831436	8.831592	0	7	4. 125
53	0	8.831748	8.831904	8.832059	45		1= 31
	15	8.832215	8.832371	8.832526	30		2. 62
	30	8.832682	8.832837	8.832992	15		3. 93
	45	8.833148	8.833303	8.833458	0	6	4. 124
54	0	8.833613	8.833769	8.833924	45		1= 31
	15	8.834079	8.834234	8.834389	30		2. 62
	30	8.834543	8.834698	8.834853	15		3. 93
	45	8.835008	8.835162	8.835317	0	5	4. 124
55	0	8.835471	8.835626	8.835780	45		1= 31
	15	8.835934	8.836089	8.836243	30		2. 62
	30	8.836397	8.836551	8.836705	15		3. 92
	45	8.836859	8.837013	8.837167	0	4	4. 123
56	0	8.837321	8.837475	8.837629	45		1= 31
	15	8.837782	8.837936	8.838090	30		2. 61
	30	8.838243	8.838397	8.838550	15		3. 92
	45	8.838704	8.838857	8.839010	0	3	4. 123
57	0	8.839163	8.839316	8.839470	45		1= 31
	15	8.839623	8.839776	8.839929	30		2. 61
	30	8.840081	8.840234	8.840387	15		3. 92
	45	8.840540	8.840693	8.840845	0	2	4. 122
58	0	8.840998	8.841150	8.841303	45		1= 30
	15	8.841455	8.841608	8.841760	30		2. 61
	30	8.841912	8.842064	8.842216	15		3. 91
	45	8.842369	8.842521	8.842673	0	1	4. 122
59	0	8.842825	8.842976	8.843128	45		1= 30
	15	8.843280	8.843432	8.843583	30		2. 61
	30	8.843735	8.843887	8.844038	15		3. 91
	45	8.844190	8.844341	8.844492	0	0	4. 121
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 86 degrees, or Tangent of 176 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 4 degrees, or Co-tangent of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.844644	8.844795	8.844946	45		1″=30
	15	8.845097	8.845249	8.845400	30		2. 60
	30	8.845551	8.845702	8.845852	15		3. 91
	45	8.846003	8.846154	8.846305	0	59	4. 121
1	0	8.846455	8.846606	8.846757	45		1= 30
	15	8.846907	8.847058	8.847208	30		2. 60
	30	8.847359	8.847509	8.847659	15		3. 90
	45	8.847809	8.847960	8.848110	0	58	4. 120
2	0	8.848260	8.848410	8.848560	45		1= 30
	15	8.848710	8.848860	8.849009	30		2. 60
	30	8.849159	8.849309	8.849458	15		3. 90
	45	8.849608	8.849758	8.849907	0	57	4. 120
3	0	8.850057	8.850206	8.850355	45		1= 30
	15	8.850505	8.850654	8.850803	30		2. 60
	30	8.850952	8.851101	8.851250	15		3. 89
	45	8.851399	8.851548	8.851697	0	56	4. 119
4	0	8.851846	8.851995	8.852144	45		1= 30
	15	8.852292	8.852441	8.852590	30		2. 59
	30	8.852738	8.852887	8.853035	15		3. 89
	45	8.853184	8.853332	8.853480	0	55	4. 119
5	0	8.853628	8.853777	8.853925	45		1= 30
	15	8.854073	8.854221	8.854369	30		2. 59
	30	8.854517	8.854665	8.854813	15		3. 89
	45	8.854960	8.855108	8.855256	0	54	4. 118
6	0	8.855403	8.855551	8.855699	45		1= 29
	15	8.855846	8.855994	8.856141	30		2. 59
	30	8.856288	8.856436	8.856583	15		3. 88
	45	8.856730	8.856877	8.857024	0	53	4. 118
7	0	8.857171	8.857318	8.857465	45		1= 29
	15	8.857612	8.857759	8.857906	30		2. 59
	30	8.858053	8.858199	8.858346	15		3. 88
	45	8.858493	8.858639	8.858786	0	52	4. 117
8	0	8.858932	8.859079	8.859225	45		1= 29
	15	8.859371	8.859518	8.859664	30		2. 58
	30	8.859810	8.859956	8.860102	15		3. 88
	45	8.860248	8.860394	8.860540	0	51	4. 117
9	0	8.860686	8.860832	8.860978	45		1= 29
	15	8.861123	8.861269	8.861415	30		2. 58
	30	8.861560	8.861706	8.861851	15		3. 87
	45	8.861997	8.862142	8.862287	0	50	4. 116
10	0	8.862433	8.862578	8.862723	45		1= 29
	15	8.862868	8.863013	8.863158	30		2. 58
	30	8.863304	8.863448	8.863593	15		3. 87
	45	8.863738	8.863883	8.864028	0	49	4. 116
11	0	8.864173	8.864317	8.864462	45		1= 29
	15	8.864606	8.864751	8.864895	30		2. 58
	30	8.865040	8.865184	8.865329	15		3. 87
	45	8.865473	8.865617	8.865761	0	48	4. 115
12	0	8.865906	8.866050	8.866194	45		1= 29
	15	8.866338	8.866482	8.866626	30		2. 58
	30	8.866770	8.866913	8.867057	15		3. 86
	45	8.867201	8.867345	8.867488	0	47	4. 115
13	0	8.867632	8.867775	8.867919	45		1= 29
	15	8.868062	8.868206	8.868349	30		2. 57
	30	8.868492	8.868636	8.868779	15		3. 86
	45	8.868922	8.869065	8.869208	0	46	4. 115
14	0	8.869351	8.869494	8.869637	45		1= 29
	15	8.869780	8.869923	8.870066	30		2. 57
	30	8.870208	8.870351	8.870494	15		3. 86
	45	8.870636	8.870779	8.870921	0	45	4. 114
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 85 degrees, or Tangent of 175 degrees.					

Minutes	Seconds	Tangent of 4 degrees, or Co-tangent of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.871064	8.871206	8.871349	45		1″=28
	15	8.871491	8.871633	8.871776	30		2. 57
	30	8.871918	8.872060	8.872202	15		3. 85
	45	8.872344	8.872486	8.872628	0	44	4. 114
16	0	8.872770	8.872912	8.873054	45		1= 28
	15	8.873195	8.873337	8.873479	30		2. 57
	30	8.873621	8.873762	8.873904	15		3. 85
	45	8.874045	8.874187	8.874328	0	43	4. 113
17	0	8.874469	8.874611	8.874752	45		1= 28
	15	8.874893	8.875034	8.875176	30		2. 56
	30	8.875317	8.875458	8.875599	15		3. 85
	45	8.875740	8.875881	8.876021	0	42	4. 113
18	0	8.876162	8.876303	8.876444	45		1= 28
	15	8.876585	8.876725	8.876866	30		2. 56
	30	8.877006	8.877147	8.877287	15		3. 84
	45	8.877428	8.877568	8.877708	0	41	4. 112
19	0	8.877849	8.877989	8.878129	45		1= 28
	15	8.878269	8.878409	8.878549	30		2. 56
	30	8.878690	8.878829	8.878969	15		3. 84
	45	8.879109	8.879249	8.879389	0	40	4. 112
20	0	8.879529	8.879668	8.879808	45		1= 28
	15	8.879948	8.880087	8.880227	30		2. 56
	30	8.880366	8.880506	8.880645	15		3. 84
	45	8.880784	8.880924	8.881063	0	39	4. 112
21	0	8.881202	8.881341	8.881481	45		1= 28
	15	8.881620	8.881759	8.881898	30		2. 56
	30	8.882037	8.882176	8.882314	15		3. 83
	45	8.882453	8.882592	8.882731	0	38	4. 111
22	0	8.882869	8.883008	8.883147	45		1= 28
	15	8.883285	8.883424	8.883562	30		2. 55
	30	8.883701	8.883839	8.883977	15		3. 83
	45	8.884116	8.884254	8.884392	0	37	4. 111
23	0	8.884530	8.884668	8.884807	45		1= 28
	15	8.884945	8.885083	8.885221	30		2. 55
	30	8.885358	8.885496	8.885634	15		3. 83
	45	8.885772	8.885910	8.886047	0	36	4. 110
24	0	8.886185	8.886323	8.886460	45		1= 27
	15	8.886598	8.886735	8.886873	30		2. 55
	30	8.887010	8.887147	8.887285	15		3. 82
	45	8.887422	8.887559	8.887696	0	35	4. 110
25	0	8.887833	8.887971	8.888108	45		1= 27
	15	8.888245	8.888382	8.888518	30		2. 55
	30	8.888655	8.888792	8.888929	15		3. 82
	45	8.889066	8.889202	8.889339	0	34	4. 109
26	0	8.889476	8.889612	8.889749	45		1= 27
	15	8.889885	8.890022	8.890158	30		2. 54
	30	8.890295	8.890431	8.890567	15		3. 82
	45	8.890703	8.890840	8.890976	0	33	4. 109
27	0	8.891112	8.891248	8.891384	45		1= 27
	15	8.891520	8.891656	8.891792	30		2. 54
	30	8.891928	8.892064	8.892199	15		3. 81
	45	8.892335	8.892471	8.892606	0	32	4. 108
28	0	8.892742	8.892878	8.893013	45		1= 27
	15	8.893149	8.893284	8.893419	30		2. 54
	30	8.893555	8.893690	8.893825	15		3. 81
	45	8.893961	8.894096	8.894231	0	31	4. 108
29	0	8.894366	8.894501	8.894636	45		1= 27
	15	8.894771	8.894906	8.895041	30		2. 54
	30	8.895176	8.895311	8.895445	15		3. 81
	45	8.895580	8.895715	8.895850	0	30	4. 108
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 85 degrees, or Tangent of 175 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 4 degrees, or Co-tangent of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.895984	8.896119	8.896253	45		1″=27
	15	8.896388	8.896522	8.896657	30		2. 54
	30	8.896791	8.896925	8.897060	15		3. 81
	45	8.897194	8.897328	8.897462	0	29	4. 107
31	0	8.897596	8.897730	8.897864	45		1= 27
	15	8.897998	8.898132	8.898266	30		2. 54
	30	8.898400	8.898534	8.898668	15		3. 80
	45	8.898802	8.898935	8.899069	0	28	4. 107
32	0	8.899203	8.899336	8.899470	45		1= 27
	15	8.899603	8.899737	8.899870	30		2. 53
	30	8.900004	8.900137	8.900270	15		3. 80
	45	8.900404	8.900537	8.900670	0	27	4. 107
33	0	8.900803	8.900936	8.901069	45		1= 27
	15	8.901202	8.901335	8.901468	30		2. 53
	30	8.901601	8.901734	8.901867	15		3. 80
	45	8.902000	8.902132	8.902265	0	26	4. 106
34	0	8.902398	8.902530	8.902663	45		1= 26
	15	8.902795	8.902928	8.903060	30		2. 53
	30	8.903193	8.903325	8.903458	15		3. 79
	45	8.903590	8.903722	8.903854	0	25	4. 106
35	0	8.903987	8.904119	8.904251	45		1= 26
	15	8.904383	8.904515	8.904647	30		2. 53
	30	8.904779	8.904911	8.905043	15		3. 79
	45	8.905175	8.905306	8.905438	0	24	4. 106
36	0	8.905570	8.905701	8.905833	45		1= 26
	15	8.905965	8.906096	8.906228	30		2. 53
	30	8.906359	8.906491	8.906622	15		3. 79
	45	8.906753	8.906885	8.907016	0	23	4. 105
37	0	8.907147	8.907278	8.907410	45		1= 26
	15	8.907541	8.907672	8.907803	30		2. 52
	30	8.907934	8.908065	8.908196	15		3. 79
	45	8.908327	8.908458	8.908588	0	22	4. 105
38	0	8.908719	8.908850	8.908981	45		1= 26
	15	8.909111	8.909242	8.909372	30		2. 52
	30	8.909503	8.909633	8.909764	15		3. 78
	45	8.909894	8.910025	8.910155	0	21	4. 104
39	0	8.910285	8.910416	8.910546	45		1= 26
	15	8.910676	8.910806	8.910936	30		2. 52
	30	8.911066	8.911196	8.911326	15		3. 78
	45	8.911456	8.911586	8.911716	0	20	4. 104
40	0	8.911846	8.911976	8.912106	45		1= 26
	15	8.912235	8.912365	8.912495	30		2. 52
	30	8.912624	8.912754	8.912883	15		3. 78
	45	8.913013	8.913142	8.913272	0	19	4. 104
41	0	8.913401	8.913531	8.913660	45		1= 26
	15	8.913789	8.913918	8.914048	30		2. 52
	30	8.914177	8.914306	8.914435	15		3. 77
	45	8.914564	8.914693	8.914822	0	18	4. 103
42	0	8.914951	8.915080	8.915209	45		1= 26
	15	8.915338	8.915466	8.915595	30		2. 51
	30	8.915724	8.915852	8.915981	15		3. 77
	45	8.916110	8.916238	8.916367	0	17	4. 103
43	0	8.916495	8.916624	8.916752	45		1= 26
	15	8.916880	8.917009	8.917137	30		2. 51
	30	8.917265	8.917394	8.917522	15		3. 77
	45	8.917650	8.917778	8.917906	0	16	4. 103
44	0	8.918034	8.918162	8.918290	45		1= 26
	15	8.918418	8.918546	8.918674	30		2. 51
	30	8.918801	8.918929	8.919057	15		3. 77
	45	8.919185	8.919312	8.919440	0	15	4. 102
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 85 degrees, or Tangent of 175 degrees.					

Minutes	Seconds	Tangent of 4 degrees, or Co-tangent of 94 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	8.919568	8.919695	8.919823	45		1″=25
	15	8.919950	8.920078	8.920205	30		2. 51
	30	8.920332	8.920460	8.920587	15		3. 76
	45	8.920714	8.920841	8.920969	0	14	4. 102
46	0	8.921096	8.921223	8.921350	45		1= 25
	15	8.921477	8.921604	8.921731	30		2. 51
	30	8.921858	8.921985	8.922112	15		3. 76
	45	8.922238	8.922365	8.922492	0	13	4. 102
47	0	8.922619	8.922745	8.922872	45		1= 25
	15	8.922999	8.923125	8.923252	30		2. 51
	30	8.923378	8.923505	8.923631	15		3. 76
	45	8.923757	8.923884	8.924010	0	12	4. 101
48	0	8.924136	8.924263	8.924389	45		1= 25
	15	8.924515	8.924641	8.924767	30		2. 50
	30	8.924893	8.925019	8.925145	15		3. 76
	45	8.925271	8.925397	8.925523	0	11	4. 101
49	0	8.925649	8.925775	8.925900	45		1= 25
	15	8.926026	8.926152	8.926277	30		2. 50
	30	8.926403	8.926529	8.926654	15		3. 75
	45	8.926780	8.926905	8.927031	0	10	4. 100
50	0	8.927156	8.927281	8.927407	45		1= 25
	15	8.927532	8.927657	8.927783	30		2. 50
	30	8.927908	8.928033	8.928158	15		3. 75
	45	8.928283	8.928408	8.928533	0	9	4. 100
51	0	8.928658	8.928783	8.928908	45		1= 25
	15	8.929033	8.929158	8.929283	30		2. 50
	30	8.929407	8.929532	8.929657	15		3. 75
	45	8.929781	8.929906	8.930031	0	8	4. 100
52	0	8.930155	8.930280	8.930404	45		1= 25
	15	8.930529	8.930653	8.930777	30		2. 50
	30	8.930902	8.931026	8.931150	15		3. 75
	45	8.931275	8.931399	8.931523	0	7	4. 99
53	0	8.931647	8.931771	8.931895	45		1= 25
	15	8.932019	8.932143	8.932267	30		2. 50
	30	8.932391	8.932515	8.932639	15		3. 74
	45	8.932763	8.932887	8.933010	0	6	4. 99
54	0	8.933134	8.933258	8.933381	45		1= 25
	15	8.933505	8.933629	8.933752	30		2. 49
	30	8.933876	8.933999	8.934123	15		3. 74
	45	8.934246	8.934369	8.934493	0	5	4. 99
55	0	8.934616	8.934739	8.934863	45		1= 25
	15	8.934986	8.935109	8.935232	30		2. 49
	30	8.935355	8.935478	8.935601	15		3. 74
	45	8.935724	8.935847	8.935970	0	4	4. 98
56	0	8.936093	8.936216	8.936339	45		1= 25
	15	8.936461	8.936584	8.936707	30		2. 49
	30	8.936830	8.936952	8.937075	15		3. 74
	45	8.937197	8.937320	8.937443	0	3	4. 98
57	0	8.937565	8.937687	8.937810	45		1= 24
	15	8.937932	8.938055	8.938177	30		2. 49
	30	8.938299	8.938421	8.938544	15		3. 73
	45	8.938666	8.938788	8.938910	0	2	4. 98
58	0	8.939032	8.939154	8.939276	45		1= 24
	15	8.939398	8.939520	8.939642	30		2. 49
	30	8.939764	8.939886	8.940008	15		3. 73
	45	8.940129	8.940251	8.940373	0	1	4. 97
59	0	8.940494	8.940616	8.940738	45		1= 24
	15	8.940859	8.940981	8.941102	30		2. 49
	30	8.941224	8.941345	8.941467	15		3. 73
	45	8.941588	8.941709	8.941831	0	0	4. 97
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 85 degrees, or Tangent of 175 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 5 degrees, or Co-tangent of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	8.941952	8.942073	8.942194	45		1″ = 24
	15	8.942315	8.942437	8.942558	30		2. 48
	30	8.942679	8.942800	8.942921	15		3. 73
	45	8.943042	8.943163	8.943284	0	59	4. 97
1	0	8.943404	8.943525	8.943646	45		1 = 24
	15	8.943767	8.943888	8.944008	30		2. 48
	30	8.944129	8.944250	8.944370	15		3. 72
	45	8.944491	8.944611	8.944732	0	58	4. 97
2	0	8.944852	8.944973	8.945093	45		1 = 24
	15	8.945214	8.945334	8.945454	30		2. 48
	30	8.945574	8.945695	8.945815	15		3. 72
	45	8.945935	8.946055	8.946175	0	57	4. 96
3	0	8.946295	8.946415	8.946536	45		1 = 24
	15	8.946655	8.946775	8.946895	30		2. 48
	30	8.947015	8.947135	8.947255	15		3. 72
	45	8.947375	8.947494	8.947614	0	56	4. 96
4	0	8.947734	8.947854	8.947973	45		1 = 24
	15	8.948093	8.948212	8.948332	30		2. 48
	30	8.948451	8.948571	8.948690	15		3. 72
	45	8.948810	8.948929	8.949048	0	55	4. 96
5	0	8.949168	8.949287	8.949406	45		1 = 24
	15	8.949525	8.949644	8.949764	30		2. 48
	30	8.949883	8.950002	8.950121	15		3. 71
	45	8.950240	8.950359	8.950478	0	54	4. 95
6	0	8.950597	8.950716	8.950834	45		1 = 24
	15	8.950953	8.951072	8.951191	30		2. 47
	30	8.951310	8.951428	8.951547	15		3. 71
	45	8.951665	8.951784	8.951903	0	53	4. 95
7	0	8.952021	8.952140	8.952258	45		1 = 24
	15	8.952377	8.952495	8.952613	30		2. 47
	30	8.952732	8.952850	8.952968	15		3. 71
	45	8.953087	8.953205	8.953323	0	52	4. 95
8	0	8.953441	8.953559	8.953677	45		1 = 24
	15	8.953795	8.953913	8.954031	30		2. 47
	30	8.954149	8.954267	8.954385	15		3. 71
	45	8.954503	8.954621	8.954739	0	51	4. 94
9	0	8.954856	8.954974	8.955092	45		1 = 24
	15	8.955210	8.955327	8.955445	30		2. 47
	30	8.955562	8.955680	8.955797	15		3. 71
	45	8.955915	8.956032	8.956150	0	50	4. 94
10	0	8.956267	8.956385	8.956502	45		1 = 23
	15	8.956619	8.956737	8.956854	30		2. 47
	30	8.956971	8.957088	8.957205	15		3. 70
	45	8.957322	8.957440	8.957557	0	49	4. 94
11	0	8.957674	8.957791	8.957908	45		1 = 23
	15	8.958024	8.958141	8.958258	30		2. 47
	30	8.958375	8.958492	8.958609	15		3. 70
	45	8.958725	8.958842	8.958959	0	48	4. 93
12	0	8.959075	8.959192	8.959309	45		1 = 23
	15	8.959425	8.959542	8.959658	30		2. 47
	30	8.959775	8.959891	8.960008	15		3. 70
	45	8.960124	8.960240	8.960357	0	47	4. 93
13	0	8.960473	8.960589	8.960705	45		1 = 23
	15	8.960822	8.960938	8.961054	30		2. 46
	30	8.961170	8.961286	8.961402	15		3. 70
	45	8.961518	8.961634	8.961750	0	46	4. 93
14	0	8.961866	8.961982	8.962098	45		1 = 23
	15	8.962213	8.962329	8.962445	30		2. 46
	30	8.962561	8.962676	8.962792	15		3. 69
	45	8.962908	8.963023	8.963139	0	45	4. 93
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 84 degrees, or Tangent of 174 degrees.					

Minutes	Seconds	Tangent of 5 degrees, or Co-tangent of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	8.963255	8.963370	8.963486	45		1″ = 23
	15	8.963601	8.963716	8.963832	30		2. 46
	30	8.963947	8.964063	8.964178	15		3. 69
	45	8.964293	8.964408	8.964524	0	44	4. 92
16	0	8.964639	8.964754	8.964869	45		1 = 23
	15	8.964984	8.965099	8.965214	30		2. 46
	30	8.965329	8.965444	8.965559	15		3. 69
	45	8.965674	8.965789	8.965904	0	43	4. 92
17	0	8.966019	8.966134	8.966248	45		1 = 23
	15	8.966363	8.966478	8.966593	30		2. 46
	30	8.966707	8.966822	8.966936	15		3. 69
	45	8.967051	8.967165	8.967280	0	42	4. 92
18	0	8.967394	8.967509	8.967623	45		1 = 23
	15	8.967738	8.967852	8.967966	30		2. 46
	30	8.968081	8.968195	8.968309	15		3. 69
	45	8.968423	8.968538	8.968652	0	41	4. 91
19	0	8.968766	8.968880	8.968994	45		1 = 23
	15	8.969108	8.969222	8.969336	30		2. 46
	30	8.969450	8.969564	8.969678	15		3. 68
	45	8.969792	8.969905	8.970019	0	40	4. 91
20	0	8.970133	8.970247	8.970360	45		1 = 23
	15	8.970474	8.970588	8.970701	30		2. 45
	30	8.970815	8.970929	8.971042	15		3. 68
	45	8.971156	8.971269	8.971383	0	39	4. 91
21	0	8.971496	8.971609	8.971723	45		1 = 23
	15	8.971836	8.971949	8.972063	30		2. 45
	30	8.972176	8.972289	8.972402	15		3. 68
	45	8.972515	8.972629	8.972742	0	38	4. 91
22	0	8.972855	8.972968	8.973081	45		1 = 23
	15	8.973194	8.973307	8.973420	30		2. 45
	30	8.973533	8.973645	8.973758	15		3. 68
	45	8.973871	8.973984	8.974096	0	37	4. 90
23	0	8.974209	8.974322	8.974435	45		1 = 23
	15	8.974547	8.974660	8.974772	30		2. 45
	30	8.974885	8.974998	8.975110	15		3. 68
	45	8.975223	8.975335	8.975447	0	36	4. [illegible]
24	0	8.975560	8.975672	8.975784	45		1 = 23
	15	8.975897	8.976009	8.976121	30		2. 45
	30	8.976233	8.976346	8.976458	15		3. 67
	45	8.976570	8.976682	8.976794	0	35	4. [illegible]
25	0	8.976906	8.977018	8.977130	45		1 = 23
	15	8.977242	8.977354	8.977466	30		2. 45
	30	8.977578	8.977690	8.977801	15		3. 67
	45	8.977913	8.978025	8.978137	0	34	4. [illegible]
26	0	8.978248	8.978360	8.978472	45		1 = 23
	15	8.978583	8.978695	8.978806	30		2. 45
	30	8.978918	8.979029	8.979141	15		3. 67
	45	8.979252	8.979364	8.979475	0	33	4. [illegible]
27	0	8.979587	8.979698	8.979809	45		1 = 23
	15	8.979920	8.980032	8.980143	30		2. 44
	30	8.980254	8.980365	8.980476	15		3. 67
	45	8.980587	8.980699	8.980810	0	32	4. [illegible]
28	0	8.980921	8.981032	8.981143	45		1 = 23
	15	8.981254	8.981364	8.981475	30		2. 44
	30	8.981586	8.981697	8.981808	15		3. 66
	45	8.981919	8.982029	8.982140	0	31	4. [illegible]
29	0	8.982251	8.982361	8.982472	45		1 = 22
	15	8.982583	8.982693	8.982804	30		2. 44
	30	8.982914	8.983025	8.983135	15		3. 66
	45	8.983246	8.983356	8.983467	0	30	4. [illegible]
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 84 degrees, or Tangent of 174 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 5 degrees, or Co-tangent of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	8.983577	8.983687	8.983798	45		1″ = 22
	15	8.983908	8.984018	8.984128	30		2. 44
	30	8.984239	8.984349	8.984459	15		3. 66
	45	8.984569	8.984679	8.984789	0	29	4. 88
31	0	8.984899	8.985009	8.985119	45		1 = 22
	15	8.985229	8.985339	8.985449	30		2. 44
	30	8.985559	8.985669	8.985778	15		3. 66
	45	8.985888	8.985998	8.986108	0	28	4. 88
32	0	8.986217	8.986327	8.986437	45		1 = 22
	15	8.986546	8.986656	8.986765	30		2. 44
	30	8.986875	8.986985	8.987094	15		3. 66
	45	8.987203	8.987313	8.987422	0	27	4. 88
33	0	8.987532	8.987641	8.987750	45		1 = 22
	15	8.987860	8.987969	8.988078	30		2. 44
	30	8.988187	8.988297	8.988406	15		3. 65
	45	8.988515	8.988624	8.988733	0	26	4. 87
34	0	8.988842	8.988951	8.989060	45		1 = 22
	15	8.989169	8.989278	8.989387	30		2. 44
	30	8.989496	8.989605	8.989714	15		3. 65
	45	8.989822	8.989931	8.990040	0	25	4. 87
35	0	8.990149	8.990257	8.990366	45		1 = 22
	15	8.990475	8.990583	8.990692	30		2. 43
	30	8.990801	8.990909	8.991018	15		3. 65
	45	8.991126	8.991235	8.991343	0	24	4. 87
36	0	8.991451	8.991560	8.991668	45		1 = 22
	15	8.991777	8.991885	8.991993	30		2. 43
	30	8.992101	8.992210	8.992318	15		3. 65
	45	8.992426	8.992534	8.992642	0	23	4. 87
37	0	8.992750	8.992858	8.992966	45		1 = 22
	15	8.993074	8.993182	8.993290	30		2. 43
	30	8.993398	8.993506	8.993614	15		3. 65
	45	8.993722	8.993830	8.993938	0	22	4. 86
38	0	8.994045	8.994153	8.994261	45		1 = 22
	15	8.994369	8.994476	8.994584	30		2. 43
	30	8.994692	8.994799	8.994907	15		3. 65
	45	8.995014	8.995122	8.995229	0	21	4. 86
39	0	8.995337	8.995444	8.995552	45		1 = 21
	15	8.995659	8.995766	8.995874	30		2. 43
	30	8.995981	8.996088	8.996196	15		3. 64
	45	8.996303	8.996410	8.996517	0	20	4. 86
40	0	8.996624	8.996731	8.996839	45		1 = 21
	15	8.996946	8.997053	8.997160	30		2. 43
	30	8.997267	8.997374	8.997481	15		3. 64
	45	8.997588	8.997694	8.997801	0	19	4. 86
41	0	8.997908	8.998015	8.998122	45		1 = 21
	15	8.998229	8.998335	8.998442	30		2. 43
	30	8.998549	8.998655	8.998762	15		3. 64
	45	8.998869	8.998975	8.999082	0	18	4. 85
42	0	8.999188	8.999295	8.999401	45		1 = 21
	15	8.999508	8.999614	8.999721	30		2. 43
	30	8.999827	8.999933	9.000040	15		3. 64
	45	9.000146	9.000252	9.000359	0	17	4. 85
43	0	9.000465	9.000571	9.000677	45		1 = 21
	15	9.000783	9.000889	9.000996	30		2. 42
	30	9.001102	9.001208	9.001314	15		3. 64
	45	9.001420	9.001526	9.001632	0	16	4. 85
44	0	9.001738	9.001843	9.001949	45		1 = 21
	15	9.002055	9.002161	9.002267	30		2. 42
	30	9.002373	9.002478	9.002584	15		3. 63
	45	9.002690	9.002795	9.002901	0	15	4. 85
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 84 degrees, or Tangent of 174 degrees.					

Minutes	Seconds	Tangent of 5 degrees, or Co-tangent of 95 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.003007	9.003112	9.003218	45		1″ = 21
	15	9.003323	9.003429	9.003534	30		2. 42
	30	9.003640	9.003745	9.003851	15		3. 63
	45	9.003956	9.004062	9.004167	0	14	4. 84
46	0	9.004272	9.004377	9.004483	45		1 = 21
	15	9.004588	9.004693	9.004798	30		2. 42
	30	9.004904	9.005009	9.005114	15		3. 63
	45	9.005219	9.005324	9.005429	0	13	4. 84
47	0	9.005534	9.005639	9.005744	45		1 = 21
	15	9.005849	9.005954	9.006059	30		2. 42
	30	9.006164	9.006269	9.006373	15		3. 63
	45	9.006478	9.006583	9.006688	0	12	4. 84
48	0	9.006792	9.006897	9.007002	45		1 = 21
	15	9.007106	9.007211	9.007316	30		2. 42
	30	9.007420	9.007525	9.007629	15		3. 63
	45	9.007734	9.007838	9.007943	0	11	4. 84
49	0	9.008047	9.008152	9.008256	45		1 = 21
	15	9.008360	9.008465	9.008569	30		2. 42
	30	9.008673	9.008777	9.008882	15		3. 63
	45	9.008986	9.009090	9.009194	0	10	4. 83
50	0	9.009298	9.009403	9.009507	45		1 = 21
	15	9.009611	9.009715	9.009819	30		2. 42
	30	9.009923	9.010027	9.010131	15		3. 62
	45	9.010235	9.010338	9.010442	0	9	4. 83
51	0	9.010546	9.010650	9.010754	45		1 = 21
	15	9.010857	9.010961	9.011065	30		2. 41
	30	9.011169	9.011272	9.011376	15		3. 62
	45	9.011480	9.011583	9.011687	0	8	4. 83
52	0	9.011790	9.011894	9.011997	45		1 = 21
	15	9.012101	9.012204	9.012308	30		2. 41
	30	9.012411	9.012514	9.012618	15		3. 62
	45	9.012721	9.012824	9.012928	0	7	4. 83
53	0	9.013031	9.013134	9.013237	45		1 = 21
	15	9.013341	9.013444	9.013547	30		2. 41
	30	9.013650	9.013753	9.013856	15		3. 62
	45	9.013959	9.014062	9.014165	0	6	4. 82
54	0	9.014268	9.014371	9.014474	45		1 = 21
	15	9.014577	9.014680	9.014783	30		2. 41
	30	9.014886	9.014988	9.015091	15		3. 62
	45	9.015194	9.015297	9.015399	0	5	4. 82
55	0	9.015502	9.015605	9.015707	45		1 = 21
	15	9.015810	9.015913	9.016015	30		2. 41
	30	9.016118	9.016220	9.016323	15		3. 62
	45	9.016425	9.016528	9.016630	0	4	4. 82
56	0	9.016733	9.016835	9.016937	45		1 = 20
	15	9.017040	9.017142	9.017244	30		2. 41
	30	9.017346	9.017449	9.017551	15		3. 61
	45	9.017653	9.017755	9.017857	0	3	4. 82
57	0	9.017959	9.018062	9.018164	45		1 = 20
	15	9.018266	9.018368	9.018470	30		2. 41
	30	9.018572	9.018674	9.018776	15		3. 61
	45	9.018878	9.018979	9.019081	0	2	4. 82
58	0	9.019183	9.019285	9.019387	45		1 = 20
	15	9.019488	9.019590	9.019692	30		2. 41
	30	9.019794	9.019895	9.019997	15		3. 61
	45	9.020099	9.020200	9.020302	0	1	4. 81
59	0	9.020403	9.020505	9.020606	45		1 = 20
	15	9.020708	9.020809	9.020911	30		2. 41
	30	9.021012	9.021114	9.021215	15		3. 61
	45	9.021316	9.021418	9.021519	0	0	4. 81
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 84 degrees, or Tangent of 174 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 6 degrees, or Co-tangent of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	9.021620	9.021722	9.021823	45		1″ = 20
	15	9.021924	9.022025	9.022126	30		2. 40
	30	9.022227	9.022329	9.022430	15		3. 61
	45	9.022531	9.022632	9.022733	0	59	4. 81
1	0	9.022834	9.022935	9.023036	45		1 = 20
	15	9.023137	9.023238	9.023339	30		2. 40
	30	9.023439	9.023540	9.023641	15		3. 60
	45	9.023742	9.023843	9.023943	0	58	4. 81
2	0	9.024044	9.024145	9.024246	45		1 = 20
	15	9.024346	9.024447	9.024547	30		2. 40
	30	9.024648	9.024749	9.024849	15		3. 60
	45	9.024950	9.025050	9.025151	0	57	4. 80
3	0	9.025251	9.025352	9.025452	45		1 = 20
	15	9.025552	9.025653	9.025753	30		2. 40
	30	9.025853	9.025954	9.026054	15		3. 60
	45	9.026154	9.026254	9.026355	0	56	4. 80
4	0	9.026455	9.026555	9.026655	45		1 = 20
	15	9.026755	9.026855	9.026955	30		2. 40
	30	9.027055	9.027155	9.027255	15		3. 60
	45	9.027355	9.027455	9.027555	0	55	4. 80
5	0	9.027655	9.027755	9.027855	45		1 = 20
	15	9.027955	9.028055	9.028155	30		2. 40
	30	9.028254	9.028354	9.028454	15		3. 60
	45	9.028553	9.028653	9.028753	0	54	4. 80
6	0	9.028852	9.028952	9.029052	45		1 = 20
	15	9.029151	9.029251	9.029350	30		2. 40
	30	9.029450	9.029549	9.029649	15		3. 60
	45	9.029748	9.029848	9.029947	0	53	4. 80
7	0	9.030046	9.030146	9.030245	45		1 = 20
	15	9.030344	9.030444	9.030543	30		2. 40
	30	9.030642	9.030742	9.030841	15		3. 60
	45	9.030940	9.031039	9.031138	0	52	4. 79
8	0	9.031237	9.031336	9.031435	45		1 = 20
	15	9.031535	9.031634	9.031733	30		2. 40
	30	9.031832	9.031930	9.032029	15		3. 59
	45	9.032128	9.032227	9.032326	0	51	4. 79
9	0	9.032425	9.032524	9.032623	45		1 = 20
	15	9.032721	9.032820	9.032919	30		2. 39
	30	9.033018	9.033116	9.033215	15		3. 59
	45	9.033314	9.033412	9.033511	0	50	4. 79
10	0	9.033609	9.033708	9.033806	45		1 = 20
	15	9.033905	9.034004	9.034102	30		2. 39
	30	9.034200	9.034299	9.034397	15		3. 59
	45	9.034496	9.034594	9.034692	0	49	4. 79
11	0	9.034791	9.034889	9.034987	45		1 = 20
	15	9.035086	9.035184	9.035282	30		2. 39
	30	9.035380	9.035478	9.035576	15		3. 59
	45	9.035675	9.035773	9.035871	0	48	4. 79
12	0	9.035969	9.036067	9.036165	45		1 = 20
	15	9.036263	9.036361	9.036459	30		2. 39
	30	9.036557	9.036655	9.036753	15		3. 59
	45	9.036850	9.036948	9.037046	0	47	4. 78
13	0	9.037144	9.037242	9.037339	45		1 = 20
	15	9.037437	9.037535	9.037633	30		2. 39
	30	9.037730	9.037828	9.037926	15		3. 59
	45	9.038023	9.038121	9.038218	0	46	4. 78
14	0	9.038316	9.038413	9.038511	45		1 = 19
	15	9.038608	9.038706	9.038803	30		2. 39
	30	9.038901	9.038998	9.039096	15		3. 58
	45	9.039193	9.039290	9.039388	0	45	4. 78
Minutes	Seconds	Co-tangent of 83 degrees, or Tangent of 173 degrees. 15″	10″	5″	Seconds	Minutes	Propor. parts.

Minutes	Seconds	Tangent of 6 degrees, or Co-tangent of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9.039485	9.039582	9.039679	45		1″ = 19
	15	9.039777	9.039874	9.039971	30		2. 39
	30	9.040068	9.040165	9.040262	15		3. 58
	45	9.040359	9.040457	9.040554	0	44	4. 78
16	0	9.040651	9.040748	9.040845	45		1 = 19
	15	9.040942	9.041039	9.041135	30		2. 39
	30	9.041232	9.041329	9.041426	15		3. 58
	45	9.041523	9.041620	9.041717	0	43	4. 77
17	0	9.041813	9.041910	9.042007	45		1 = 19
	15	9.042104	9.042200	9.042297	30		2. 37
	30	9.042394	9.042490	9.042587	15		3. 56
	45	9.042684	9.042780	9.042877	0	42	4. 77
18	0	9.042973	9.043070	9.043166	45		1 = 19
	15	9.043263	9.043359	9.043456	30		2. 39
	30	9.043552	9.043648	9.043745	15		3. 58
	45	9.043841	9.043937	9.044034	0	41	4. 77
19	0	9.044130	9.044226	9.044322	45		1 = 19
	15	9.044419	9.044515	9.044611	30		2. 38
	30	9.044707	9.044803	9.044899	15		3. 58
	45	9.044995	9.045092	9.045188	0	40	4. 77
20	0	9.045284	9.045380	9.045476	45		1 = 19
	15	9.045572	9.045668	9.045763	30		2. 38
	30	9.045859	9.045955	9.046051	15		3. 58
	45	9.046147	9.046243	9.046339	0	39	4. 77
21	0	9.046434	9.046530	9.046626	45		1 = 19
	15	9.046722	9.046817	9.046913	30		2. 38
	30	9.047009	9.047104	9.047200	15		3. 57
	45	9.047296	9.047391	9.047487	0	38	4. 77
22	0	9.047582	9.047678	9.047773	45		1 = 19
	15	9.047869	9.047964	9.048060	30		2. 38
	30	9.048155	9.048250	9.048346	15		3. 57
	45	9.048441	9.048536	9.048632	0	37	4. 76
23	0	9.048727	9.048822	9.048918	45		1 = 19
	15	9.049013	9.049108	9.049203	30		2. 38
	30	9.049298	9.049393	9.049489	15		3. 57
	45	9.049584	9.049679	9.049774	0	36	4. 76
24	0	9.049869	9.049964	9.050059	45		1 = 19
	15	9.050154	9.050249	9.050344	30		2. 38
	30	9.050439	9.050534	9.050629	15		3. 57
	45	9.050723	9.050818	9.050913	0	35	4. 76
25	0	9.051008	9.051103	9.051197	45		1 = 19
	15	9.051292	9.051387	9.051482	30		2. 38
	30	9.051576	9.051671	9.051766	15		3. 57
	45	9.051860	9.051955	9.052049	0	34	4. 76
26	0	9.052144	9.052239	9.052333	45		1 = 19
	15	9.052428	9.052522	9.052616	30		2. 38
	30	9.052711	9.052805	9.052900	15		3. 57
	45	9.052994	9.053088	9.053183	0	33	4. 76
27	0	9.053277	9.053371	9.053466	45		1 = 19
	15	9.053560	9.053654	9.053748	30		2. 38
	30	9.053843	9.053937	9.054031	15		3. 57
	45	9.054125	9.054219	9.054313	0	32	4. 75
28	0	9.054407	9.054502	9.054596	45		1 = 19
	15	9.054690	9.054784	9.054878	30		2. 38
	30	9.054972	9.055065	9.055159	15		3. 57
	45	9.055253	9.055347	9.055441	0	31	4. 75
29	0	9.055535	9.055629	9.055723	45		1 = 19
	15	9.055816	9.055910	9.056004	30		2. 37
	30	9.056098	9.056191	9.056285	15		3. 56
	45	9.056379	9.056472	9.056566	0	30	4. 75
Minutes	Seconds	Co-tangent of 83 degrees, or Tangent of 173 degrees. 15″	10″	5″	Seconds	Minutes	Propor. parts.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 6 degrees, or Co-tangent of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9.056660	9.056753	9.056847	45		1″ = 19
	15	9.056940	9.057034	9.057127	30		2. 37
	30	9.057221	9.057314	9.057408	15		3. 56
	45	9.057501	9.057595	9.057688	0	29	4. 75
31	0	9.057781	9.057875	9.057968	45		1 = 19
	15	9.058061	9.058155	9.058248	30		2. 37
	30	9.058341	9.058434	9.058528	15		3. 56
	45	9.058621	9.058714	9.058807	0	28	4. 75
32	0	9.058900	9.058993	9.059086	45		1 = 19
	15	9.059180	9.059273	9.059366	30		2. 37
	30	9.059459	9.059552	9.059645	15		3. 56
	45	9.059738	9.059831	9.059924	0	27	4. 74
33	0	9.060016	9.060109	9.060202	45		1 = 19
	15	9.060295	9.060388	9.060481	30		2. 37
	30	9.060573	9.060666	9.060759	15		3. 56
	45	9.060852	9.060944	9.061037	0	26	4. 74
34	0	9.061130	9.061222	9.061315	45		1 = 19
	15	9.061408	9.061500	9.061593	30		2. 37
	30	9.061685	9.061778	9.061870	15		3. 56
	45	9.061963	9.062055	9.062148	0	25	4. 74
35	0	9.062240	9.062333	9.062425	45		1 = 18
	15	9.062518	9.062610	9.062702	30		2. 37
	30	9.062795	9.062887	9.062979	15		3. 55
	45	9.063072	9.063164	9.063256	0	24	4. 74
36	0	9.063348	9.063440	9.063533	45		1 = 18
	15	9.063625	9.063717	9.063809	30		2. 37
	30	9.063901	9.063993	9.064085	15		3. 55
	45	9.064177	9.064269	9.064361	0	23	4. 74
37	0	9.064453	9.064545	9.064637	45		1 = 18
	15	9.064729	9.064821	9.064913	30		2. 37
	30	9.065005	9.065097	9.065189	15		3. 55
	45	9.065280	9.065372	9.065464	0	22	4. 73
38	0	9.065556	9.065647	9.065739	45		1 = 18
	15	9.065831	9.065923	9.066014	30		2. 37
	30	9.066106	9.066197	9.066289	15		3. 55
	45	9.066381	9.066472	9.066564	0	21	4. 73
39	0	9.066655	9.066747	9.066838	45		1 = 18
	15	9.066930	9.067021	9.067113	30		2. 37
	30	9.067204	9.067296	9.067387	15		3. 55
	45	9.067478	9.067570	9.067661	0	20	4. 73
40	0	9.067752	9.067844	9.067935	45		1 = 18
	15	9.068026	9.068117	9.068209	30		2. 36
	30	9.068300	9.068391	9.068482	15		3. 55
	45	9.068573	9.068664	9.068755	0	19	4. 73
41	0	9.068847	9.068938	9.069029	45		1 = 18
	15	9.069120	9.069211	9.069302	30		2. 36
	30	9.069393	9.069484	9.069575	15		3. 55
	45	9.069665	9.069756	9.069847	0	18	4. 73
42	0	9.069938	9.070029	9.070120	45		1 = 18
	15	9.070211	9.070301	9.070392	30		2. 36
	30	9.070483	9.070574	9.070664	15		3. 54
	45	9.070755	9.070846	9.070936	0	17	4. 73
43	0	9.071027	9.071118	9.071208	45		1 = 18
	15	9.071299	9.071389	9.071480	30		2. 36
	30	9.071570	9.071661	9.071752	15		3. 54
	45	9.071842	9.071932	9.072023	0	16	4. 72
44	0	9.072113	9.072204	9.072294	45		1 = 18
	15	9.072384	9.072475	9.072565	30		2. 36
	30	9.072655	9.072746	9.072836	15		3. 54
	45	9.072926	9.073017	9.073107	0	15	4. 72
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 83 degrees, or Tangent of 173 degrees.					

Minutes	Seconds	Tangent of 6 degrees, or Co-tangent of 96 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.073197	9.073287	9.073377	45		1″ = 18
	15	9.073467	9.073558	9.073648	30		2. 36
	30	9.073738	9.073828	9.073918	15		3. 54
	45	9.074008	9.074098	9.074188	0	14	4. 72
46	0	9.074278	9.074368	9.074458	45		1 = 18
	15	9.074548	9.074638	9.074728	30		2. 36
	30	9.074817	9.074907	9.074997	15		3. 54
	45	9.075087	9.075177	9.075267	0	13	4. 72
47	0	9.075356	9.075446	9.075536	45		1 = 18
	15	9.075626	9.075715	9.075805	30		2. 36
	30	9.075895	9.075984	9.076074	15		3. 54
	45	9.076163	9.076253	9.076343	0	12	4. 72
48	0	9.076432	9.076522	9.076611	45		1 = 18
	15	9.076701	9.076790	9.076880	30		2. 36
	30	9.076969	9.077059	9.077148	15		3. 54
	45	9.077237	9.077327	9.077416	0	11	4. 72
49	0	9.077505	9.077595	9.077684	45		1 = 18
	15	9.077773	9.077863	9.077952	30		2. 36
	30	9.078041	9.078130	9.078219	15		3. 54
	45	9.078309	9.078398	9.078487	0	10	4. 71
50	0	9.078576	9.078665	9.078754	45		1 = 18
	15	9.078843	9.078932	9.079021	30		2. 36
	30	9.079110	9.079199	9.079288	15		3. 53
	45	9.079377	9.079466	9.079555	0	9	4. 71
51	0	9.079644	9.079733	9.079822	45		1 = 18
	15	9.079911	9.080000	9.080088	30		2. 36
	30	9.080177	9.080266	9.080355	15		3. 53
	45	9.080443	9.080532	9.080621	0	8	4. 71
52	0	9.080710	9.080798	9.080887	45		1 = 18
	15	9.080976	9.081064	9.081153	30		2. 35
	30	9.081241	9.081330	9.081419	15		3. 53
	45	9.081507	9.081596	9.081684	0	7	4. 71
53	0	9.081773	9.081861	9.081950	45		1 = 18
	15	9.082038	9.082126	9.082215	30		2. 35
	30	9.082303	9.082392	9.082480	15		3. 53
	45	9.082568	9.082657	9.082745	0	6	4. 71
54	0	9.082833	9.082921	9.083010	45		1 = 18
	15	9.083098	9.083186	9.083274	30		2. 35
	30	9.083362	9.083451	9.083539	15		3. 53
	45	9.083627	9.083715	9.083803	0	5	4. 71
55	0	9.083891	9.083979	9.084067	45		1 = 18
	15	9.084155	9.084243	9.084331	30		2. 35
	30	9.084419	9.084507	9.084595	15		3. 53
	45	9.084683	9.084771	9.084859	0	4	4. 70
56	0	9.084947	9.085034	9.085122	45		1 = 18
	15	9.085210	9.085298	9.085386	30		2. 35
	30	9.085473	9.085561	9.085649	15		3. 53
	45	9.085737	9.085824	9.085912	0	3	4. 70
57	0	9.086000	9.086087	9.086175	45		1 = 18
	15	9.086262	9.086350	9.086438	30		2. 35
	30	9.086525	9.086613	9.086700	15		3. 53
	45	9.086788	9.086875	9.086963	0	2	4. 70
58	0	9.087050	9.087138	9.087225	45		1 = 17
	15	9.087312	9.087400	9.087487	30		2. 35
	30	9.087574	9.087662	9.087749	15		3. 52
	45	9.087836	9.087924	9.088011	0	1	4. 70
59	0	9.088098	9.088185	9.088273	45		1 = 17
	15	9.088360	9.088447	9.088534	30		2. 35
	30	9.088621	9.088708	9.088796	15		3. 52
	45	9.088883	9.088970	9.089057	0	0	4. 70
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 83 degrees, or Tangent of 173 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 7 degrees, or Co-tangent of 97 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	9.089144	9.089231	9.089318	45		1″ = 17
	15	9.089405	9.089492	9.089579	30		2. 35
	30	9.089666	9.089753	9.089840	15		3. 52
	45	9.089926	9.090013	9.090100	0	59	4 70
1	0	9.090187	9.090274	9.090361	45		1 = 17
	15	9.090447	9.090534	9.090621	30		2. 35
	30	9.090708	9.090794	9.090881	15		3. 52
	45	9.090968	9.091054	9.091141	0	58	4. 69
2	0	9.091228	9.091314	9.091401	45		1 = 17
	15	9.091488	9.091574	9.091661	30		2. 35
	30	9.091747	9.091834	9.091920	15		3. 52
	45	9.092007	9.092093	9.092180	0	57	4. 69
3	0	9.092266	9.092353	9.092439	45		1 = 17
	15	9.092525	9.092612	9.092698	30		2. 35
	30	9.092784	9.092871	9.092957	15		3. 52
	45	9.093043	9.093130	9.093216	0	56	4. 69
4	0	9.093302	9.093388	9.093474	45		1 = 17
	15	9.093561	9.093647	9.093733	30		2. 34
	30	9.093819	9.093905	9.093991	15		3. 52
	45	9.094077	9.094163	9.094250	0	55	4. 69
5	0	9.094336	9.094422	9.094508	45		1 = 17
	15	9.094594	9.094680	9.094766	30		2. 34
	30	9.094851	9.094937	9.095023	15		3. 52
	45	9.095109	9.095195	9.095281	0	54	4. 69
6	0	9.095367	9.095453	9.095538	45		1 = 17
	15	9.095624	9.095710	9.095796	30		2. 34
	30	9.095881	9.095967	9.096053	15		3. 51
	45	9.096139	9.096224	9.096310	0	53	4. 69
7	0	9.096396	9.096481	9.096567	45		1 = 17
	15	9.096652	9.096738	9.096824	30		2. 34
	30	9.096909	9.096995	9.097080	15		3. 51
	45	9.097166	9.097251	9.097337	0	52	4. 68
8	0	9.097422	9.097507	9.097593	45		1 = 17
	15	9.097678	9.097764	9.097849	30		2. 34
	30	9.097934	9.098020	9.098105	15		3. 51
	45	9.098190	9.098276	9.098361	0	51	4. 68
9	0	9.098446	9.098531	9.098617	45		1 = 17
	15	9.098702	9.098787	9.098872	30		2. 34
	30	9.098957	9.099042	9.099128	15		3. 51
	45	9.099213	9.099298	9.099383	0	50	4. 68
10	0	9.099468	9.099553	9.099638	45		1 = 17
	15	9.099723	9.099808	9.099893	30		2. 34
	30	9.099978	9.100063	9.100148	15		3. 51
	45	9.100233	9.100318	9.100402	0	49	4. 68
11	0	9.100487	9.100572	9.100657	45		1 = 17
	15	9.100742	9.100827	9.100911	30		2. 34
	30	9.100996	9.101081	9.101166	15		3. 51
	45	9.101250	9.101335	9.101420	0	48	4. 68
12	0	9.101504	9.101589	9.101674	45		1 = 17
	15	9.101758	9.101843	9.101928	30		2. 34
	30	9.102012	9.102097	9.102181	15		3. 51
	45	9.102266	9.102350	9.102435	0	47	4. 68
13	0	9.102519	9.102604	9.102688	45		1 = 17
	15	9.102773	9.102857	9.102941	30		2. 34
	30	9.103026	9.103110	9.103195	15		3. 51
	45	9.103279	9.103363	9.103447	0	46	4. 68
14	0	9.103532	9.103616	9.103700	45		1 = 17
	15	9.103785	9.103869	9.103953	30		2. 34
	30	9.104037	9.104121	9.104206	15		3. 51
	45	9.104290	9.104374	9.104458	0	45	4. 67
Minutes	Seconds	15″	10″	5	Seconds	Minutes	Propor. parts.
		Co-tangent of 82 degrees, or Tangent of 172 degrees.					

Minutes	Seconds	Tangent of 7 degrees, or Co-tangent of 97 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9.104542	9.104626	9.104710	45		1″ =
	15	9.104794	9.104878	9.104962	30		2.
	30	9.105046	9.105130	9.105214	15		3.
	45	9.105298	9.105382	9.105466	0	44	4.
16	0	9.105550	9.105634	9.105718	45		1 =
	15	9.105802	9.105885	9.105969	30		2.
	30	9.106053	9.106137	9.106221	15		3.
	45	9.106305	9.106388	9.106472	0	43	4.
17	0	9.106556	9.106639	9.106723	45		1 =
	15	9.106807	9.106890	9.106974	30		2.
	30	9.107058	9.107141	9.107225	15		3.
	45	9.107309	9.107392	9.107476	0	42	4.
18	0	9.107559	9.107643	9.107726	45		1 =
	15	9.107810	9.107893	9.107977	30		2.
	30	9.108060	9.108144	9.108227	15		3.
	45	9.108310	9.108394	9.108477	0	41	4.
19	0	9.108560	9.108644	9.108727	45		1 =
	15	9.108810	9.108894	9.108977	30		2.
	30	9.109060	9.109143	9.109227	15		3.
	45	9.109310	9.109393	9.109476	0	40	4.
20	0	9.109559	9.109643	9.109726	45		1 =
	15	9.109809	9.109892	9.109975	30		2.
	30	9.110058	9.110141	9.110224	15		3.
	45	9.110307	9.110390	9.110473	0	39	4.
21	0	9.110556	9.110639	9.110722	45		1 =
	15	9.110805	9.110888	9.110971	30		2.
	30	9.111054	9.111137	9.111220	15		3.
	45	9.111302	9.111385	9.111468	0	38	4.
22	0	9.111551	9.111634	9.111716	45		1 =
	15	9.111799	9.111882	9.111965	30		2.
	30	9.112047	9.112130	9.112213	15		3.
	45	9.112295	9.112378	9.112461	0	37	4.
23	0	9.112543	9.112626	9.112708	45		1 =
	15	9.112791	9.112873	9.112956	30		2.
	30	9.113039	9.113121	9.113204	15		3.
	45	9.113286	9.113368	9.113451	0	36	4.
24	0	9.113533	9.113616	9.113698	45		1 =
	15	9.113781	9.113863	9.113945	30		2.
	30	9.114028	9.114110	9.114192	15		3.
	45	9.114275	9.114357	9.114439	0	35	4.
25	0	9.114521	9.114604	9.114686	45		1 =
	15	9.114768	9.114850	9.114932	30		2.
	30	9.115015	9.115097	9.115179	15		3.
	45	9.115261	9.115343	9.115425	0	34	4.
26	0	9.115507	9.115589	9.115671	45		1 =
	15	9.115753	9.115835	9.115917	30		2.
	30	9.115999	9.116081	9.116163	15		3.
	45	9.116245	9.116327	9.116409	0	33	4.
27	0	9.116491	9.116573	9.116655	45		1 =
	15	9.116737	9.116818	9.116900	30		2.
	30	9.116982	9.117064	9.117146	15		3.
	45	9.117227	9.117309	9.117391	0	32	4.
28	0	9.117472	9.117554	9.117636	45		1 =
	15	9.117718	9.117799	9.117881	30		2.
	30	9.117962	9.118044	9.118126	15		3.
	45	9.118207	9.118289	9.118370	0	31	4.
29	0	9.118452	9.118533	9.118615	45		1 =
	15	9.118696	9.118778	9.118859	30		2.
	30	9.118941	9.119022	9.119104	15		3.
	45	9.119185	9.119266	9.119348	0	30	4.
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 82 degrees, or Tangent of 172 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 7 degrees, or Co-tangent of 97 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9. 119429	9. 119510	9. 119592	45		1″ = 16
	15	9. 119673	9. 119754	9. 119836	30		2. 33
	30	9. 119917	9. 119998	9. 120079	15		3. 49
	45	9. 120161	9. 120242	9. 120323	0	29	4. 65
31	0	9. 120404	9. 120485	9. 120567	45		1 = 16
	15	9. 120648	9. 120729	9. 120810	30		2. 32
	30	9. 120891	9. 120972	9. 121053	15		3. 49
	45	9. 121134	9. 121215	9. 121296	0	28	4. 65
32	0	9. 121377	9. 121458	9. 121539	45		1 = 16
	15	9. 121620	9. 121701	9. 121782	30		2. 32
	30	9. 121863	9. 121944	9. 122025	15		3. 49
	45	9. 122106	9. 122187	9. 122267	0	27	4. 65
33	0	9. 122348	9. 122429	9. 122510	45		1 = 16
	15	9. 122591	9. 122671	9. 122752	30		2. 32
	30	9. 122833	9. 122914	9. 122994	15		3. 48
	45	9. 123075	9. 123156	9. 123236	0	26	4. 65
34	0	9. 123317	9. 123398	9. 123478	45		1 = 16
	15	9. 123559	9. 123640	9. 123720	30		2. 32
	30	9. 123801	9. 123881	9. 123962	15		3. 48
	45	9. 124042	9. 124123	9. 124203	0	25	4. 64
35	0	9. 124284	9. 124364	9. 124445	45		1 = 16
	15	9. 124525	9. 124606	9. 124686	30		2. 32
	30	9. 124767	9. 124847	9. 124927	15		3. 48
	45	9. 125008	9. 125088	9. 125168	0	24	4. 64
36	0	9. 125249	9. 125329	9. 125409	45		1 = 16
	15	9. 125489	9. 125570	9. 125650	30		2. 32
	30	9. 125730	9. 125810	9. 125891	15		3. 48
	45	9. 125971	9. 126051	9. 126131	0	23	4. 64
37	0	9. 126211	9. 126291	9. 126371	45		1 = 16
	15	9. 126452	9. 126532	9. 126612	30		2. 32
	30	9. 126692	9. 126772	9. 126852	15		3. 48
	45	9. 126932	9. 127012	9. 127092	0	22	4. 64
38	0	9. 127172	9. 127252	9. 127332	45		1 = 16
	15	9. 127412	9. 127492	9. 127571	30		2. 32
	30	9. 127651	9. 127731	9. 127811	15		3. 48
	45	9. 127891	9. 127971	9. 128051	0	21	4. 64
39	0	9. 128130	9. 128210	9. 128290	45		1 = 16
	15	9. 128370	9. 128449	9. 128529	30		2. 32
	30	9. 128609	9. 128689	9. 128768	15		3. 48
	45	9. 128848	9. 128928	9. 129007	0	20	4. 64
40	0	9. 129087	9. 129166	9. 129246	45		1 = 16
	15	9. 129326	9. 129405	9. 129485	30		2. 32
	30	9. 129564	9. 129644	9. 129723	15		3. 48
	45	9. 129803	9. 129882	9. 129962	0	19	4. 64
41	0	9. 130041	9. 130121	9. 130200	45		1 = 16
	15	9. 130280	9. 130359	9. 130438	30		2. 32
	30	9. 130518	9. 130597	9. 130677	15		3. 48
	45	9. 130756	9. 130835	9. 130914	0	18	4. 63
42	0	9. 130994	9. 131073	9. 131152	45		1 = 16
	15	9. 131232	9. 131311	9. 131390	30		2. 32
	30	9. 131469	9. 131548	9. 131628	15		3. 48
	45	9. 131707	9. 131786	9. 131865	0	17	4. 63
43	0	9. 131944	9. 132023	9. 132102	45		1 = 16
	15	9. 132182	9. 132261	9. 132340	30		2. 32
	30	9. 132419	9. 132498	9. 132577	15		3. 47
	45	9. 132656	9. 132735	9. 132814	0	16	4. 63
44	0	9. 132893	9. 132972	9. 133051	45		1 = 16
	15	9. 133129	9. 133208	9. 133287	30		2. 32
	30	9. 133366	9. 133445	9. 133524	15		3. 47
	45	9. 133603	9. 133682	9. 133760	0	15	4. 63
Seconds		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 82 degrees, or Tangent of 172 degrees.					

Minutes	Seconds	Tangent of 7 degrees, or Co-tangent of 97 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9. 133839	9. 133918	9. 133997	45		1″ = 16
	15	9. 134075	9. 134154	9. 134233	30		2. 33
	30	9. 134312	9. 134390	9. 134469	15		3. 49
	45	9. 134548	9. 134626	9. 134705	0	14	4. 65
46	0	9. 134784	9. 134862	9. 134941	45		1 = 16
	15	9. 135019	9. 135098	9. 135177	30		2. 32
	30	9. 135255	9. 135334	9. 135412	15		3. 49
	45	9. 135491	9. 135569	9. 135648	0	13	4. 65
47	0	9. 135726	9. 135805	9. 135883	45		1 = 16
	15	9. 135961	9. 136040	9. 136118	30		2. 32
	30	9. 136197	9. 136275	9. 136353	15		3. 49
	45	9. 136432	9. 136510	9. 136588	0	12	4. 65
48	0	9. 136667	9. 136745	9. 136823	45		1 = 16
	15	9. 136901	9. 136980	9. 137058	30		2. 32
	30	9. 137136	9. 137214	9. 137293	15		3. 48
	45	9. 137371	9. 137449	9. 137527	0	11	4. 65
49	0	9. 137605	9. 137683	9. 137761	45		1 = 16
	15	9. 137840	9. 137918	9. 137996	30		2. 32
	30	9. 138074	9. 138152	9. 138230	15		3. 48
	45	9. 138308	9. 138386	9. 138464	0	10	4. 65
50	0	9. 138542	9. 138620	9. 138698	45		1 = 16
	15	9. 138776	9. 138854	9. 138931	30		2. 32
	30	9. 139009	9. 139087	9. 139165	15		3. 48
	45	9. 139243	9. 139321	9. 139399	0	9	4. 65
51	0	9. 139476	9. 139554	9. 139632	45		1 = 16
	15	9. 139710	9. 139788	9. 139865	30		2. 32
	30	9. 139943	9. 140021	9. 140099	15		3. 48
	45	9. 140176	9. 140254	9. 140332	0	8	4. 65
52	0	9. 140409	9. 140487	9. 140564	45		1 = 16
	15	9. 140642	9. 140720	9. 140797	30		2. 32
	30	9. 140875	9. 140952	9. 141030	15		3. 48
	45	9. 141108	9. 141185	9. 141263	0	7	4. 65
53	0	9. 141340	9. 141418	9. 141495	45		1 = 16
	15	9. 141572	9. 141650	9. 141727	30		2. 32
	30	9. 141805	9. 141882	9. 141960	15		3. 48
	45	9. 142037	9. 142114	9. 142192	0	6	4. 65
54	0	9. 142269	9. 142346	9. 142424	45		1 = 16
	15	9. 142501	9. 142578	9. 142655	30		2. 32
	30	9. 142733	9. 142810	9. 142887	15		3. 48
	45	9. 142964	9. 143042	9. 143119	0	5	4. 65
55	0	9. 143196	9. 143273	9. 143350	45		1 = 16
	15	9. 143427	9. 143505	9. 143582	30		2. 32
	30	9. 143659	9. 143736	9. 143813	15		3. 48
	45	9. 143890	9. 143967	9. 144044	0	4	4. 65
56	0	9. 144121	9. 144198	9. 144275	45		1 = 16
	15	9. 144352	9. 144429	9. 144506	30		2. 32
	30	9. 144583	9. 144660	9. 144737	15		3. 48
	45	9. 144814	9. 144890	9. 144967	0	3	4. 65
57	0	9. 145044	9. 145121	9. 145198	45		1 = 16
	15	9. 145275	9. 145352	9. 145428	30		2. 32
	30	9. 145505	9. 145582	9. 145659	15		3. 48
	45	9. 145735	9. 145812	9. 145889	0	2	4. 65
58	0	9. 145966	9. 146042	9. 146119	45		1 = 16
	15	9. 146196	9. 146272	9. 146349	30		2. 32
	30	9. 146426	9. 146502	9. 146579	15		3. 48
	45	9. 146655	9. 146732	9. 146808	0	1	4. 65
59	0	9. 146885	9. 146962	9. 147038	45		1 = 16
	15	9. 147115	9. 147191	9. 147268	30		2. 32
	30	9. 147344	9. 147420	9. 147497	15		3. 48
	45	9. 147573	9. 147650	9. 147726	0	0	4. 65
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 82 degrees, or Tangent of 172 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 8 degrees, or Co-tangent of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	9. 147803	9. 147879	9. 147955	45		1″ = 15
	15	9. 148032	9. 148108	9. 148184	30		2. 31
	30	9. 148261	9. 148337	9. 148413	15		3. 46
	45	9. 148490	9. 148566	9. 148642	0	59	4 61
1	0	9. 148718	9. 148795	9. 148871	45		1 = 15
	15	9. 148947	9. 149023	9. 149099	30		2. 30
	30	9. 149175	9. 149252	9. 149328	15		3. 46
	45	9. 149404	9. 149480	9. 149556	0	58	4. 61
2	0	9. 149632	9. 149708	9. 149784	45		1 = 15
	15	9. 149860	9. 149936	9. 150012	30		2. 30
	30	9. 150088	9. 150164	9. 150240	15		3. 46
	45	9. 150316	9. 150392	9. 150468	0	57	4. 61
3	0	9. 150544	9. 150620	9. 150696	45		1 = 15
	15	9. 150772	9. 150848	9. 150924	30		2. 30
	30	9. 151000	9. 151075	9. 151151	15		3. 45
	45	9. 151227	9. 151303	9. 151379	0	56	4. 61
4	0	9. 151454	9. 151530	9. 151606	45		1 = 15
	15	9. 151682	9. 151757	9. 151833	30		2. 30
	30	9. 151909	9. 151984	9. 152060	15		3. 45
	45	9. 152136	9. 152211	9. 152287	0	55	4. 61
5	0	9. 152363	9. 152438	9. 152514	45		1 = 15
	15	9. 152590	9. 152665	9. 152741	30		2. 30
	30	9. 152816	9. 152892	9. 152967	15		3. 45
	45	9. 153043	9. 153118	9. 153194	0	54	4. 60
6	0	9. 153269	9. 153345	9. 153420	45		1 = 15
	15	9. 153496	9. 153571	9. 153646	30		2. 30
	30	9. 153722	9. 153797	9. 153873	15		3. 45
	45	9. 153948	9. 154023	9. 154099	0	53	4. 60
7	0	9. 154174	9. 154249	9. 154325	45		1 = 15
	15	9. 154400	9. 154475	9. 154550	30		2. 30
	30	9. 154626	9. 154701	9. 154776	15		3. 45
	45	9. 154851	9. 154927	9. 155002	0	52	4. 60
8	0	9. 155077	9. 155152	9. 155227	45		1 = 15
	15	9. 155302	9. 155377	9. 155453	30		2. 30
	30	9. 155528	9. 155603	9. 155678	15		3. 45
	45	9. 155753	9. 155828	9. 155903	0	51	4. 60
9	0	9. 155978	9. 156053	9. 156128	45		1 = 15
	15	9. 156203	9. 156278	9. 156353	30		2. 30
	30	9. 156428	9. 156503	9. 156578	15		3. 45
	45	9. 156653	9. 156728	9. 156802	0	50	4. 60
10	0	9. 156877	9. 156952	9. 157027	45		1 = 15
	15	9. 157102	9. 157177	9. 157252	30		2. 30
	30	9. 157326	9. 157401	9. 157476	15		3. 45
	45	9. 157551	9. 157625	9. 157700	0	49	4. 60
11	0	9. 157775	9. 157850	9. 157924	45		1 = 15
	15	9. 157999	9. 158074	9. 158148	30		2. 30
	30	9. 158223	9. 158298	9. 158372	15		3. 45
	45	9. 158447	9. 158521	9. 158596	0	48	4. 60
12	0	9. 158671	9. 158745	9. 158820	45		1 = 15
	15	9. 158894	9. 158969	9. 159043	30		2. 30
	30	9. 159118	9. 159192	9. 159267	15		3. 45
	45	9. 159341	9. 159416	9. 159490	0	47	4. 60
13	0	9. 159565	9. 159639	9. 159713	45		1 = 15
	15	9. 159788	9. 159862	9. 159937	30		2. 30
	30	9. 160011	9. 160085	9. 160160	15		3. 45
	45	9. 160234	9. 160308	9. 160383	0	46	4. 59
14	0	9. 160457	9. 160531	9. 160605	45		1 = 15
	15	9. 160680	9. 160754	9. 160828	30		2. 30
	30	9. 160902	9. 160977	9. 161051	15		3. 45
	45	9. 161125	9. 161199	9. 161273	0	45	4. 59
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 81 degrees, or Tangent of 171 degrees.					

Minutes	Seconds	Tangent of 8 degrees, or Co-tangent of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9. 161347	9. 161422	9. 161496	45		1″ = 15
	15	9. 161570	9. 161644	9. 161718	30		2. 30
	30	9. 161792	9. 161866	9. 161940	15		3. 44
	45	9. 162014	9. 162088	9. 162162	0	44	4. 59
16	0	9. 162236	9. 162310	9. 162384	45		1 = 15
	15	9. 162458	9. 162532	9. 162606	30		2. 30
	30	9. 162680	9. 162754	9. 162828	15		3. 44
	45	9. 162902	9. 162975	9. 163049	0	43	4. 59
17	0	9. 163123	9. 163197	9. 163271	45		1 = 15
	15	9. 163345	9. 163418	9. 163492	30		2. 30
	30	9. 163566	9. 163640	9. 163713	15		3. 44
	45	9. 163787	9. 163861	9. 163935	0	42	4. 59
18	0	9. 164008	9. 164082	9. 164156	45		1 = 15
	15	9. 164229	9. 164303	9. 164377	30		2. 29
	30	9. 164450	9. 164524	9. 164598	15		3. 44
	45	9. 164671	9. 164745	9. 164818	0	41	4. 59
19	0	9. 164892	9. 164965	9. 165039	45		1 = 15
	15	9. 165113	9. 165186	9. 165260	30		2. 29
	30	9. 165333	9. 165407	9. 165480	15		3. 44
	45	9. 165553	9. 165627	9. 165700	0	40	4. 59
20	0	9. 165774	9. 165847	9. 165921	45		1 = 15
	15	9. 165994	9. 166067	9. 166141	30		2. 29
	30	9. 166214	9. 166287	9. 166361	15		3. 44
	45	9. 166434	9. 166507	9. 166581	0	39	4. 59
21	0	9. 166654	9. 166727	9. 166800	45		1 = 15
	15	9. 166874	9. 166947	9. 167020	30		2. 29
	30	9. 167093	9. 167166	9. 167240	15		3. 44
	45	9. 167313	9. 167386	9. 167459	0	38	4. 59
22	0	9. 167532	9. 167605	9. 167678	45		1 = 15
	15	9. 167752	9. 167825	9. 167898	30		2. 29
	30	9. 167971	9. 168044	9. 168117	15		3. 44
	45	9. 168190	9. 168263	9. 168336	0	37	4. 59
23	0	9. 168409	9. 168482	9. 168555	45		1 = 15
	15	9. 168628	9. 168701	9. 168774	30		2. 29
	30	9. 168847	9. 168920	9. 168992	15		3. 44
	45	9. 169065	9. 169138	9. 169211	0	36	4. 59
24	0	9. 169284	9. 169357	9. 169430	45		1 = 15
	15	9. 169502	9. 169575	9. 169648	30		2. 29
	30	9. 169721	9. 169794	9. 169866	15		3. 44
	45	9. 169939	9. 170012	9. 170085	0	35	4. 59
25	0	9. 170157	9. 170230	9. 170303	45		1 = 15
	15	9. 170375	9. 170448	9. 170521	30		2. 29
	30	9. 170593	9. 170666	9. 170739	15		3. 44
	45	9. 170811	9. 170884	9. 170956	0	34	4. 59
26	0	9. 171029	9. 171101	9. 171174	45		1 = 14
	15	9. 171247	9. 171319	9. 171392	30		2. 29
	30	9. 171464	9. 171537	9. 171609	15		3. 43
	45	9. 171682	9. 171754	9. 171826	0	33	4. 58
27	0	9. 171899	9. 171971	9. 172044	45		1 = 14
	15	9. 172116	9. 172189	9. 172261	30		2. 29
	30	9. 172333	9. 172406	9. 172478	15		3. 43
	45	9. 172550	9. 172623	9. 172695	0	32	4. 58
28	0	9. 172767	9. 172840	9. 172912	45		1 = 14
	15	9. 172984	9. 173056	9. 173129	30		2. 29
	30	9. 173201	9. 173273	9. 173345	15		3. 43
	45	9. 173417	9. 173490	9. 173562	0	31	4. 58
29	0	9. 173634	9. 173706	9. 173778	45		1 = 14
	15	9. 173850	9. 173922	9. 173994	30		2. 29
	30	9. 174067	9. 174139	9. 174211	15		3. 43
	45	9. 174283	9. 174355	9. 174427	0	30	4. 58
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 81 degrees, or Tangent of 171 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 8 degrees, or Co-tangent of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9.174499	9.174571	9.174643	45		1″ = 14
	15	9.174715	9.174787	9.174859	30		2. 29
	30	9.174931	9.175003	9.175075	15		3. 43
	45	9.175147	9.175218	9.175290	0	29	4. 58
31	0	9.175362	9.175434	9.175506	45		1 = 14
	15	9.175578	9.175650	9.175721	30		2. 29
	30	9.175793	9.175865	9.175937	15		3. 43
	45	9.176009	9.176080	9.176152	0	28	4. 57
32	0	9.176224	9.176296	9.176367	45		1 = 14
	15	9.176439	9.176511	9.176583	30		2. 29
	30	9.176654	9.176726	9.176798	15		3. 43
	45	9.176869	9.176941	9.177012	0	27	4. 57
33	0	9.177084	9.177156	9.177227	45		1 = 14
	15	9.177299	9.177370	9.177442	30		2. 29
	30	9.177513	9.177585	9.177657	15		3. 43
	45	9.177728	9.177800	9.177871	0	26	4. 57
34	0	9.177943	9.178014	9.178085	45		1 = 14
	15	9.178157	9.178228	9.178300	30		2. 29
	30	9.178371	9.178443	9.178514	15		3. 43
	45	9.178585	9.178657	9.178728	0	25	4. 57
35	0	9.178799	9.178871	9.178942	45		1 = 14
	15	9.179013	9.179085	9.179156	30		2. 29
	30	9.179227	9.179298	9.179370	15		3. 43
	45	9.179441	9.179512	9.179583	0	24	4. 57
36	0	9.179655	9.179726	9.179797	45		1 = 14
	15	9.179868	9.179939	9.180010	30		2. 28
	30	9.180082	9.180153	9.180224	15		3. 43
	45	9.180295	9.180366	9.180437	0	23	4. 57
37	0	9.180508	9.180579	9.180650	45		1 = 14
	15	9.180721	9.180792	9.180863	30		2. 28
	30	9.180934	9.181005	9.181076	15		3. 43
	45	9.181147	9.181218	9.181289	0	22	4. 57
38	0	9.181360	9.181431	9.181502	45		1 = 14
	15	9.181573	9.181644	9.181715	30		2. 28
	30	9.181786	9.181857	9.181927	15		3. 43
	45	9.181998	9.182069	9.182140	0	21	4. 57
39	0	9.182211	9.182281	9.182352	45		1 = 14
	15	9.182423	9.182494	9.182565	30		2. 28
	30	9.182635	9.182706	9.182777	15		3. 42
	45	9.182847	9.182918	9.182989	0	20	4. 57
40	0	9.183060	9.183130	9.183201	45		1 = 14
	15	9.183272	9.183342	9.183413	30		2. 28
	30	9.183483	9.183554	9.183625	15		3. 42
	45	9.183695	9.183766	9.183836	0	19	4. 56
41	0	9.183907	9.183977	9.184048	45		1 = 14
	15	9.184118	9.184189	9.184259	30		2. 28
	30	9.184330	9.184400	9.184471	15		3. 42
	45	9.184541	9.184612	9.184682	0	18	4. 56
42	0	9.184753	9.184823	9.184893	45		1 = 14
	15	9.184964	9.185034	9.185104	30		2. 28
	30	9.185175	9.185245	9.185315	15		3. 42
	45	9.185386	9.185456	9.185526	0	17	4. 56
43	0	9.185597	9.185667	9.185737	45		1 = 14
	15	9.185807	9.185878	9.185948	30		2. 28
	30	9.186018	9.186088	9.186159	15		3. 42
	45	9.186229	9.186299	9.186369	0	16	4. 56
44	0	9.186439	9.186509	9.186579	45		1 = 14
	15	9.186650	9.186720	9.186790	30		2. 28
	30	9.186860	9.186930	9.187000	15		3. 42
	45	9.187070	9.187140	9.187210	0	15	4. 56
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 81 degrees, or Tangent of 171 degrees.					

Minutes	Seconds	Tangent of 8 degrees, or Co-tangent of 98 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9.187280	9.187350	9.187420	45		1″ = 14
	15	9.187490	9.187560	9.187630	30		2. 28
	30	9.187700	9.187770	9.187840	15		3. 42
	45	9.187910	9.187980	9.188050	0	14	4. 56
46	0	9.188120	9.188190	9.188259	45		1 = 14
	15	9.188329	9.188399	9.188469	30		2. 28
	30	9.188539	9.188609	9.188678	15		3. 42
	45	9.188748	9.188818	9.188888	0	13	4. 56
47	0	9.188958	9.189027	9.189097	45		1 = 14
	15	9.189167	9.189237	9.189306	30		2. 28
	30	9.189376	9.189446	9.189515	15		3. 42
	45	9.189585	9.189655	9.189724	0	12	4. 56
48	0	9.189794	9.189864	9.189933	45		1 = 14
	15	9.190003	9.190072	9.190142	30		2. 28
	30	9.190212	9.190281	9.190351	15		3. 42
	45	9.190420	9.190490	9.190559	0	11	4. 56
49	0	9.190629	9.190698	9.190768	45		1 = 14
	15	9.190837	9.190907	9.190976	30		2. 28
	30	9.191046	9.191115	9.191185	15		3. 42
	45	9.191254	9.191323	9.191393	0	10	4. 56
50	0	9.191462	9.191531	9.191601	45		1 = 14
	15	9.191670	9.191740	9.191809	30		2. 28
	30	9.191878	9.191948	9.192017	15		3. 42
	45	9.192086	9.192155	9.192225	0	9	4. 55
51	0	9.192294	9.192363	9.192432	45		1 = 14
	15	9.192502	9.192571	9.192640	30		2. 28
	30	9.192709	9.192778	9.192848	15		3. 41
	45	9.192917	9.192986	9.193055	0	8	4. 55
52	0	9.193124	9.193193	9.193262	45		1 = 14
	15	9.193332	9.193401	9.193470	30		2. 28
	30	9.193539	9.193608	9.193677	15		3. 41
	45	9.193746	9.193815	9.193884	0	7	4. 55
53	0	9.193953	9.194022	9.194091	45		1 = 14
	15	9.194160	9.194229	9.194298	30		2. 28
	30	9.194367	9.194436	9.194505	15		3. 41
	45	9.194574	9.194642	9.194711	0	6	4. 55
54	0	9.194780	9.194849	9.194918	45		1 = 14
	15	9.194987	9.195056	9.195124	30		2. 28
	30	9.195193	9.195262	9.195331	15		3. 41
	45	9.195400	9.195468	9.195537	0	5	4. 55
55	0	9.195606	9.195675	9.195743	45		1 = 14
	15	9.195812	9.195881	9.195950	30		2. 27
	30	9.196018	9.196087	9.196156	15		3. 41
	45	9.196224	9.196293	9.196362	0	4	4. 55
56	0	9.196430	9.196499	9.196567	45		1 = 14
	15	9.196636	9.196705	9.196773	30		2. 27
	30	9.196842	9.196910	9.196979	15		3. 41
	45	9.197047	9.197116	9.197185	0	3	4. 55
57	0	9.197253	9.197322	9.197390	45		1 = 14
	15	9.197459	9.197527	9.197595	30		2. 27
	30	9.197664	9.197732	9.197801	15		3. 41
	45	9.197869	9.197938	9.198006	0	2	4. 55
58	0	9.198074	9.198143	9.198211	45		1 = 14
	15	9.198279	9.198348	9.198416	30		2. 27
	30	9.198484	9.198553	9.198621	15		3. 41
	45	9.198689	9.198758	9.198826	0	1	4. 55
59	0	9.198894	9.198962	9.199031	45		1 = 14
	15	9.199099	9.199167	9.199235	30		2. 27
	30	9.199304	9.199372	9.199440	15		3. 41
	45	9.199508	9.199576	9.199644	0	0	4. 55
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 81 degrees, or Tangent of 171 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 9 degrees, or Co-tangent of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	9. 199713	9. 199781	9. 199849	45		1″ = 14
	15	9. 199917	9. 199985	9. 200053	30		2. 27
	30	9. 200121	9. 200189	9. 200257	15		3. 41
	45	9. 200325	9. 200393	9. 200461	0	59	4. 54
1	0	9. 200529	9. 200597	9. 200665	45		1 = 14
	15	9. 200733	9. 200801	9. 200869	30		2. 27
	30	9. 200937	9. 201005	9. 201073	15		3. 41
	45	9. 201141	9. 201209	9. 201277	0	58	4. 54
2	0	9. 201345	9. 201413	9. 201481	45		1 = 14
	15	9. 201549	9. 201616	9. 201684	30		2. 27
	30	9. 201752	9. 201820	9. 201888	15		3. 41
	45	9. 201956	9. 202023	9. 202091	0	57	4. 54
3	0	9. 202159	9. 202227	9. 202294	45		1 = 14
	15	9. 202362	9. 202430	9. 202498	30		2. 27
	30	9. 202565	9. 202633	9. 202701	15		3. 41
	45	9. 202768	9. 202836	9. 202904	0	56	4. 54
4	0	9. 202971	9. 203039	9. 203107	45		1 = 14
	15	9. 203174	9. 203242	9. 203310	30		2. 27
	30	9. 203377	9. 203445	9. 203512	15		3. 41
	45	9. 203580	9. 203647	9. 203715	0	55	4. 54
5	0	9. 203783	9. 203850	9. 203918	45		1 = 13
	15	9. 203985	9. 204053	9. 204120	30		2. 27
	30	9. 204188	9. 204255	9. 204322	15		3. 40
	45	9. 204390	9. 204457	9. 204525	0	54	4. 54
6	0	9. 204592	9. 204660	9. 204727	45		1 = 13
	15	9. 204794	9. 204862	9. 204929	30		2. 27
	30	9. 204996	9. 205064	9. 205131	15		3. 40
	45	9. 205199	9. 205266	9. 205333	0	53	4. 54
7	0	9. 205400	9. 205468	9. 205535	45		1 = 13
	15	9. 205602	9. 205670	9. 205737	30		2. 27
	30	9. 205804	9. 205871	9. 205938	15		3. 40
	45	9. 206006	9. 206073	9. 206140	0	52	4. 54
8	0	9. 206207	9. 206274	9. 206342	45		1 = 13
	15	9. 206409	9. 206476	9. 206543	30		2. 27
	30	9. 206610	9. 206677	9. 206744	15		3. 40
	45	9. 206811	9. 206878	9. 206946	0	51	4. 54
9	0	9. 207013	9. 207080	9. 207147	45		1 = 13
	15	9. 207214	9. 207281	9. 207348	30		2. 27
	30	9. 207415	9. 207482	9. 207549	15		3. 40
	45	9. 207616	9. 207683	9. 207750	0	50	4. 54
10	0	9. 207817	9. 207884	9. 207950	45		1 = 13
	15	9. 208017	9. 208084	9. 208151	30		2. 27
	30	9. 208218	9. 208285	9. 208352	15		3. 40
	45	9. 208419	9. 208485	9. 208552	0	49	4. 53
11	0	9. 208619	9. 208686	9. 208753	45		1 = 13
	15	9. 208820	9. 208886	9. 208953	30		2. 27
	30	9. 209020	9. 209087	9. 209153	15		3. 40
	45	9. 209220	9. 209287	9. 209354	0	48	4. 53
12	0	9. 209420	9. 209487	9. 209554	45		1 = 13
	15	9. 209620	9. 209687	9. 209754	30		2. 27
	30	9. 209820	9. 209887	9. 209954	15		3. 40
	45	9. 210020	9. 210087	9. 210153	0	47	4. 53
13	0	9. 210220	9. 210287	9. 210353	45		1 = 13
	15	9. 210420	9. 210486	9. 210553	30		2. 27
	30	9. 210619	9. 210686	9. 210752	15		3. 40
	45	9. 210819	9. 210885	9. 210952	0	46	4. 53
14	0	9. 211018	9. 211085	9. 211151	45		1 = 13
	15	9. 211218	9. 211284	9. 211351	30		2. 27
	30	9. 211417	9. 211483	9. 211550	15		3. 40
	45	9. 211616	9. 211683	9. 211749	0	45	4. 53
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 80 degrees, or Tangent of 170 degrees.					

Minutes	Seconds	Tangent of 9 degrees, or Co-tangent of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	9. 211815	9. 211882	9. 211948	45		1″ = 13
	15	9. 212014	9. 212081	9. 212147	30		2. 27
	30	9. 212213	9. 212280	9. 212346	15		3. 40
	45	9. 212412	9. 212478	9. 212545	0	44	4. 53
16	0	9. 212611	9. 212677	9. 212743	45		1 = 13
	15	9. 212810	9. 212876	9. 212942	30		2. 26
	30	9. 213008	9. 213074	9. 213141	15		3. 40
	45	9. 213207	9. 213273	9. 213339	0	43	4. 53
17	0	9. 213405	9. 213471	9. 213537	45		1 = 13
	15	9. 213604	9. 213670	9. 213736	30		2. 26
	30	9. 213802	9. 213868	9. 213934	15		3. 40
	45	9. 214000	9. 214066	9. 214132	0	42	4. 53
18	0	9. 214198	9. 214264	9. 214330	45		1 = 13
	15	9. 214396	9. 214462	9. 214528	30		2. 26
	30	9. 214594	9. 214660	9. 214726	15		3. 40
	45	9. 214792	9. 214858	9. 214924	0	41	4. 53
19	0	9. 214989	9. 215055	9. 215121	45		1 = 13
	15	9. 215187	9. 215253	9. 215319	30		2. 26
	30	9. 215385	9. 215451	9. 215516	15		3. 40
	45	9. 215582	9. 215648	9. 215714	0	40	4. 53
20	0	9. 215780	9. 215845	9. 215911	45		1 = 13
	15	9. 215977	9. 216043	9. 216108	30		2. 26
	30	9. 216174	9. 216240	9. 216306	15		3. 39
	45	9. 216371	9. 216437	9. 216503	0	39	4. 53
21	0	9. 216568	9. 216634	9. 216700	45		1 = 13
	15	9. 216765	9. 216831	9. 216897	30		2. 26
	30	9. 216962	9. 217028	9. 217093	15		3. 39
	45	9. 217159	9. 217225	9. 217290	0	38	4. 52
22	0	9. 217356	9. 217421	9. 217487	45		1 = 13
	15	9. 217552	9. 217618	9. 217683	30		2. 26
	30	9. 217749	9. 217814	9. 217880	15		3. 39
	45	9. 217945	9. 218011	9. 218076	0	37	4. 52
23	0	9. 218142	9. 218207	9. 218273	45		1 = 13
	15	9. 218338	9. 218403	9. 218469	30		2. 26
	30	9. 218534	9. 218600	9. 218665	15		3. 39
	45	9. 218730	9. 218796	9. 218861	0	36	4. 52
24	0	9. 218926	9. 218992	9. 219057	45		1 = 13
	15	9. 219122	9. 219188	9. 219253	30		2. 26
	30	9. 219318	9. 219384	9. 219449	15		3. 39
	45	9. 219514	9. 219579	9. 219645	0	35	4. 52
25	0	9. 219710	9. 219775	9. 219840	45		1 = 13
	15	9. 219905	9. 219971	9. 220036	30		2. 26
	30	9. 220101	9. 220166	9. 220231	15		3. 39
	45	9. 220296	9. 220362	9. 220427	0	34	4. 52
26	0	9. 220492	9. 220557	9. 220622	45		1 = 13
	15	9. 220687	9. 220752	9. 220817	30		2. 26
	30	9. 220882	9. 220947	9. 221012	15		3. 39
	45	9. 221077	9. 221142	9. 221207	0	33	4. 52
27	0	9. 221272	9. 221337	9. 221402	45		1 = 13
	15	9. 221467	9. 221532	9. 221597	30		2. 26
	30	9. 221662	9. 221727	9. 221792	15		3. 39
	45	9. 221857	9. 221922	9. 221987	0	32	4. 52
28	0	9. 222052	9. 222117	9. 222182	45		1 = 13
	15	9. 222246	9. 222311	9. 222376	30		2. 26
	30	9. 222441	9. 222506	9. 222571	15		3. 39
	45	9. 222635	9. 222700	9. 222765	0	31	4. 52
29	0	9. 222830	9. 222895	9. 222959	45		1 = 13
	15	9. 223024	9. 223089	9. 223154	30		2. 26
	30	9. 223218	9. 223283	9. 223348	15		3. 39
	45	9. 223413	9. 223477	9. 223542	0	30	4. 52
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 80 degrees, or Tangent of 170 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 9 degrees, or Co-tangent of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	9. 223607	9. 223671	9. 223736	45		1″ = 13
	15	9. 223801	9. 223865	9. 223930	30		2. 26
	30	9. 223994	9. 224059	9. 224124	15		3. 39
	45	9. 224188	9. 224253	9. 224317	0	29	4. 52
31	0	9. 224382	9. 224447	9. 224511	45		1 = 13
	15	9. 224576	9. 224640	9. 224705	30		2. 26
	30	9. 224769	9. 224834	9. 224898	15		3. 39
	45	9. 224963	9. 225027	9. 225092	0	28	4. 52
32	0	9. 225156	9. 225221	9. 225285	45		1 = 13
	15	9. 225349	9. 225414	9. 225478	30		2. 26
	30	9. 225543	9. 225607	9. 225671	15		3. 39
	45	9. 225736	9. 225800	9. 225865	0	27	4. 52
33	0	9. 225929	9. 225993	9. 226058	45		1 = 13
	15	9. 226122	9. 226186	9. 226251	30		2. 26
	30	9. 226315	9. 226379	9. 226443	15		3. 39
	45	9. 226508	9. 226572	9. 226636	0	26	4. 51
34	0	9. 226700	9. 226765	9. 226829	45		1 = 13
	15	9. 226893	9. 226957	9. 227021	30		2. 26
	30	9. 227086	9. 227150	9. 227214	15		3. 39
	45	9. 227278	9. 227342	9. 227406	0	25	4. 51
35	0	9. 227471	9. 227535	9. 227599	45		1 = 13
	15	9. 227663	9. 227727	9. 227791	30		2. 26
	30	9. 227855	9. 227919	9. 227983	15		3. 38
	45	9. 228047	9. 228111	9. 228176	0	24	4. 51
36	0	9. 228240	9. 228304	9. 228368	45		1 = 13
	15	9. 228432	9. 228496	9. 228560	30		2. 26
	30	9. 228624	9. 228687	9. 228751	15		3. 38
	45	9. 228815	9. 228879	9. 228943	0	23	4. 51
37	0	9. 229007	9. 229071	9. 229135	45		1 = 13
	15	9. 229199	9. 229263	9. 229327	30		2. 26
	30	9. 229391	9. 229454	9. 229518	15		3. 38
	45	9. 229582	9. 229646	9. 229710	0	22	4. 51
38	0	9. 229774	9. 229837	9. 229901	45		1 = 13
	15	9. 229965	9. 230029	9. 230092	30		2. 26
	30	9. 230156	9. 230220	9. 230284	15		3. 38
	45	9. 230347	9. 230411	9. 230475	0	21	4. 51
39	0	9. 230539	9. 230602	9. 230666	45		1 = 13
	15	9. 230730	9. 230793	9. 230857	30		2. 25
	30	9. 230921	9. 230984	9. 231048	15		3. 38
	45	9. 231112	9. 231175	9. 231239	0	20	4. 51
40	0	9. 231302	9. 231366	9. 231430	45		1 = 13
	15	9. 231493	9. 231557	9. 231620	30		2. 25
	30	9. 231684	9. 231747	9. 231811	15		3. 38
	45	9. 231874	9. 231938	9. 232002	0	19	4. 51
41	0	9. 232065	9. 232128	9. 232192	45		1 = 13
	15	9. 232255	9. 232319	9. 232382	30		2. 25
	30	9. 232446	9. 232509	9. 232573	15		3. 38
	45	9. 232636	9. 232700	9. 232763	0	18	4. 51
42	0	9. 232826	9. 232890	9. 232953	45		1 = 13
	15	9. 233016	9. 233080	9. 233143	30		2. 25
	30	9. 233206	9. 233270	9. 233333	15		3. 38
	45	9. 233396	9. 233460	9. 233523	0	17	4. 51
43	0	9. 233586	9. 233650	9. 233713	45		1 = 13
	15	9. 233776	9. 233839	9. 233903	30		2. 25
	30	9. 233966	9. 234029	9. 234092	15		3. 38
	45	9. 234156	9. 234219	9. 234282	0	16	4. 51
44	0	9. 234345	9. 234408	9. 234471	45		1 = 13
	15	9. 234535	9. 234598	9. 234661	30		2. 25
	30	9. 234724	9. 234787	9. 234850	15		3. 38
	45	9. 234913	9. 234976	9. 235040	0	15	4. 50
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 80 degrees, or Tangent of 170 degrees.					

Minutes	Seconds	Tangent of 9 degrees, or Co-tangent of 99 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	9. 235103	9. 235166	9. 235229	45		1″ = 13
	15	9. 235292	9. 235355	9. 235418	30		2. 25
	30	9. 235481	9. 235544	9. 235607	15		3. 38
	45	9. 235670	9. 235733	9. 235796	0	14	4. 50
46	0	9. 235859	9. 235922	9. 235985	45		1 = 13
	15	9. 236048	9. 236111	9. 236174	30		2. 25
	30	9. 236237	9. 236300	9. 236362	15		3. 38
	45	9. 236425	9. 236488	9. 236551	0	13	4. 50
47	0	9. 236614	9. 236677	9. 236740	45		1 = 13
	15	9. 236803	9. 236865	9. 236928	30		2. 25
	30	9. 236991	9. 237054	9. 237117	15		3. 38
	45	9. 237179	9. 237242	9. 237305	0	12	4. 50
48	0	9. 237368	9. 237431	9. 237493	45		1 = 13
	15	9. 237556	9. 237619	9. 237682	30		2. 25
	30	9. 237744	9. 237807	9. 237870	15		3. 38
	45	9. 237932	9. 237995	9. 238058	0	11	4. 50
49	0	9. 238120	9. 238183	9. 238246	45		1 = 13
	15	9. 238308	9. 238371	9. 238434	30		2. 25
	30	9. 238496	9. 238559	9. 238621	15		3. 38
	45	9. 238684	9. 238747	9. 238809	0	10	4. 50
50	0	9. 238872	9. 238934	9. 238997	45		1 = 13
	15	9. 239059	9. 239122	9. 239184	30		2. 25
	30	9. 239247	9. 239309	9. 239372	15		3. 38
	45	9. 239434	9. 239497	9. 239559	0	9	4. 50
51	0	9. 239622	9. 239684	9. 239747	45		1 = 12
	15	9. 239809	9. 239872	9. 239934	30		2. 25
	30	9. 239996	9. 240059	9. 240121	15		3. 37
	45	9. 240184	9. 240246	9. 240308	0	8	4. 50
52	0	9. 240371	9. 240433	9. 240496	45		1 = 12
	15	9. 240558	9. 240620	9. 240682	30		2. 25
	30	9. 240745	9. 240807	9. 240869	15		3. 37
	45	9. 240932	9. 240994	9. 241056	0	7	4. 50
53	0	9. 241119	9. 241181	9. 241243	45		1 = 12
	15	9. 241305	9. 241367	9. 241430	30		2. 25
	30	9. 241492	9. 241554	9. 241616	15		3. 37
	45	9. 241678	9. 241741	9. 241803	0	6	4. 50
54	0	9. 241865	9. 241927	9. 241989	45		1 = 12
	15	9. 242051	9. 242114	9. 242176	30		2. 25
	30	9. 242238	9. 242300	9. 242362	15		3. 37
	45	9. 242424	9. 242486	9. 242548	0	5	4. 50
55	0	9. 242610	9. 242672	9. 242734	45		1 = 12
	15	9. 242796	9. 242858	9. 242920	30		2. 25
	30	9. 242982	9. 243044	9. 243106	15		3. 37
	45	9. 243168	9. 243230	9. 243292	0	4	4. 50
56	0	9. 243354	9. 243416	9. 243478	45		1 = 12
	15	9. 243540	9. 243602	9. 243664	30		2. 25
	30	9. 243726	9. 243788	9. 243850	15		3. 37
	45	9. 243912	9. 243974	9. 244035	0	3	4. 50
57	0	9. 244097	9. 244159	9. 244221	45		1 = 12
	15	9. 244283	9. 244345	9. 244406	30		2. 25
	30	9. 244468	9. 244530	9. 244592	15		3. 37
	45	9. 244654	9. 244715	9. 244777	0	2	4. 49
58	0	9. 244839	9. 244901	9. 244962	45		1 = 12
	15	9. 245024	9. 245086	9. 245148	30		2. 25
	30	9. 245209	9. 245271	9. 245333	15		3. 37
	45	9. 245394	9. 245456	9. 245518	0	1	4. 49
59	0	9. 245579	9. 245641	9. 245703	45		1 = 12
	15	9. 245764	9. 245826	9. 245888	30		2. 25
	30	9. 245949	9. 246011	9. 246073	15		3. 37
	45	9. 246134	9. 246196	9. 246257	0	0	4. 49
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 80 degrees, or Tangent of 170 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 10 degrees, or Co-tangent of 100 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 246319	246380	246442	246503	246565	246627	246688	246750	246811	246873	246934	246995	59	1″ = 1
1	9. 247057	247118	247180	247241	247303	247364	247426	247487	247548	247610	247671	247733	58	2. 2
2	9. 247794	247855	247917	247978	248039	248101	248162	248223	248285	248346	248407	248468	57	3. 3
3	9. 248530	248591	248652	248713	248775	248836	248897	248958	249020	249081	249142	249203	56	4. 4
4	9. 249264	249326	249387	249448	249509	249570	249631	249692	249753	249815	249876	249937	55	1 = 1
5	9. 249998	250059	250120	250181	250242	250303	250364	250425	250486	250547	250608	250669	54	2. 2
6	9. 250730	250791	250852	250913	250974	251035	251096	251157	251218	251279	251339	251400	53	3. 3
7	9. 251461	251522	251583	251644	251705	251766	251826	251887	251948	252009	252070	252130	52	4. 4
8	9. 252191	252252	252313	252374	252434	252495	252556	252617	252677	252738	252799	252859	51	1 = 1
9	9. 252920	252981	253041	253102	253163	253223	253284	253345	253405	253466	253527	253587	50	2. 2
10	9. 253648	253708	253769	253830	253890	253951	254011	254072	254132	254193	254253	254314	49	3. 3
11	9. 254374	254435	254495	254556	254616	254677	254737	254798	254858	254919	254979	255039	48	4. 4
12	9. 255100	255160	255221	255281	255341	255402	255462	255522	255583	255643	255703	255764	47	1 = 1
13	9. 255824	255884	255945	256005	256065	256126	256186	256246	256306	256367	256427	256487	46	2. 2
14	9. 256547	256607	256668	256728	256788	256848	256908	256969	257029	257089	257149	257209	45	3. 3
15	9. 257269	257329	257389	257450	257510	257570	257630	257690	257750	257810	257870	257930	44	4. 4
16	9. 257990	258050	258110	258170	258230	258290	258350	258410	258470	258530	258590	258650	43	1 = 1
17	9. 258710	258770	258830	258890	258950	259009	259069	259129	259189	259249	259309	259369	42	2. 2
18	9. 259429	259488	259548	259608	259668	259728	259788	259847	259907	259967	260027	260086	41	3. 3
19	9. 260146	260206	260266	260325	260385	260445	260505	260564	260624	260684	260743	260803	40	4. 4
20	9. 260863	260922	260982	261042	261101	261161	261220	261280	261340	261399	261459	261518	39	1 = 1
21	9. 261578	261638	261697	261757	261816	261876	261935	261995	262054	262114	262173	262233	38	2. 2
22	9. 262292	262352	262411	262471	262530	262589	262649	262708	262768	262827	262887	262946	37	3. 3
23	9. 263005	263065	263124	263183	263243	263302	263362	263421	263480	263539	263599	263658	36	4. 4
24	9. 263717	263777	263836	263895	263955	264014	264073	264132	264191	264251	264310	264369	35	1 = 1
25	9. 264428	264488	264547	264606	264665	264724	264783	264843	264902	264961	265020	265079	34	2. 2
26	9. 265138	265197	265256	265316	265375	265434	265493	265552	265611	265670	265729	265788	33	3. 3
27	9. 265847	265906	265965	266024	266083	266142	266201	266260	266319	266378	266437	266496	32	4. 4
28	9. 266555	266614	266673	266732	266790	266849	266908	266967	267026	267085	267144	267203	31	1 = 1
29	9. 267261	267320	267379	267438	267497	267556	267614	267673	267732	267791	267849	267908	30	2. 2
30	9. 267967	268026	268084	268143	268202	268261	268319	268378	268437	268495	268554	268613	29	3. 3
31	9. 268671	268730	268789	268847	268906	268965	269023	269082	269141	269199	269258	269316	28	4. 4
32	9. 269375	269433	269492	269551	269609	269668	269726	269785	269843	269902	269960	270019	27	1 = 1
33	9. 270077	270136	270194	270253	270311	270370	270428	270487	270545	270603	270662	270720	26	2. 2
34	9. 270779	270837	270895	270954	271012	271071	271129	271187	271246	271304	271362	271421	25	3. 3
35	9. 271479	271537	271595	271654	271712	271770	271829	271887	271945	272003	272062	272120	24	4. 4
36	9. 272178	272236	272295	272353	272411	272469	272527	272585	272644	272702	272760	272818	23	1 = 1
37	9. 272876	272934	272992	273051	273109	273167	273225	273283	273341	273399	273457	273515	22	2. 2
38	9. 273573	273631	273689	273747	273806	273864	273922	273980	274038	274096	274153	274211	21	3. 3
39	9. 274269	274327	274385	274443	274501	274559	274617	274675	274733	274791	274849	274907	20	4. 4
40	9. 274964	275022	275080	275138	275196	275254	275312	275369	275427	275485	275543	275601	19	1 = 1
41	9. 275658	275716	275774	275832	275890	275947	276005	276063	276121	276178	276236	276294	18	2. 2
42	9. 276351	276409	276467	276525	276582	276640	276698	276755	276813	276871	276928	276986	17	3. 3
43	9. 277043	277101	277159	277216	277274	277331	277389	277447	277504	277562	277619	277677	16	4. 4
44	9. 277734	277792	277849	277907	277964	278022	278079	278137	278194	278252	278309	278367	15	1 = 1
45	9. 278424	278482	278539	278597	278654	278711	278769	278826	278884	278941	278998	279056	14	2. 2
46	9. 279113	279170	279228	279285	279343	279400	279457	279514	279572	279629	279686	279744	13	3. 3
47	9. 279801	279858	279916	279973	280030	280087	280145	280202	280259	280316	280373	280431	12	4. 4
48	9. 280488	280545	280602	280659	280717	280774	280831	280888	280945	281002	281059	281117	11	1 = 1
49	9. 281174	281231	281288	281345	281402	281459	281516	281573	281630	281687	281744	281801	10	2. 2
50	9. 281859	281916	281973	282030	282086	282144	282201	282258	282315	282371	282428	282485	9	3. 3
51	9. 282542	282599	282656	282713	282770	282827	282884	282941	282998	283055	283111	283168	8	4. 4
52	9. 283225	283282	283339	283396	283453	283509	283566	283623	283680	283737	283793	283850	7	1 = 1
53	9. 283907	283964	284021	284077	284134	284191	284248	284304	284361	284418	284474	284531	6	2. 2
54	9. 284588	284645	284701	284758	284815	284871	284928	284985	285041	285098	285155	285211	5	3. 3
55	9. 285268	285324	285381	285438	285494	285551	285607	285664	285720	285777	285834	285890	4	4. 4
56	9. 285947	286003	286060	286116	286173	286229	286286	286342	286399	286455	286512	286568	3	1 = 1
57	9. 286625	286681	286737	286794	286850	286907	286963	287019	287076	287132	287189	287245	2	2. 2
58	9. 287301	287358	287414	287470	287527	287583	287640	287696	287752	287808	287865	287921	1	3. 3
59	9. 287977	288034	288090	288146	288202	288259	288315	288371	288427	288484	288540	288596	0	4. 4
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 79 degrees, or Tangent of 169 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 11 *degrees, or Co-tangent of* 101 *degrees.*

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.288652	288709	288765	288821	288877	288933	288989	289046	289102	289158	289214	289270	59	1″ = 11
1	9.289326	289382	289439	289495	289551	289607	289663	289719	289775	289831	289887	289943	58	2. 22
2	9.289999	290055	290111	290167	290223	290279	290335	290391	290447	290503	290559	290615	57	3. 34
3	9.290671	290727	290783	290839	290895	290951	291007	291063	291119	291175	291231	291287	56	4. 45
4	9.291342	291398	291454	291510	291566	291622	291678	291734	291789	291845	291901	291957	55	1 = 11
5	9.292013	292068	292124	292180	292236	292292	292347	292403	292459	292515	292570	292626	54	2. 22
6	9.292682	292738	292793	292849	292905	292960	293016	293072	293127	293183	293239	293294	53	3. 34
7	9.293350	293406	293461	293517	293573	293628	293684	293739	293795	293851	293906	293962	52	4. 45
8	9.294017	294073	294128	294184	294239	294295	294351	294406	294462	294517	294573	294628	51	1 = 11
9	9.294684	294739	294795	294850	294906	294961	295016	295072	295127	295183	295238	295294	50	2. 22
10	9.295349	295404	295460	295515	295571	295626	295681	295737	295792	295847	295903	295958	49	3. 33
11	9.296013	296069	296124	296179	296235	296290	296345	296401	296456	296511	296566	296622	48	4. 44
12	9.296677	296732	296787	296843	296898	296953	297008	297064	297119	297174	297229	297284	47	1 = 11
13	9.297340	297395	297450	297505	297560	297615	297670	297726	297781	297836	297891	297946	46	2. 22
14	9.298001	298056	298111	298166	298221	298277	298332	298387	298442	298497	298552	298607	45	3. 33
15	9.298662	298717	298772	298827	298882	298937	298992	299047	299102	299157	299212	299267	44	4. 44
16	9.299322	299377	299431	299486	299541	299596	299651	299706	299761	299816	299871	299926	43	1 = 11
17	9.299980	300035	300090	300145	300200	300255	300310	300364	300419	300474	300529	300584	42	2. 22
18	9.300638	300693	300748	300803	300857	300912	300967	301022	301076	301131	301186	301241	41	3. 33
19	9.301295	301350	301405	301460	301514	301569	301624	301678	301733	301788	301842	301897	40	4. 44
20	9.301951	302006	302061	302115	302170	302225	302279	302334	302388	302443	302498	302552	39	1 = 11
21	9.302607	302661	302716	302770	302825	302879	302934	302988	303043	303097	303152	303206	38	2. 22
22	9.303261	303315	303370	303424	303479	303533	303588	303642	303697	303751	303805	303860	37	3. 33
23	9.303914	303969	304023	304078	304132	304186	304241	304295	304349	304404	304458	304512	36	4. 44
24	9.304567	304621	304675	304730	304784	304838	304893	304947	305001	305056	305110	305164	35	1 = 11
25	9.305218	305273	305327	305381	305435	305490	305544	305598	305652	305706	305761	305815	34	2. 22
26	9.305869	305923	305977	306031	306086	306140	306194	306248	306302	306356	306411	306465	33	3. 33
27	9.306519	306573	306627	306681	306735	306789	306843	306897	306951	307005	307060	307114	32	4. 43
28	9.307168	307222	307276	307330	307384	307438	307492	307546	307600	307654	307708	307762	31	1 = 11
29	9.307816	307870	307923	307977	308031	308085	308139	308193	308247	308301	308355	308409	30	2. 22
30	9.308463	308517	308570	308624	308678	308732	308786	308840	308894	308947	309001	309055	29	3. 32
31	9.309109	309163	309216	309270	309324	309378	309432	309485	309539	309593	309647	309700	28	4. 43
32	9.309754	309808	309862	309915	309969	310023	310076	310130	310184	310238	310291	310345	27	1 = 11
33	9.310399	310452	310506	310560	310613	310667	310720	310774	310828	310881	310935	310989	26	2. 21
34	9.311042	311096	311149	311203	311256	311310	311364	311417	311471	311524	311578	311631	25	3. 32
35	9.311685	311738	311792	311845	311899	311952	312006	312059	312113	312166	312220	312273	24	4. 43
36	9.312327	312380	312434	312487	312540	312594	312647	312701	312754	312807	312861	312914	23	1 = 11
37	9.312968	313021	313074	313128	313181	313234	313288	313341	313394	313448	313501	313554	22	2. 21
38	9.313608	313661	313714	313768	313821	313874	313927	313981	314034	314087	314140	314194	21	3. 32
39	9.314247	314300	314353	314407	314460	314513	314566	314619	314672	314726	314779	314832	20	4. 43
40	9.314885	314938	314991	315045	315098	315151	315204	315257	315310	315363	315416	315470	19	1 = 11
41	9.315523	315576	315629	315682	315735	315788	315841	315894	315947	316000	316053	316106	18	2. 21
42	9.316159	316212	316265	316318	316371	316424	316477	316530	316583	316636	316689	316742	17	3. 32
43	9.316795	316848	316901	316954	317007	317060	317113	317166	317218	317271	317324	317377	16	4. 42
44	9.317430	317483	317536	317589	317641	317694	317747	317800	317853	317906	317958	318011	15	1 = 11
45	9.318064	318117	318170	318222	318275	318328	318381	318433	318486	318539	318592	318644	14	2. 21
46	9.318697	318750	318803	318855	318908	318961	319014	319066	319119	319172	319224	319277	13	3. 32
47	9.319330	319382	319435	319488	319540	319593	319645	319698	319751	319803	319856	319909	12	4. 42
48	9.319961	320014	320066	320119	320171	320224	320277	320329	320382	320434	320487	320539	11	1 = 10
49	9.320592	320644	320697	320749	320802	320854	320907	320959	321012	321064	321117	321169	10	2. 21
50	9.321222	321274	321327	321379	321431	321484	321536	321589	321641	321693	321746	321798	9	3. 31
51	9.321851	321903	321955	322008	322060	322113	322165	322217	322270	322322	322374	322427	8	4. 42
52	9.322479	322531	322583	322636	322688	322740	322793	322845	322897	322949	323002	323054	7	1 = 10
53	9.323106	323158	323211	323263	323315	323367	323420	323472	323524	323576	323628	323681	6	2. 21
54	9.323733	323785	323837	323889	323941	323994	324046	324098	324150	324202	324254	324306	5	3. 31
55	9.324358	324411	324463	324515	324567	324619	324671	324723	324775	324827	324879	324931	4	4. 42
56	9.324983	325035	325087	325139	325191	325243	325295	325347	325399	325451	325503	325555	3	1 = 10
57	9.325607	325659	325711	325763	325815	325867	325919	325971	326023	326075	326127	326179	2	2. 21
58	9.326231	326282	326334	326386	326438	326490	326542	326594	326646	326697	326749	326801	1	3. 31
59	9.326853	326905	326957	327008	327060	327112	327164	327216	327267	327319	327371	327423	0	4. 42
	60″	55″	50	45″	40″	35″	30″	25″	20	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 78 *degrees, or Tangent of* 168 *degrees.*

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 12 degrees, or Co-tangent of 102 degrees.												Minutes	Propor. parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 327475	327526	327578	327630	327682	327733	327785	327837	327889	327940	327992	328044	59	1″ = 1
1	9. 328095	328147	328199	328250	328302	328354	328405	328457	328509	328560	328612	328664	58	2. 2
2	9. 328715	328767	328819	328870	328922	328973	329025	329077	329128	329180	329231	329283	57	3. 3
3	9. 329335	329386	329438	329489	329541	329592	329644	329695	329747	329798	329850	329901	56	4. 4
4	9. 329953	330004	330056	330107	330159	330210	330262	330313	330365	330416	330468	330519	55	1 = 1
5	9. 330570	330622	330673	330725	330776	330828	330879	330930	330982	331033	331084	331136	54	2. 1
6	9. 331187	331239	331290	331341	331393	331444	331495	331547	331598	331649	331701	331752	53	3. 1
7	9. 331803	331854	331906	331957	332008	332060	332111	332162	332213	332265	332316	332367	52	4. 1
8	9. 332418	332470	332521	332572	332623	332674	332726	332777	332828	332879	332930	332982	51	1 = 1
9	9. 333033	333084	333135	333186	333237	333288	333340	333391	333442	333493	333544	333595	50	2. 2
10	9. 333646	333697	333748	333800	333851	333902	333953	334004	334055	334106	334157	334208	49	3. 2
11	9. 334259	334310	334361	334412	334463	334514	334565	334616	334667	334718	334769	334820	48	4. 2
12	9. 334871	334922	334973	335024	335075	335126	335177	335228	335279	335330	335381	335431	47	1 = 1
13	9. 335482	335533	335584	335635	335686	335737	335788	335839	335889	335940	335991	336042	46	2. 2
14	9. 336093	336144	336194	336245	336296	336347	336398	336449	336499	336550	336601	336652	45	3. 2
15	9. 336702	336753	336804	336855	336905	336956	337007	337058	337108	337159	337210	337261	44	4. 2
16	9. 337311	337362	337413	337463	337514	337565	337615	337666	337717	337767	337818	337869	43	1 = 1
17	9. 337919	337970	338021	338071	338122	338173	338223	338274	338324	338375	338426	338476	42	2. 2
18	9. 338527	338577	338628	338678	338729	338780	338830	338881	338931	338982	339032	339083	41	3. 2
19	9. 339133	339184	339234	339285	339335	339386	339436	339487	339537	339588	339638	339689	40	4. 2
20	9. 339739	339790	339840	339890	339941	339991	340042	340092	340143	340193	340243	340294	39	1 = 1
21	9. 340344	340395	340445	340495	340546	340596	340646	340697	340747	340797	340848	340898	38	2. 2
22	9. 340948	340999	341049	341099	341150	341200	341250	341301	341351	341401	341451	341502	37	3. 2
23	9. 341552	341602	341652	341703	341753	341803	341853	341904	341954	342004	342054	342104	36	4. 2
24	9. 342155	342205	342255	342305	342355	342406	342456	342506	342556	342606	342656	342707	35	1 = 1
25	9. 342757	342807	342857	342907	342957	343007	343057	343107	343158	343208	343258	343308	34	2. 2
26	9. 343358	343408	343458	343508	343558	343608	343658	343708	343758	343808	343858	343908	33	3. 2
27	9. 343958	344008	344058	344108	344158	344208	344258	344308	344358	344408	344458	344508	32	4. 2
28	9. 344558	344608	344658	344708	344758	344808	344858	344908	344957	345007	345057	345107	31	1 = 1
29	9. 345157	345207	345257	345307	345357	345406	345456	345506	345556	345606	345656	345705	30	2. 2
30	9. 345755	345805	345855	345905	345955	346004	346054	346104	346154	346203	346253	346303	29	3. 2
31	9. 346353	346403	346452	346502	346552	346601	346651	346701	346751	346800	346850	346900	28	4. 2
32	9. 346949	346999	347049	347099	347148	347198	347248	347297	347347	347397	347446	347496	27	1 = 1
33	9. 347545	347595	347645	347694	347744	347794	347843	347893	347942	347992	348042	348091	26	2. 2
34	9. 348141	348190	348240	348289	348339	348389	348438	348488	348537	348587	348636	348686	25	3. 2
35	9. 348735	348785	348834	348884	348933	348983	349032	349082	349131	349181	349230	349280	24	4. 2
36	9. 349329	349378	349428	349477	349527	349576	349626	349675	349724	349774	349823	349873	23	1 = 1
37	9. 349922	349971	350021	350070	350120	350169	350218	350268	350317	350366	350416	350465	22	2. 1
38	9. 350514	350564	350613	350662	350712	350761	350810	350860	350909	350958	351007	351057	21	3. 1
39	9. 351106	351155	351205	351254	351303	351352	351401	351451	351500	351549	351598	351648	20	4. 1
40	9. 351697	351746	351795	351844	351894	351943	351992	352041	352090	352139	352189	352238	19	1 = 1
41	9. 352287	352336	352385	352434	352484	352533	352582	352631	352680	352729	352778	352827	18	2. 1
42	9. 352876	352925	352975	353024	353073	353122	353171	353220	353269	353318	353367	353416	17	3. 1
43	9. 353465	353514	353563	353612	353661	353710	353759	353808	353857	353906	353955	354004	16	4. 1
44	9. 354053	354102	354151	354200	354249	354298	354347	354396	354445	354494	354542	354591	15	1 = 1
45	9. 354640	354689	354738	354787	354836	354885	354934	354982	355031	355080	355129	355178	14	2. 1
46	9. 355227	355276	355324	355373	355422	355471	355520	355569	355617	355666	355715	355764	13	3. 1
47	9. 355813	355861	355910	355959	356008	356056	356105	356154	356203	356252	356300	356349	12	4. 1
48	9. 356398	356446	356495	356544	356593	356641	356690	356739	356787	356836	356885	356933	11	1 = 1
49	9. 356982	357031	357079	357128	357177	357225	357274	357323	357371	357420	357469	357517	10	2. 1
50	9. 357566	357614	357663	357712	357760	357809	357857	357906	357955	358003	358052	358100	9	3. 1
51	9. 358149	358197	358246	358294	358343	358391	358440	358489	358537	358586	358634	358683	8	4. 1
52	9. 358731	358780	358828	358877	358925	358973	359022	359070	359119	359167	359216	359264	7	1 = 1
53	9. 359313	359361	359409	359458	359506	359555	359603	359652	359700	359748	359797	359845	6	2. 1
54	9. 359894	359942	359990	360039	360087	360135	360184	360232	360280	360329	360377	360425	5	3. 1
55	9. 360474	360522	360570	360619	360667	360715	360764	360812	360860	360908	360957	361005	4	4. 1
56	9. 361053	361101	361150	361198	361246	361294	361343	361391	361439	361487	361536	361584	3	1 = 1
57	9. 361632	361680	361728	361777	361825	361873	361921	361969	362017	362066	362114	362162	2	2. 1
58	9. 362210	362258	362306	362354	362403	362451	362499	362547	362595	362643	362691	362739	1	3. 1
59	9. 362787	362836	362884	362932	362980	363028	363076	363124	363172	363220	363268	363316	0	4. 1
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15	10″	5″	Minutes	Propor. parts
	Co-tangent of 77 degrees, or Tangent of 167 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 13 degrees, or Co-tangent of 103 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.363364	363412	363460	363508	363556	363604	363652	363700	363748	363796	363844	363892	59	1″ = 10
1	9.363940	363988	364036	364084	364132	364180	364228	364276	364324	364372	364420	364468	58	2. 19
2	9.364516	364563	364611	364659	364707	364755	364803	364851	364899	364947	364994	365042	57	3. 29
3	9.365090	365138	365186	365234	365282	365329	365377	365425	365473	365521	365569	365616	56	4. 38
4	9.365664	365712	365760	365808	365855	365903	365951	365999	366046	366094	366142	366190	55	1 = 10
5	9.366237	366285	366333	366381	366428	366476	366524	366572	366619	366667	366715	366762	54	2. 19
6	9.366810	366858	366905	366953	367001	367048	367096	367144	367191	367239	367287	367334	53	3. 29
7	9.367382	367430	367477	367525	367572	367620	367668	367715	367763	367810	367858	367906	52	4. 38
8	9.367953	368001	368048	368096	368144	368191	368239	368286	368334	368381	368429	368476	51	1 = 9
9	9.368524	368571	368619	368666	368714	368761	368809	368856	368904	368951	368999	369046	50	2. 19
10	9.369094	369141	369189	369236	369284	369331	369378	369426	369473	369521	369568	369616	49	3. 28
11	9.369663	369710	369758	369805	369853	369900	369947	369995	370042	370089	370137	370184	48	4. 38
12	9.370232	370279	370326	370374	370421	370468	370516	370563	370610	370658	370705	370752	47	1 = 9
13	9.370799	370847	370894	370941	370989	371036	371083	371130	371178	371225	371272	371319	46	2. 19
14	9.371367	371414	371461	371508	371556	371603	371650	371697	371745	371792	371839	371886	45	3. 28
15	9.371933	371981	372028	372075	372122	372169	372216	372264	372311	372358	372405	372452	44	4. 38
16	9.372499	372546	372593	372641	372688	372735	372782	372829	372876	372923	372970	373017	43	1 = 9
17	9.373065	373112	373159	373206	373253	373300	373347	373394	373441	373488	373535	373582	42	2. 19
18	9.373629	373676	373723	373770	373817	373864	373911	373958	374005	374052	374099	374146	41	3. 28
19	9.374193	374240	374287	374334	374381	374428	374475	374522	374569	374616	374663	374709	40	4. 38
20	9.374756	374803	374850	374897	374944	374991	375038	375085	375132	375178	375225	375272	39	1 = 9
21	9.375319	375366	375413	375460	375506	375553	375600	375647	375694	375741	375787	375834	38	2. 19
22	9.375881	375928	375975	376021	376068	376115	376162	376209	376255	376302	376349	376396	37	3. 28
23	9.376442	376489	376536	376583	376629	376676	376723	376770	376816	376863	376910	376956	36	4. 37
24	9.377003	377050	377096	377143	377190	377237	377283	377330	377377	377423	377470	377516	35	1 = 9
25	9.377563	377610	377656	377703	377750	377796	377843	377890	377936	377983	378029	378076	34	2. 19
26	9.378123	378169	378216	378262	378309	378355	378402	378449	378495	378542	378588	378635	33	3. 28
27	9.378681	378728	378774	378821	378867	378914	378960	379007	379053	379100	379146	379193	32	4. 37
28	9.379239	379286	379332	379379	379425	379472	379518	379565	379611	379658	379704	379750	31	1 = 9
29	9.379797	379843	379890	379936	379983	380029	380075	380122	380168	380215	380261	380307	30	2. 19
30	9.380354	380400	380447	380493	380539	380586	380632	380678	380725	380771	380817	380864	29	3. 28
31	9.380910	380956	381003	381049	381095	381142	381188	381234	381280	381327	381373	381419	28	4. 37
32	9.381466	381512	381558	381604	381651	381697	381743	381789	381836	381882	381928	381974	27	1 = 9
33	9.382021	382067	382113	382159	382205	382252	382298	382344	382390	382436	382483	382529	26	2. 18
34	9.382575	382621	382667	382713	382760	382806	382852	382898	382944	382990	383036	383082	25	3. 28
35	9.383129	383175	383221	383267	383313	383359	383405	383451	383497	383543	383589	383636	24	4. 37
36	9.383682	383728	383774	383820	383866	383912	383958	384004	384050	384096	384142	384188	23	1 = 9
37	9.384234	384280	384326	384372	384418	384464	384510	384556	384602	384648	384694	384740	22	2. 18
38	9.384786	384832	384878	384924	384970	385016	385062	385107	385153	385199	385245	385291	21	3. 28
39	9.385337	385383	385429	385475	385521	385567	385612	385658	385704	385750	385796	385842	20	4. 37
40	9.385888	385934	385979	386025	386071	386117	386163	386209	386254	386300	386346	386392	19	1 = 9
41	9.386438	386483	386529	386575	386621	386667	386712	386758	386804	386850	386895	386941	18	2. 18
42	9.386987	387033	387078	387124	387170	387216	387261	387307	387353	387399	387444	387490	17	3. 27
43	9.387536	387581	387627	387673	387718	387764	387810	387855	387901	387947	387992	388038	16	4. 37
44	9.388084	388129	388175	388221	388266	388312	388358	388403	388449	388494	388540	388586	15	1 = 9
45	9.388631	388677	388722	388768	388814	388859	388905	388950	388996	389041	389087	389133	14	2. 18
46	9.389178	389224	389269	389315	389360	389406	389451	389497	389542	389588	389633	389679	13	3. 27
47	9.389724	389770	389815	389861	389906	389952	389997	390043	390088	390134	390179	390225	12	4. 36
48	9.390270	390316	390361	390406	390452	390497	390543	390588	390634	390679	390724	390770	11	1 = 9
49	9.390815	390861	390906	390951	390997	391042	391087	391133	391178	391224	391269	391314	10	2. 18
50	9.391360	391405	391450	391496	391541	391586	391632	391677	391722	391768	391813	391858	9	3. 27
51	9.391903	391949	391994	392039	392085	392130	392175	392220	392266	392311	392356	392401	8	4. 36
52	9.392447	392492	392537	392582	392628	392673	392718	392763	392808	392854	392899	392944	7	1 = 9
53	9.392989	393034	393080	393125	393170	393215	393260	393306	393351	393396	393441	393486	6	2. 18
54	9.393531	393576	393622	393667	393712	393757	393802	393847	393892	393937	393983	394028	5	3. 27
55	9.394073	394118	394163	394208	394253	394298	394343	394388	394433	394478	394524	394569	4	4. 36
56	9.394614	394659	394704	394749	394794	394839	394884	394929	394974	395019	395064	395109	3	1 = 9
57	9.395154	395199	395244	395289	395334	395379	395424	395469	395514	395559	395604	395649	2	2. 18
58	9.395694	395739	395783	395828	395873	395918	395963	396008	396053	396098	396143	396188	1	3. 27
59	9.396233	396278	396322	396367	396412	396457	396502	396547	396592	396637	396681	396726	0	4. 36
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 76 degrees, or Tangent of 166 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 14 degrees, or Co-tangent of 104 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.396771	396816	396861	396906	396950	396995	397040	397085	397130	397175	397219	397264	59	1″ = 9
1	9.397309	397354	397399	397443	397488	397533	397578	397622	397667	397712	397757	397802	58	2. 18
2	9.397846	397891	397936	397981	398025	398070	398115	398159	398204	398249	398294	398338	57	3. 27
3	9.398383	398428	398472	398517	398562	398606	398651	398696	398741	398785	398830	398874	56	4. 36
4	9.398919	398964	399008	399053	399098	399142	399187	399232	399276	399321	399365	399410	55	1″ = 9
5	9.399455	399499	399544	399588	399633	399678	399722	399767	399811	399856	399901	399945	54	2. 18
6	9.399990	400034	400079	400123	400168	400212	400257	400301	400346	400391	400435	400480	53	3. 27
7	9.400524	400569	400613	400658	400702	400747	400791	400836	400880	400924	400969	401013	52	4. 36
8	9.401058	401102	401147	401191	401236	401280	401325	401369	401413	401458	401502	401547	51	1″ = 9
9	9.401591	401636	401680	401724	401769	401813	401857	401902	401946	401991	402035	402079	50	2. 18
10	9.402124	402168	402212	402257	402301	402346	402390	402434	402479	402523	402567	402612	49	3. 27
11	9.402656	402700	402744	402789	402833	402877	402922	402966	403010	403055	403099	403143	48	4. 36
12	9.403187	403232	403276	403320	403364	403409	403453	403497	403541	403586	403630	403674	47	1″ = 9
13	9.403718	403762	403807	403851	403895	403939	403984	404028	404072	404116	404160	404204	46	2. 18
14	9.404249	404293	404337	404381	404425	404469	404514	404558	404602	404646	404690	404734	45	3. 27
15	9.404778	404823	404867	404911	404955	404999	405043	405087	405131	405175	405220	405264	44	4. 36
16	9.405308	405352	405396	405440	405484	405528	405572	405616	405660	405704	405748	405792	43	1″ = 9
17	9.405836	405880	405924	405968	406012	406056	406100	406144	406188	406232	406276	406320	42	2. 18
18	9.406364	406408	406452	406496	406540	406584	406628	406672	406716	406760	406804	406848	41	3. 27
19	9.406892	406936	406980	407024	407068	407112	407156	407199	407243	407287	407331	407375	40	4. 36
20	9.407419	407463	407507	407551	407594	407638	407682	407726	407770	407814	407858	407902	39	1″ = 9
21	9.407945	407989	408033	408077	408121	408165	408208	408252	408296	408340	408384	408427	38	2. 18
22	9.408471	408515	408559	408603	408646	408690	408734	408778	408821	408865	408909	408953	37	3. 27
23	9.408997	409040	409084	409128	409171	409215	409259	409303	409346	409390	409434	409478	36	4. 36
24	9.409521	409565	409609	409652	409696	409740	409783	409827	409871	409914	409958	410002	35	1″ = 9
25	9.410045	410089	410133	410176	410220	410264	410307	410351	410395	410438	410482	410525	34	2. 17
26	9.410569	410613	410656	410700	410744	410787	410831	410874	410918	410961	411005	411049	33	3. 26
27	9.411092	411136	411179	411223	411266	411310	411353	411397	411441	411484	411528	411571	32	4. 35
28	9.411615	411658	411702	411745	411789	411832	411876	411919	411963	412006	412050	412093	31	1″ = 9
29	9.412137	412180	412224	412267	412311	412354	412397	412441	412484	412528	412571	412615	30	2. 17
30	9.412658	412702	412745	412788	412832	412875	412919	412962	413005	413049	413092	413136	29	3. 26
31	9.413179	413222	413266	413309	413352	413396	413439	413483	413526	413569	413613	413656	28	4. 35
32	9.413699	413743	413786	413829	413873	413916	413959	414003	414046	414089	414133	414176	27	1″ = 9
33	9.414219	414262	414306	414349	414392	414436	414479	414522	414565	414609	414652	414695	26	2. 17
34	9.414738	414782	414825	414868	414911	414955	414998	415041	415084	415127	415171	415214	25	3. 26
35	9.415257	415300	415343	415387	415430	415473	415516	415559	415603	415646	415689	415732	24	4. 35
36	9.415775	415818	415862	415905	415948	415991	416034	416077	416120	416164	416207	416250	23	1″ = 9
37	9.416293	416336	416379	416422	416465	416508	416551	416595	416638	416681	416724	416767	22	2. 17
38	9.416810	416853	416896	416939	416982	417025	417068	417111	417154	417197	417240	417284	21	3. 26
39	9.417327	417370	417413	417456	417499	417542	417585	417628	417671	417714	417757	417800	20	4. 34
40	9.417843	417886	417928	417971	418014	418057	418100	418143	418186	418229	418272	418315	19	1″ = 9
41	9.418358	418401	418444	418487	418530	418573	418616	418658	418701	418744	418787	418830	18	2. 17
42	9.418873	418916	418959	419002	419045	419087	419130	419173	419216	419259	419302	419345	17	3. 26
43	9.419387	419430	419473	419516	419559	419602	419644	419687	419730	419773	419816	419858	16	4. 34
44	9.419901	419944	419987	420030	420072	420115	420158	420201	420244	420286	420329	420372	15	1″ = 9
45	9.420415	420457	420500	420543	420586	420628	420671	420714	420757	420799	420842	420885	14	2. 17
46	9.420928	420970	421013	421056	421098	421141	421184	421226	421269	421312	421354	421397	13	3. 26
47	9.421440	421482	421525	421568	421610	421653	421696	421738	421781	421824	421866	421909	12	4. 34
48	9.421952	421994	422037	422079	422122	422165	422207	422250	422292	422335	422378	422420	11	1″ = 9
49	9.422463	422505	422548	422591	422633	422676	422718	422761	422803	422846	422889	422931	10	2. 17
50	9.422974	423016	423059	423101	423144	423186	423229	423271	423314	423356	423399	423441	9	3. 26
51	9.423484	423526	423569	423611	423654	423696	423739	423781	423824	423866	423909	423951	8	4. 34
52	9.423994	424036	424078	424121	424163	424206	424248	424291	424333	424375	424418	424460	7	1″ = 9
53	9.424503	424545	424587	424630	424672	424715	424757	424799	424842	424884	424927	424969	6	2. 17
54	9.425011	425054	425096	425138	425181	425223	425265	425308	425350	425393	425435	425477	5	3. 26
55	9.425519	425562	425604	425646	425689	425731	425773	425816	425858	425900	425943	425985	4	4. 34
56	9.426027	426069	426112	426154	426196	426238	426281	426323	426365	426408	426450	426492	3	1″ = 9
57	9.426534	426576	426619	426661	426703	426745	426788	426830	426872	426914	426956	426999	2	2. 17
58	9.427041	427083	427125	427167	427210	427252	427294	427336	427378	427420	427463	427505	1	3. 26
59	9.427547	427589	427631	427673	427716	427758	427800	427842	427884	427926	427968	428010	0	4. 34
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 75 degrees, or Tangent of 165 degrees.													

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LOGARITHMIC TANGENTS.

Degrees	Tangent of 15 degrees, or Co-tangent of 105 degrees.												Minutes	Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9.428053	428095	428137	428179	428221	428263	428305	428347	428389	428431	428473	428516	59	1″ =
1	9.428558	428600	428642	428684	428726	428768	428810	428852	428894	428936	428978	429020	58	2. 1
2	9.429062	429104	429146	429188	429230	429272	429314	429356	429398	429440	429482	429524	57	3. 2
3	9.429566	429608	429650	429692	429734	429776	429818	429860	429902	429944	429986	430028	56	4. 3
4	9.430070	430112	430154	430196	430237	430279	430321	430363	430405	430447	430489	430531	55	1 =
5	9.430573	430615	430657	430698	430740	430782	430824	430866	430908	430950	430992	431033	54	2. 1
6	9.431075	431117	431159	431201	431243	431285	431326	431368	431410	431452	431494	431536	53	3. 2
7	9.431577	431619	431661	431703	431745	431786	431828	431870	431912	431954	431995	432037	52	4. 3
8	9.432079	432121	432162	432204	432246	432288	432329	432371	432413	432455	432496	432538	51	1 =
9	9.432580	432622	432663	432705	432747	432789	432830	432872	432914	432955	432997	433039	50	2. 1
10	9.433080	433122	433164	433206	433247	433289	433331	433372	433414	433456	433497	433539	49	3. 2
11	9.433581	433622	433664	433705	433747	433789	433830	433872	433914	433955	433997	434038	48	4. 3
12	9.434080	434122	434163	434205	434246	434288	434330	434371	434413	434454	434496	434538	47	1 =
13	9.434579	434621	434662	434704	434745	434787	434828	434870	434912	434953	434995	435036	46	2. 1
14	9.435078	435119	435161	435202	435244	435285	435327	435368	435410	435451	435493	435534	45	3. 2
15	9.435576	435617	435659	435700	435742	435783	435825	435866	435908	435949	435990	436032	44	4. 3
16	9.436073	436115	436156	436198	436239	436281	436322	436363	436405	436446	436488	436529	43	1 =
17	9.436570	436612	436653	436695	436736	436777	436819	436860	436902	436943	436984	437026	42	2. 1
18	9.437067	437108	437150	437191	437232	437274	437315	437356	437398	437439	437480	437522	41	3. 2
19	9.437563	437604	437646	437687	437728	437770	437811	437852	437894	437935	437976	438017	40	4. 3
20	9.438059	438100	438141	438183	438224	438265	438306	438348	438389	438430	438471	438513	39	1 =
21	9.438554	438595	438636	438678	438719	438760	438801	438842	438884	438925	438966	439007	38	2. 1
22	9.439049	439090	439131	439172	439213	439254	439296	439337	439378	439419	439460	439502	37	3. 2
23	9.439543	439584	439625	439666	439707	439748	439790	439831	439872	439913	439954	439995	36	4. 3
24	9.440036	440077	440119	440160	440201	440242	440283	440324	440365	440406	440447	440488	35	1 =
25	9.440530	440571	440612	440653	440694	440735	440776	440817	440858	440899	440940	440981	34	2. 1
26	9.441022	441063	441104	441145	441186	441227	441268	441309	441350	441391	441432	441474	33	3. 2
27	9.441515	441556	441596	441637	441678	441719	441760	441801	441842	441883	441924	441965	32	4. 3
28	9.442006	442047	442088	442129	442170	442211	442252	442293	442334	442375	442416	442457	31	1 =
29	9.442498	442538	442579	442620	442661	442702	442743	442784	442825	442866	442907	442947	30	2. 1
30	9.442988	443029	443070	443111	443152	443193	443234	443274	443315	443356	443397	443438	29	3. 2
31	9.443479	443520	443560	443601	443642	443683	443724	443764	443805	443846	443887	443928	28	4. 3
32	9.443969	444009	444050	444091	444132	444173	444213	444254	444295	444336	444376	444417	27	1 =
33	9.444458	444499	444539	444580	444621	444662	444702	444743	444784	444825	444865	444906	26	2. 1
34	9.444947	444988	445028	445069	445110	445150	445191	445232	445273	445313	445354	445395	25	3. 2
35	9.445435	445476	445517	445557	445598	445639	445679	445720	445761	445801	445842	445883	24	4. 3
36	9.445923	445964	446005	446045	446086	446126	446167	446208	446248	446289	446330	446370	23	1 =
37	9.446411	446451	446492	446533	446573	446614	446654	446695	446736	446776	446817	446857	22	2. 1
38	9.446898	446938	446979	447019	447060	447101	447141	447182	447222	447263	447303	447344	21	3. 2
39	9.447384	447425	447465	447506	447546	447587	447627	447668	447709	447749	447790	447830	20	4. 3
40	9.447870	447911	447951	447992	448032	448073	448113	448154	448194	448235	448275	448316	19	1 =
41	9.448356	448397	448437	448477	448518	448558	448599	448639	448680	448720	448760	448801	18	2. 1
42	9.448841	448882	448922	448963	449003	449043	449084	449124	449165	449205	449245	449286	17	3. 2
43	9.449326	449366	449407	449447	449487	449528	449568	449609	449649	449689	449730	449770	16	4. 3
44	9.449810	449851	449891	449931	449972	450012	450052	450093	450133	450173	450213	450254	15	1 =
45	9.450294	450334	450375	450415	450455	450496	450536	450576	450616	450657	450697	450737	14	2. 1
46	9.450777	450818	450858	450898	450938	450979	451019	451059	451099	451140	451180	451220	13	3. 2
47	9.451260	451301	451341	451381	451421	451461	451502	451542	451582	451622	451662	451703	12	4. 3
48	9.451743	451783	451823	451863	451903	451944	451984	452024	452064	452104	452144	452185	11	1 =
49	9.452225	452265	452305	452345	452385	452425	452465	452506	452546	452586	452626	452666	10	2. 1
50	9.452706	452746	452786	452826	452867	452907	452947	452987	453027	453067	453107	453147	9	3. 2
51	9.453187	453227	453267	453307	453347	453388	453428	453468	453508	453548	453588	453628	8	4. 3
52	9.453668	453708	453748	453788	453828	453868	453908	453948	453988	454028	454068	454108	7	1 =
53	9.454148	454188	454228	454268	454308	454348	454388	454428	454468	454508	454548	454588	6	2. 1
54	9.454628	454668	454708	454748	454787	454827	454867	454907	454947	454987	455027	455067	5	3. 2
55	9.455107	455147	455187	455227	455267	455307	455346	455386	455426	455466	455506	455546	4	4. 3
56	9.455586	455626	455666	455705	455745	455785	455825	455865	455905	455945	455984	456024	3	1 =
57	9.456064	456104	456144	456184	456223	456263	456303	456343	456383	456423	456462	456502	2	2. 1
58	9.456542	456582	456622	456661	456701	456741	456781	456821	456860	456900	456940	456980	1	3. 2
59	9.457019	457059	457099	457139	457179	457218	457258	457298	457338	457377	457417	457457	0	4. 3
	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-tangent of 74 degrees, or Tangent of 164 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 16 degrees, or Co-tangent of 106 degrees.												Minutes	Proportional parts
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9.457496	457536	457576	457616	457655	457695	457735	457775	457814	457854	457894	457933	59	1″ =
1	9.457973	458013	458052	458092	458132	458172	458211	458251	458291	458330	458370	458410	58	2.
2	9.458449	458489	458529	458568	458608	458647	458687	458727	458766	458806	458846	458885	57	3.
3	9.458925	458964	459004	459044	459083	459123	459163	459202	459242	459281	459321	459361	56	4.
4	9.459400	459440	459479	459519	459558	459598	459638	459677	459717	459756	459796	459835	55	1 =
5	9.459875	459914	459954	459994	460033	460073	460112	460152	460191	460231	460270	460310	54	2.
6	9.460349	460389	460428	460468	460507	460547	460586	460626	460665	460705	460744	460784	53	3.
7	9.460823	460863	460902	460942	460981	461021	461060	461099	461139	461178	461218	461257	52	4.
8	9.461297	461336	461376	461415	461454	461494	461533	461573	461612	461652	461691	461730	51	1 =
9	9.461770	461809	461849	461888	461927	461967	462006	462046	462085	462124	462164	462203	50	2.
10	9.462242	462282	462321	462360	462400	462439	462479	462518	462557	462597	462636	462675	49	3.
11	9.462715	462754	462793	462833	462872	462911	462951	462990	463029	463068	463108	463147	48	4.
12	9.463186	463226	463265	463304	463343	463383	463422	463461	463501	463540	463579	463618	47	1 =
13	9.463658	463697	463736	463775	463815	463854	463893	463932	463972	464011	464050	464089	46	2.
14	9.464129	464168	464207	464246	464285	464325	464364	464403	464442	464481	464521	464560	45	3.
15	9.464599	464638	464677	464717	464756	464795	464834	464873	464912	464952	464991	465030	44	4.
16	9.465069	465108	465147	465186	465226	465265	465304	465343	465382	465421	465460	465500	43	1 =
17	9.465539	465578	465617	465656	465695	465734	465773	465812	465851	465891	465930	465969	42	2.
18	9.466008	466047	466086	466125	466164	466203	466242	466281	466320	466359	466398	466438	41	3.
19	9.466477	466516	466555	466594	466633	466672	466711	466750	466789	466828	466867	466906	40	4.
20	9.466945	466984	467023	467062	467101	467140	467179	467218	467257	467296	467335	467374	39	1 =
21	9.467413	467452	467491	467530	467569	467608	467647	467686	467724	467763	467802	467841	38	2.
22	9.467880	467919	467958	467997	468036	468075	468114	468153	468192	468231	468269	468308	37	3.
23	9.468347	468386	468425	468464	468503	468542	468581	468620	468658	468697	468736	468775	36	4.
24	9.468814	468853	468892	468931	468969	469008	469047	469086	469125	469164	469202	469241	35	1 =
25	9.469280	469319	469358	469397	469435	469474	469513	469552	469591	469630	469668	469707	34	2.
26	9.469746	469785	469824	469862	469901	469940	469979	470017	470056	470095	470134	470173	33	3.
27	9.470211	470250	470289	470328	470366	470405	470444	470483	470521	470560	470599	470638	32	4.
28	9.470676	470715	470754	470792	470831	470870	470909	470947	470986	471025	471063	471102	31	1 =
29	9.471141	471179	471218	471257	471296	471334	471373	471412	471450	471489	471528	471566	30	2.
30	9.471605	471644	471682	471721	471760	471798	471837	471875	471914	471953	471991	472030	29	3.
31	9.472069	472107	472146	472184	472223	472262	472300	472339	472377	472416	472455	472493	28	4.
32	9.472532	472570	472609	472648	472686	472725	472763	472802	472841	472879	472918	472956	27	1 =
33	9.472995	473033	473072	473110	473149	473187	473226	473265	473303	473342	473380	473419	26	2.
34	9.473457	473496	473534	473573	473611	473650	473688	473727	473765	473804	473842	473881	25	3.
35	9.473919	473958	473996	474035	474073	474112	474150	474189	474227	474266	474304	474342	24	4.
36	9.474381	474419	474458	474496	474535	474573	474612	474650	474688	474727	474765	474804	23	1 =
37	9.474842	474881	474919	474957	474996	475034	475073	475111	475149	475188	475226	475265	22	2.
38	9.475303	475341	475380	475418	475456	475495	475533	475572	475610	475648	475687	475725	21	3.
39	9.475763	475802	475840	475878	475917	475955	475993	476032	476070	476108	476147	476185	20	4.
40	9.476223	476262	476300	476338	476377	476415	476453	476491	476530	476568	476606	476645	19	1 =
41	9.476683	476721	476759	476798	476836	476874	476913	476951	476989	477027	477066	477104	18	2.
42	9.477142	477180	477219	477257	477295	477333	477372	477410	477448	477486	477524	477563	17	3.
43	9.477601	477639	477677	477716	477754	477792	477830	477868	477907	477945	477983	478021	16	4.
44	9.478059	478097	478136	478174	478212	478250	478288	478326	478365	478403	478441	478479	15	1 =
45	9.478517	478555	478594	478632	478670	478708	478746	478784	478822	478860	478899	478937	14	2.
46	9.478975	479013	479051	479089	479127	479165	479203	479242	479280	479318	479356	479394	13	3.
47	9.479432	479470	479508	479546	479584	479622	479660	479698	479737	479775	479813	479851	12	4.
48	9.479889	479927	479965	480003	480041	480079	480117	480155	480193	480231	480269	480307	11	1 =
49	9.480345	480383	480421	480459	480497	480535	480573	480611	480649	480687	480725	480763	10	2.
50	9.480801	480839	480877	480915	480953	480991	481029	481067	481105	481143	481181	481219	9	3.
51	9.481257	481295	481333	481371	481408	481446	481484	481522	481560	481598	481636	481674	8	4.
52	9.481712	481750	481788	481826	481863	481901	481939	481977	482015	482053	482091	482129	7	1 =
53	9.482167	482205	482242	482280	482318	482356	482394	482432	482470	482507	482545	482583	6	2.
54	9.482621	482659	482697	482735	482772	482810	482848	482886	482924	482962	482999	483037	5	3.
55	9.483075	483113	483151	483188	483226	483264	483302	483340	483377	483415	483453	483491	4	4.
56	9.483529	483566	483604	483642	483680	483717	483755	483793	483831	483869	483906	483944	3	1 =
57	9.483982	484020	484057	484095	484133	484171	484208	484246	484284	484321	484359	484397	2	2.
58	9.484435	484472	484510	484548	484585	484623	484661	484699	484736	484774	484812	484849	1	3.
59	9.484887	484925	484962	485000	485038	485075	485113	485151	485188	485226	485264	485301	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proportional parts
	Co-tangent of 73 degrees, or Tangent of 163 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 17 degrees, or Co-tangent of 107 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.485339	485377	485414	485452	485490	485527	485565	485603	485640	485678	485715	485753	59	1″ = 8
1	9.485791	485828	485866	485904	485941	485979	486016	486054	486092	486129	486167	486204	58	2. 15
2	9.486242	486280	486317	486355	486392	486430	486467	486505	486543	486580	486618	486655	57	3. 23
3	9.486693	486730	486768	486805	486843	486881	486918	486956	486993	487031	487068	487106	56	4. 30
4	9.487143	487181	487218	487256	487293	487331	487368	487406	487443	487481	487518	487556	55	1 = 8
5	9.487593	487631	487668	487706	487743	487781	487818	487856	487893	487931	487968	488006	54	2. 15
6	9.488043	488081	488118	488155	488193	488230	488268	488305	488343	488380	488418	488455	53	3. 23
7	9.488492	488530	488567	488605	488642	488680	488717	488754	488792	488829	488867	488904	52	4. 30
8	9.488941	488979	489016	489054	489091	489128	489166	489203	489240	489278	489315	489353	51	1 = 7
9	9.489390	489427	489465	489502	489539	489577	489614	489651	489689	489726	489763	489801	50	2. 15
10	9.489838	489875	489913	489950	489987	490025	490062	490099	490137	490174	490211	490249	49	3. 22
11	9.490286	490323	490360	490398	490435	490472	490510	490547	490584	490621	490659	490696	48	4. 30
12	9.490733	490771	490808	490845	490882	490920	490957	490994	491031	491069	491106	491143	47	1 = 7
13	9.491180	491218	491255	491292	491329	491366	491404	491441	491478	491515	491553	491590	46	2. 15
14	9.491627	491664	491701	491739	491776	491813	491850	491887	491924	491962	491999	492036	45	3. 22
15	9.492073	492110	492148	492185	492222	492259	492296	492333	492371	492408	492445	492482	44	4. 30
16	9.492519	492556	492593	492631	492668	492705	492742	492779	492816	492853	492890	492927	43	1 = 7
17	9.492965	493002	493039	493076	493113	493150	493187	493224	493261	493298	493336	493373	42	2. 15
18	9.493410	493447	493484	493521	493558	493595	493632	493669	493706	493743	493780	493817	41	3. 22
19	9.493855	493892	493929	493966	494003	494040	494077	494114	494151	494188	494225	494262	40	4. 30
20	9.494299	494336	494373	494410	494447	494484	494521	494558	494595	494632	494669	494706	39	1 = 7
21	9.494743	494780	494817	494854	494891	494928	494965	495002	495039	495076	495113	495150	38	2. 15
22	9.495187	495224	495260	495297	495334	495371	495408	495445	495482	495519	495556	495593	37	3. 22
23	9.495630	495667	495704	495741	495777	495814	495851	495888	495925	495962	495999	496036	36	4. 30
24	9.496073	496110	496146	496183	496220	496257	496294	496331	496368	496405	496442	496478	35	1 = 7
25	9.496515	496552	496589	496626	496663	496700	496736	496773	496810	496847	496884	496921	34	2. 15
26	9.496957	496994	497031	497068	497105	497142	497178	497215	497252	497289	497326	497362	33	3. 22
27	9.497399	497436	497473	497510	497546	497583	497620	497657	497694	497730	497767	497804	32	4. 29
28	9.497841	497877	497914	497951	497988	498024	498061	498098	498135	498171	498208	498245	31	1 = 7
29	9.498282	498318	498355	498392	498429	498465	498502	498539	498575	498612	498649	498686	30	2. 15
30	9.498722	498759	498796	498832	498869	498906	498943	498979	499016	499053	499089	499126	29	3. 22
31	9.499163	499199	499236	499273	499309	499346	499383	499419	499456	499493	499529	499566	28	4. 29
32	9.499603	499639	499676	499713	499749	499786	499822	499859	499896	499932	499969	500006	27	1 = 7
33	9.500042	500079	500115	500152	500189	500225	500262	500298	500335	500372	500408	500445	26	2. 15
34	9.500481	500518	500555	500591	500628	500664	500701	500737	500774	500811	500847	500884	25	3. 22
35	9.500920	500957	500993	501030	501067	501103	501140	501176	501213	501249	501286	501322	24	4. 29
36	9.501359	501395	501432	501468	501505	501541	501578	501614	501651	501687	501724	501760	23	1 = 7
37	9.501797	501833	501870	501906	501943	501979	502016	502052	502089	502125	502162	502198	22	2. 15
38	9.502235	502271	502308	502344	502381	502417	502453	502490	502526	502563	502599	502636	21	3. 22
39	9.502672	502709	502745	502781	502818	502854	502891	502927	502964	503000	503036	503073	20	4. 29
40	9.503109	503146	503182	503218	503255	503291	503328	503364	503400	503437	503473	503510	19	1 = 7
41	9.503546	503582	503619	503655	503691	503728	503764	503800	503837	503873	503910	503946	18	2. 15
42	9.503982	504019	504055	504091	504128	504164	504200	504237	504273	504309	504346	504382	17	3. 22
43	9.504418	504455	504491	504527	504563	504600	504636	504672	504709	504745	504781	504818	16	4. 29
44	9.504854	504890	504926	504963	504999	505035	505072	505108	505144	505180	505217	505253	15	1 = 7
45	9.505289	505325	505362	505398	505434	505470	505507	505543	505579	505615	505652	505688	14	2. 15
46	9.505724	505760	505796	505833	505869	505905	505941	505978	506014	506050	506086	506122	13	3. 22
47	9.506159	506195	506231	506267	506303	506340	506376	506412	506448	506484	506521	506557	12	4. 29
48	9.506593	506629	506665	506701	506738	506774	506810	506846	506882	506918	506954	506991	11	1 = 7
49	9.507027	507063	507099	507135	507171	507207	507244	507280	507316	507352	507388	507424	10	2. 14
50	9.507460	507496	507532	507569	507605	507641	507677	507713	507749	507785	507821	507857	9	3. 22
51	9.507893	507929	507966	508002	508038	508074	508110	508146	508182	508218	508254	508290	8	4. 29
52	9.508326	508362	508398	508434	508470	508506	508542	508578	508615	508651	508687	508723	7	1 = 7
53	9.508759	508795	508831	508867	508903	508939	508975	509011	509047	509083	509119	509155	6	2. 14
54	9.509191	509227	509263	509299	509335	509371	509407	509443	509479	509515	509551	509587	5	3. 22
55	9.509622	509658	509694	509730	509766	509802	509838	509874	509910	509946	509982	510018	4	4. 29
56	9.510054	510090	510126	510162	510198	510234	510269	510305	510341	510377	510413	510449	3	1 = 7
57	9.510485	510521	510557	510593	510629	510664	510700	510736	510772	510808	510844	510880	2	2. 14
58	9.510916	510952	510987	511023	511059	511095	511131	511167	511203	511239	511274	511310	1	3. 22
59	9.511346	511382	511418	511454	511489	511525	511561	511597	511633	511669	511704	511740	0	4. 29
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 72 degrees, or Tangent of 162 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 18 degrees, or Co-tangent of 108 degrees.												Minutes	Proper parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 511776	511812	511848	511884	511919	511955	511991	512027	512063	512098	512134	512170	59	1″ = 7
1	9. 512206	512242	512277	512313	512349	512385	512420	512456	512492	512528	512564	512599	58	2. 14
2	9. 512635	512671	512707	512742	512778	512814	512850	512885	512921	512957	512993	513028	57	3. 21
3	9. 513064	513100	513136	513171	513207	513243	513278	513314	513350	513386	513421	513457	56	4. 29
4	9. 513493	513528	513564	513600	513636	513671	513707	513743	513778	513814	513850	513885	55	1 = 7
5	9. 513921	513957	513992	514028	514064	514099	514135	514171	514206	514242	514278	514313	54	2. 14
6	9. 514349	514385	514420	514456	514492	514527	514563	514599	514634	514670	514705	514741	53	3. 21
7	9. 514777	514812	514848	514884	514919	514955	514990	515026	515062	515097	515133	515168	52	4. 29
8	9. 515204	515240	515275	515311	515346	515382	515417	515453	515489	515524	515560	515595	51	1 = 7
9	9. 515631	515666	515702	515738	515773	515809	515844	515880	515915	515951	515986	516022	50	2. 14
10	9. 516058	516093	516129	516164	516200	516235	516271	516306	516342	516377	516413	516448	49	3. 21
11	9. 516484	516519	516555	516590	516626	516661	516697	516732	516768	516803	516839	516874	48	4. 28
12	9. 516910	516945	516981	517016	517052	517087	517123	517158	517194	517229	517264	517300	47	1 = 7
13	9. 517335	517371	517406	517442	517477	517513	517548	517583	517619	517654	517690	517725	46	2. 14
14	9. 517761	517796	517831	517867	517902	517938	517973	518009	518044	518079	518115	518150	45	3. 21
15	9. 518186	518221	518256	518292	518327	518363	518398	518433	518469	518504	518539	518575	44	4. 29
16	9. 518610	518646	518681	518716	518752	518787	518822	518858	518893	518928	518964	518999	43	1 = 7
17	9. 519034	519070	519105	519140	519176	519211	519246	519282	519317	519352	519388	519423	42	2. 14
18	9. 519458	519494	519529	519564	519600	519635	519670	519706	519741	519776	519811	519847	41	3. 21
19	9. 519882	519917	519953	519988	520023	520058	520094	520129	520164	520199	520235	520270	40	4. 28
20	9. 520305	520341	520376	520411	520446	520482	520517	520552	520587	520622	520658	520693	39	1 = 7
21	9. 520728	520763	520799	520834	520869	520904	520940	520975	521010	521045	521080	521116	38	2. 14
22	9. 521151	521186	521221	521256	521292	521327	521362	521397	521432	521468	521503	521538	37	3. 21
23	9. 521573	521608	521643	521679	521714	521749	521784	521819	521854	521890	521925	521960	36	4. 28
24	9. 521995	522030	522065	522100	522136	522171	522206	522241	522276	522311	522346	522382	35	1 = 7
25	9. 522417	522452	522487	522522	522557	522592	522627	522662	522698	522733	522768	522803	34	2. 14
26	9. 522838	522873	522908	522943	522978	523013	523049	523084	523119	523154	523189	523224	33	3. 21
27	9. 523259	523294	523329	523364	523399	523434	523469	523504	523539	523574	523610	523645	32	4. 28
28	9. 523680	523715	523750	523785	523820	523855	523890	523925	523960	523995	524030	524065	31	1 = 7
29	9. 524100	524135	524170	524205	524240	524275	524310	524345	524380	524415	524450	524485	30	2. 14
30	9. 524520	524555	524590	524625	524660	524695	524730	524765	524800	524835	524870	524905	29	3. 21
31	9. 524940	524975	525009	525044	525079	525114	525149	525184	525219	525254	525289	525324	28	4. 28
32	9. 525359	525394	525429	525464	525499	525534	525568	525603	525638	525673	525708	525743	27	1 = 7
33	9. 525778	525813	525848	525883	525918	525952	525987	526022	526057	526092	526127	526162	26	2. 14
34	9. 526197	526232	526266	526301	526336	526371	526406	526441	526476	526510	526545	526580	25	3. 21
35	9. 526615	526650	526685	526720	526754	526789	526824	526859	526894	526929	526963	526998	24	4. 28
36	9. 527033	527068	527103	527138	527172	527207	527242	527277	527312	527346	527381	527416	23	1 = 7
37	9. 527451	527486	527520	527555	527590	527625	527660	527694	527729	527764	527799	527833	22	2. 14
38	9. 527868	527903	527938	527973	528007	528042	528077	528112	528146	528181	528216	528251	21	3. 21
39	9. 528285	528320	528355	528390	528424	528459	528494	528529	528563	528598	528633	528667	20	4. 28
40	9. 528702	528737	528772	528806	528841	528876	528910	528945	528980	529015	529049	529084	19	1 = 7
41	9. 529119	529153	529188	529223	529257	529292	529327	529361	529396	529431	529465	529500	18	2. 14
42	9. 529535	529569	529604	529639	529673	529708	529743	529777	529812	529847	529881	529916	17	3. 21
43	9. 529951	529985	530020	530055	530089	530124	530158	530193	530228	530262	530297	530331	16	4. 28
44	9. 530366	530401	530435	530470	530505	530539	530574	530608	530643	530678	530712	530747	15	1 = 7
45	9. 530781	530816	530850	530885	530920	530954	530989	531023	531058	531093	531127	531162	14	2. 14
46	9. 531196	531231	531265	531300	531334	531369	531404	531438	531473	531507	531542	531576	13	3. 21
47	9. 531611	531645	531680	531714	531749	531783	531818	531852	531887	531921	531956	531991	12	4. 28
48	9. 532025	532060	532094	532129	532163	532198	532232	532267	532301	532336	532370	532404	11	1 = 7
49	9. 532439	532473	532508	532542	532577	532611	532646	532680	532715	532749	532784	532818	10	2. 14
50	9. 532853	532887	532922	532956	532990	533025	533059	533094	533128	533163	533197	533231	9	3. 21
51	9. 533266	533300	533335	533369	533404	533438	533472	533507	533541	533576	533610	533645	8	4. 28
52	9. 533679	533713	533748	533782	533817	533851	533885	533920	533954	533988	534023	534057	7	1 = 7
53	9. 534092	534126	534160	534195	534229	534264	534298	534332	534367	534401	534435	534470	6	2. 14
54	9. 534504	534538	534573	534607	534641	534676	534710	534744	534779	534813	534847	534882	5	3. 21
55	9. 534916	534950	534985	535019	535053	535088	535122	535156	535191	535225	535259	535294	4	4. 28
56	9. 535328	535362	535396	535431	535465	535499	535534	535568	535602	535637	535671	535705	3	1 = 7
57	9. 535739	535774	535808	535842	535876	535911	535945	535979	536013	536048	536082	536116	2	2. 14
58	9. 536151	536185	536219	536253	536287	536322	536356	536390	536424	536459	536493	536527	1	3. 21
59	9. 536561	536596	536630	536664	536698	536732	536767	536801	536835	536869	536903	536938	0	4. 28
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts
	Co-tangent of 71 degrees, or Tangent of 161 degrees.													

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LOGARITHMIC TANGENTS.

Degrees	Tangent of 19 degrees, or Co-tangent of 109 degrees.											Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.536972	537006	537040	537074	537109	537143	537177	537211	537245	537280	537314	537348	59	1″ =
1	9.537382	537416	537450	537485	537519	537553	537587	537621	537655	537690	537724	537758	58	2. 1
2	9.537792	537826	537860	537895	537929	537963	537997	538031	538065	538099	538133	538168	57	3. 2
3	9.538202	538236	538270	538304	538338	538372	538406	538441	538475	538509	538543	538577	56	4. 2
4	9.538611	538645	538679	538713	538747	538781	538816	538850	538884	538918	538952	538986	55	1 =
5	9.539020	539054	539088	539122	539156	539190	539224	539259	539293	539327	539361	539395	54	2. 1
6	9.539429	539463	539497	539531	539565	539599	539633	539667	539701	539735	539769	539803	53	3. 2
7	9.539837	539871	539905	539939	539973	540007	540041	540075	540109	540143	540177	540211	52	4. 2
8	9.540245	540279	540313	540347	540381	540415	540449	540483	540517	540551	540585	540619	51	1 =
9	9.540653	540687	540721	540755	540789	540823	540857	540891	540925	540959	540993	541027	50	2. 1
0	9.541061	541095	541129	541162	541196	541230	541264	541298	541332	541366	541400	541434	49	3. 2
1	9.541468	541502	541536	541570	541604	541637	541671	541705	541739	541773	541807	541841	48	4. 2
2	9.541875	541909	541943	541976	542010	542044	542078	542112	542146	542180	542214	542248	47	1 =
3	9.542281	542315	542349	542383	542417	542451	542485	542518	542552	542586	542620	542654	46	2. 1
4	9.542688	542722	542755	542789	542823	542857	542891	542925	542958	542992	543026	543060	45	3. 2
5	9.543094	543128	543161	543195	543229	543264	543297	543330	543364	543398	543432	543466	44	4. 2
6	9.543499	543533	543567	543601	543635	543668	543702	543736	543770	543804	543837	543871	43	1 =
7	9.543905	543939	543972	544006	544040	544074	544107	544141	544175	544209	544243	544276	42	2. 1
8	9.544310	544344	544378	544411	544445	544479	544512	544546	544580	544614	544647	544681	41	3. 2
9	9.544715	544749	544782	544816	544850	544883	544917	544951	544985	545018	545052	545086	40	4. 2
0	9.545119	545153	545187	545220	545254	545288	545322	545355	545389	545423	545456	545490	39	1 =
1	9.545524	545557	545591	545625	545658	545692	545726	545759	545793	545827	545860	545894	38	2. 1
2	9.545928	545961	545995	546029	546062	546096	546129	546163	546197	546230	546264	546298	37	3. 2
3	9.546331	546365	546399	546432	546466	546499	546533	546567	546600	546634	546667	546701	36	4. 2
4	9.546735	546768	546802	546835	546869	546903	546936	546970	547003	547037	547071	547104	35	1 =
5	9.547138	547171	547205	547238	547272	547306	547339	547373	547406	547440	547473	547507	34	2. 1
6	9.547541	547574	547608	547641	547675	547708	547742	547775	547809	547842	547876	547909	33	3. 2
7	9.547943	547977	548010	548044	548077	548111	548144	548178	548211	548245	548278	548312	32	4. 2
8	9.548345	548379	548412	548446	548479	548513	548546	548580	548613	548647	548680	548714	31	1 =
9	9.548747	548781	548814	548848	548881	548915	548948	548981	549015	549048	549082	549115	30	2. 1
0	9.549149	549182	549216	549249	549283	549316	549349	549383	549416	549450	549483	549517	29	3. 2
1	9.549550	549584	549617	549650	549684	549717	549751	549784	549817	549851	549884	549918	28	4. 2
2	9.549951	549985	550018	550051	550085	550118	550152	550185	550218	550252	550285	550319	27	1 =
3	9.550352	550385	550419	550452	550485	550519	550552	550586	550619	550652	550686	550719	26	2. 1
4	9.550752	550786	550819	550852	550886	550919	550953	550986	551019	551053	551086	551119	25	3. 2
5	9.551153	551186	551219	551253	551286	551319	551353	551386	551419	551453	551486	551519	24	4. 2
6	9.551552	551586	551619	551652	551686	551719	551752	551786	551819	551852	551886	551919	23	1 =
7	9.551952	551985	552019	552052	552085	552119	552152	552185	552218	552252	552285	552318	22	2. 1
8	9.552351	552385	552418	552451	552484	552518	552551	552584	552618	552651	552684	552717	21	3. 2
9	9.552750	552784	552817	552850	552883	552917	552950	552983	553016	553050	553083	553116	20	4. 2
0	9.553149	553182	553216	553249	553282	553315	553349	553382	553415	553448	553481	553515	19	1 =
1	9.553548	553581	553614	553647	553681	553714	553747	553780	553813	553846	553880	553913	18	2. 1
2	9.553946	553979	554012	554045	554079	554112	554145	554178	554211	554244	554278	554311	17	3. 2
3	9.554344	554377	554410	554443	554476	554510	554543	554576	554609	554642	554675	554708	16	4. 2
4	9.554742	554775	554808	554841	554874	554907	554940	554973	555006	555040	555073	555106	15	1 =
5	9.555139	555172	555205	555238	555271	555304	555337	555371	555404	555437	555470	555503	14	2. 1
6	9.555536	555569	555602	555635	555668	555701	555734	555767	555801	555834	555867	555900	13	3. 2
7	9.555933	555966	555999	556032	556065	556098	556131	556164	556197	556230	556263	556296	12	4. 2
8	9.556329	556362	556395	556428	556461	556494	556527	556560	556593	556626	556659	556693	11	1 =
9	9.556726	556759	556792	556825	556858	556891	556924	556957	556990	557023	557056	557088	10	2. 1
0	9.557121	557154	557187	557220	557253	557286	557319	557352	557385	557418	557451	557484	9	3. 2
1	9.557517	557550	557583	557616	557649	557682	557715	557748	557781	557814	557847	557880	8	4. 2
2	9.557913	557946	557978	558011	558044	558077	558110	558143	558176	558209	558242	558275	7	1 =
3	9.558308	558341	558374	558406	558439	558472	558505	558538	558571	558604	558637	558670	6	2. 1
4	9.558703	558735	558768	558801	558834	558867	558900	558933	558966	558999	559031	559064	5	3. 2
5	9.559097	559130	559163	559196	559229	559261	559294	559327	559360	559393	559426	559459	4	4. 2
6	9.559491	559524	559557	559590	559623	559656	559688	559721	559754	559787	559820	559853	3	1 =
7	9.559885	559918	559951	559984	560017	560050	560082	560115	560148	560181	560214	560246	2	2. 1
8	9.560279	560312	560345	560378	560410	560443	560476	560509	560542	560574	560607	560640	1	3. 2
9	9.560673	560705	560738	560771	560804	560837	560869	560902	560935	560968	561000	561033	0	4. 2
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 70 degrees, or Tangent of 160 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 20 degrees, or Co-tangent of 110 degrees.												Minutes	Proportional parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.561066	561099	561131	561164	561197	561230	561262	561295	561328	561361	561393	561426	59	1″=
1	9.561459	561492	561524	561557	561590	561622	561655	561688	561721	561753	561786	561819	58	2.
2	9.561852	561884	561917	561950	561982	562015	562048	562080	562113	562146	562179	562211	57	3.
3	9.562244	562277	562309	562342	562375	562407	562440	562473	562505	562538	562571	562603	56	4.
4	9.562636	562669	562701	562734	562767	562799	562832	562865	562897	562930	562963	562995	55	1 =
5	9.563028	563061	563093	563126	563158	563191	563224	563256	563289	563322	563354	563387	54	2.
6	9.563419	563452	563485	563517	563550	563583	563615	563648	563680	563713	563746	563778	53	3.
7	9.563811	563843	563876	563909	563941	563974	564006	564039	564072	564104	564137	564169	52	4.
8	9.564202	564234	564267	564300	564332	564365	564397	564430	564462	564495	564527	564560	51	1 =
9	9.564593	564625	564658	564690	564723	564755	564788	564820	564853	564886	564918	564951	50	2.
10	9.564983	565016	565048	565081	565113	565146	565178	565211	565243	565276	565308	565341	49	3.
11	9.565373	565406	565438	565471	565503	565536	565568	565601	565633	565666	565698	565731	48	4.
12	9.565763	565796	565828	565861	565893	565926	565958	565991	566023	566056	566088	566121	47	1 =
13	9.566153	566185	566218	566250	566283	566315	566348	566380	566413	566445	566478	566510	46	2.
14	9.566542	566575	566607	566640	566672	566705	566737	566770	566802	566834	566867	566899	45	3.
15	9.566932	566964	566996	567029	567061	567094	567126	567159	567191	567223	567256	567288	44	4.
16	9.567321	567353	567385	567418	567450	567483	567515	567547	567580	567612	567644	567677	43	1 =
17	9.567709	567742	567774	567806	567839	567871	567903	567936	567968	568000	568033	568065	42	2.
18	9.568098	568130	568162	568195	568227	568259	568292	568324	568356	568389	568421	568453	41	3.
19	9.568486	568518	568550	568583	568615	568647	568680	568712	568744	568777	568809	568841	40	4.
20	9.568874	568906	568938	568970	569003	569035	569067	569100	569132	569164	569197	569229	39	1 =
21	9.569261	569293	569326	569358	569390	569423	569455	569487	569519	569552	569584	569616	38	2.
22	9.569648	569681	569713	569745	569778	569810	569842	569874	569907	569939	569971	570003	37	3.
23	9.570036	570068	570100	570132	570164	570197	570229	570261	570293	570326	570358	570390	36	4.
24	9.570422	570455	570487	570519	570551	570583	570616	570648	570680	570712	570744	570777	35	1 =
25	9.570809	570841	570873	570905	570938	570970	571002	571034	571066	571099	571131	571163	34	2.
26	9.571195	571227	571260	571292	571324	571356	571388	571420	571453	571485	571517	571549	33	3.
27	9.571581	571613	571646	571678	571710	571742	571774	571806	571838	571871	571903	571935	32	4.
28	9.571967	571999	572031	572063	572095	572128	572160	572192	572224	572256	572288	572320	31	1 =
29	9.572352	572385	572417	572449	572481	572513	572545	572577	572609	572641	572674	572706	30	2.
30	9.572738	572770	572802	572834	572866	572898	572930	572962	572994	573026	573059	573091	29	3.
31	9.573123	573155	573187	573219	573251	573283	573315	573347	573379	573411	573443	573475	28	4.
32	9.573507	573539	573572	573604	573636	573668	573700	573732	573764	573796	573828	573860	27	1 =
33	9.573892	573924	573956	573988	574020	574052	574084	574116	574148	574180	574212	574244	26	2.
34	9.574276	574308	574340	574372	574404	574436	574468	574500	574532	574564	574596	574628	25	3.
35	9.574660	574692	574724	574756	574788	574820	574852	574884	574916	574948	574980	575012	24	4.
36	9.575044	575076	575108	575140	575172	575204	575236	575268	575299	575331	575363	575395	23	1 =
37	9.575427	575459	575491	575523	575555	575587	575619	575651	575683	575715	575747	575779	22	2.
38	9.575810	575842	575874	575906	575938	575970	576002	576034	576066	576098	576130	576162	21	3.
39	9.576193	576225	576257	576289	576321	576353	576385	576417	576449	576480	576512	576544	20	4.
40	9.576576	576608	576640	576672	576704	576736	576767	576799	576831	576863	576895	576927	19	1 =
41	9.576959	576990	577022	577054	577086	577118	577150	577182	577213	577245	577277	577309	18	2.
42	9.577341	577373	577404	577436	577468	577500	577532	577564	577595	577627	577659	577691	17	3.
43	9.577723	577755	577786	577818	577850	577882	577914	577945	577977	578009	578041	578073	16	4.
44	9.578104	578136	578168	578200	578232	578263	578295	578327	578359	578390	578422	578454	15	1 =
45	9.578486	578518	578549	578581	578613	578645	578676	578708	578740	578772	578803	578835	14	2.
46	9.578867	578899	578930	578962	578994	579026	579057	579089	579121	579153	579184	579216	13	3.
47	9.579248	579280	579311	579343	579375	579407	579438	579470	579502	579533	579565	579597	12	4.
48	9.579629	579660	579692	579724	579755	579787	579819	579851	579882	579914	579946	579977	11	1 =
49	9.580009	580041	580072	580104	580136	580167	580199	580231	580263	580294	580326	580358	10	2.
50	9.580389	580421	580453	580484	580516	580548	580579	580611	580643	580674	580706	580738	9	3.
51	9.580769	580801	580832	580864	580896	580927	580959	580991	581022	581054	581086	581117	8	4.
52	9.581149	581180	581212	581244	581275	581307	581339	581370	581402	581433	581465	581497	7	1 =
53	9.581528	581560	581592	581623	581655	581686	581718	581750	581781	581813	581844	581876	6	2.
54	9.581907	581939	581971	582002	582034	582065	582097	582129	582160	582192	582223	582255	5	3.
55	9.582286	582318	582350	582381	582413	582444	582476	582507	582539	582570	582602	582634	4	4.
56	9.582665	582697	582728	582760	582791	582823	582854	582886	582917	582949	582981	583012	3	1 =
57	9.583044	583075	583107	583138	583170	583201	583233	583264	583296	583327	583359	583390	2	2.
58	9.583422	583453	583485	583516	583548	583579	583611	583642	583674	583705	583737	583768	1	3.
59	9.583800	583831	583863	583894	583926	583957	583989	584020	584052	584083	584115	584146	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Proportional parts
	Co-tangent of 69 degrees, or Tangent of 159 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 21 degrees, or Co-tangent of 111 degrees.												Minutes	Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9.584177	584209	584240	584272	584303	584335	584366	584398	584429	584461	584492	584524	59	1″ = 6
1	9.584555	584586	584618	584649	584681	584712	584744	584775	584806	584838	584869	584901	58	2. 13
2	9.584932	584964	584995	585026	585058	585089	585121	585152	585184	585215	585246	585278	57	3. 19
3	9.585309	585341	585372	585403	585435	585466	585498	585529	585560	585592	585623	585655	56	4. 25
4	9.585686	585717	585749	585780	585811	585843	585874	585906	585937	585968	586000	586031	55	1 = 6
5	9.586062	586094	586125	586157	586188	586219	586251	586282	586313	586345	586376	586407	54	2. 13
6	9.586439	586470	586501	586533	586564	586595	586627	586658	586689	586721	586752	586783	53	3. 19
7	9.586815	586846	586877	586909	586940	586971	587003	587034	587065	587097	587128	587159	52	4. 25
8	9.587190	587222	587253	587284	587316	587347	587378	587410	587441	587472	587503	587535	51	1 = 6
9	9.587566	587597	587629	587660	587691	587722	587754	587785	587816	587847	587879	587910	50	2. 13
10	9.587941	587973	588004	588035	588066	588098	588129	588160	588191	588223	588254	588285	49	3. 19
11	9.588316	588348	588379	588410	588441	588473	588504	588535	588566	588598	588620	588660	48	4. 25
12	9.588691	588722	588754	588785	588816	588847	588879	588910	588941	588972	589003	589035	47	1 = 6
13	9.589066	589097	589128	589159	589191	589222	589253	589284	589315	589347	589378	589409	46	2. 12
14	9.589440	589471	589503	589534	589565	589596	589627	589658	589690	589721	589752	589783	45	3. 19
15	9.589814	589845	589877	589908	589939	589970	590001	590032	590064	590095	590126	590157	44	4. 25
16	9.590188	590219	590250	590282	590313	590344	590375	590406	590437	590468	590499	590531	43	1 = 6
17	9.590562	590593	590624	590655	590686	590717	590748	590780	590811	590842	590873	590904	42	2. 12
18	9.590935	590966	590997	591028	591060	591091	591122	591153	591184	591215	591246	591277	41	3. 19
19	9.591308	591339	591370	591402	591433	591464	591495	591526	591557	591588	591619	591650	40	4. 25
20	9.591681	591712	591743	591774	591805	591837	591868	591899	591930	591961	591992	592023	39	1 = 6
21	9.592054	592085	592116	592147	592178	592209	592240	592271	592302	592333	592364	592395	38	2. 12
22	9.592426	592457	592488	592519	592550	592581	592612	592644	592675	592706	592737	592768	37	3. 19
23	9.592799	592830	592861	592892	592923	592954	592985	593016	593047	593078	593109	593140	36	4. 25
24	9.593171	593202	593233	593264	593295	593325	593356	593387	593418	593449	593480	593511	35	1 = 6
25	9.593542	593573	593604	593635	593666	593697	593728	593759	593790	593821	593852	593883	34	2. 12
26	9.593914	593945	593976	594007	594038	594069	594100	594130	594161	594192	594223	594254	33	3. 19
27	9.594285	594316	594347	594378	594409	594440	594471	594502	594533	594563	594594	594625	32	4. 25
28	9.594656	594687	594718	594749	594780	594811	594842	594873	594903	594934	594965	594996	31	1 = 6
29	9.595027	595058	595089	595120	595151	595181	595212	595243	595274	595305	595336	595367	30	2. 12
30	9.595398	595428	595459	595490	595521	595552	595583	595614	595645	595675	595706	595737	29	3. 19
31	9.595768	595799	595830	595860	595891	595922	595953	595984	596015	596046	596076	596107	28	4. 25
32	9.596138	596169	596200	596231	596261	596292	596323	596354	596385	596416	596446	596477	27	1 = 6
33	9.596508	596539	596570	596600	596631	596662	596693	596724	596754	596785	596816	596847	26	2. 12
34	9.596878	596908	596939	596970	597001	597032	597062	597093	597124	597155	597186	597216	25	3. 18
35	9.597247	597278	597309	597339	597370	597401	597432	597462	597493	597524	597555	597586	24	4. 25
36	9.597616	597647	597678	597709	597739	597770	597801	597832	597862	597893	597924	597955	23	1 = 6
37	9.597985	598016	598047	598077	598108	598139	598170	598200	598231	598262	598293	598323	22	2. 12
38	9.598354	598385	598415	598446	598477	598508	598538	598569	598600	598630	598661	598692	21	3. 18
39	9.598723	598753	598784	598815	598845	598876	598907	598937	598968	598999	599029	599060	20	4. 25
40	9.599091	599122	599152	599183	599214	599244	599275	599306	599336	599367	599398	599428	19	1 = 6
41	9.599459	599490	599520	599551	599582	599612	599643	599673	599704	599735	599765	599796	18	2. 12
42	9.599827	599857	599888	599919	599949	599980	600011	600041	600072	600102	600133	600164	17	3. 18
43	9.600194	600225	600256	600286	600317	600347	600378	600409	600439	600470	600501	600531	16	4. 25
44	9.600562	600592	600623	600654	600684	600715	600745	600776	600807	600837	600868	600898	15	1 = 6
45	9.600929	600959	600990	601021	601051	601082	601112	601143	601174	601204	601235	601265	14	2. 12
46	9.601296	601326	601357	601388	601418	601449	601479	601510	601540	601571	601601	601632	13	3. 18
47	9.601663	601693	601724	601754	601785	601815	601846	601876	601907	601937	601968	601999	12	4. 24
48	9.602029	602060	602090	602121	602151	602182	602212	602243	602273	602304	602334	602365	11	1 = 6
49	9.602395	602426	602456	602487	602517	602548	602578	602609	602639	602670	602700	602731	10	2. 12
50	9.602761	602792	602822	602853	602883	602914	602944	602975	603005	603036	603066	603097	9	3. 18
51	9.603127	603158	603188	603219	603249	603280	603310	603340	603371	603401	603432	603462	8	4. 24
52	9.603493	603523	603554	603584	603615	603645	603676	603706	603736	603767	603797	603828	7	1 = 6
53	9.603858	603889	603919	603949	603980	604010	604041	604071	604102	604132	604162	604193	6	2. 12
54	9.604223	604254	604284	604315	604345	604375	604406	604436	604467	604497	604527	604558	5	3. 18
55	9.604588	604619	604649	604679	604710	604740	604771	604801	604831	604862	604892	604923	4	4. 24
56	9.604953	604983	605014	605044	605074	605105	605135	605166	605196	605226	605257	605287	3	1 = 6
57	9.605317	605348	605378	605409	605439	605469	605500	605530	605560	605591	605621	605651	2	2. 12
58	9.605682	605712	605742	605773	605803	605833	605864	605894	605924	605955	605985	606015	1	3. 18
59	9.606046	606076	606106	606137	606167	606197	606228	606258	606288	606319	606349	606379	0	4. 24
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5	Minutes	Propor. parts.
	Co-tangent of 68 degrees, or Tangent of 158 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 16 degrees, or Co-tangent of 106 degrees.												Minutes	Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9.457496	457536	457576	457616	457655	457695	457735	457775	457814	457854	457894	457933	59	1 =
1	9.457973	458013	458052	458092	458132	458172	458211	458251	458291	458330	458370	458410	58	2.
2	9.458449	458489	458529	458568	458608	458647	458687	458727	458766	458806	458846	458885	57	3.
3	9.458925	458964	459004	459044	459083	459123	459163	459202	459242	459281	459321	459361	56	4.
4	9.459400	459440	459479	459519	459558	459598	459638	459677	459717	459756	459796	459835	55	1 =
5	9.459875	459914	459954	459994	460033	460073	460112	460152	460191	460231	460270	460310	54	2.
6	9.460349	460389	460428	460468	460507	460547	460586	460626	460665	460705	460744	460784	53	3.
7	9.460823	460863	460902	460942	460981	461021	461060	461099	461139	461178	461218	461257	52	4.
8	9.461297	461336	461376	461415	461454	461494	461533	461573	461612	461652	461691	461730	51	1 =
9	9.461770	461809	461849	461888	461927	461967	462006	462046	462085	462124	462164	462203	50	2.
10	9.462242	462282	462321	462360	462400	462439	462479	462518	462557	462597	462636	462675	49	3.
11	9.462715	462754	462793	462833	462872	462911	462951	462990	463029	463068	463108	463147	48	4.
12	9.463186	463226	463265	463304	463343	463383	463422	463461	463501	463540	463579	463618	47	1 =
13	9.463658	463697	463736	463775	463815	463854	463893	463932	463972	464011	464050	464089	46	2.
14	9.464129	464168	464207	464246	464285	464325	464364	464403	464442	464481	464521	464560	45	3.
15	9.464599	464638	464677	464717	464756	464795	464834	464873	464912	464952	464991	465030	44	4.
16	9.465069	465108	465147	465186	465226	465265	465304	465343	465382	465421	465460	465500	43	1 =
17	9.465539	465578	465617	465656	465695	465734	465773	465812	465851	465891	465930	465969	42	2.
18	9.466008	466047	466086	466125	466164	466203	466242	466281	466320	466359	466398	466438	41	3.
19	9.466477	466516	466555	466594	466633	466672	466711	466750	466789	466828	466867	466906	40	4.
20	9.466945	466984	467023	467062	467101	467140	467179	467218	467257	467296	467335	467374	39	1 =
21	9.467413	467452	467491	467530	467569	467608	467647	467686	467724	467763	467802	467841	38	2.
22	9.467880	467919	467958	467997	468036	468075	468114	468153	468192	468231	468269	468308	37	3.
23	9.468347	468386	468425	468464	468503	468542	468581	468620	468658	468697	468736	468775	36	4.
24	9.468814	468853	468892	468931	468969	469008	469047	469086	469125	469164	469202	469241	35	1 =
25	9.469280	469319	469358	469397	469435	469474	469513	469552	469591	469630	469668	469707	34	2.
26	9.469746	469785	469824	469862	469901	469940	469979	470017	470056	470095	470134	470173	33	3.
27	9.470211	470250	470289	470328	470366	470405	470444	470483	470521	470560	470599	470638	32	4.
28	9.470676	470715	470754	470792	470831	470870	470909	470947	470986	471025	471063	471102	31	1 =
29	9.471141	471179	471218	471257	471296	471334	471373	471412	471450	471489	471528	471566	30	2.
30	9.471605	471644	471682	471721	471760	471798	471837	471875	471914	471953	471991	472030	29	3.
31	9.472069	472107	472146	472184	472223	472262	472300	472339	472377	472416	472455	472493	28	4.
32	9.472532	472570	472609	472648	472686	472725	472763	472802	472841	472879	472918	472956	27	1 =
33	9.472995	473033	473072	473110	473149	473187	473226	473265	473303	473342	473380	473419	26	2.
34	9.473457	473496	473534	473573	473611	473650	473688	473727	473765	473804	473842	473881	25	3.
35	9.473919	473958	473996	474035	474073	474112	474150	474189	474227	474266	474304	474342	24	4.
36	9.474381	474419	474458	474496	474535	474573	474612	474650	474688	474727	474765	474804	23	1 =
37	9.474842	474881	474919	474957	474996	475034	475073	475111	475149	475188	475226	475265	22	2.
38	9.475303	475341	475380	475418	475456	475495	475533	475572	475610	475648	475687	475725	21	3.
39	9.475763	475802	475840	475878	475917	475955	475993	476032	476070	476108	476147	476185	20	4.
40	9.476223	476262	476300	476338	476377	476415	476453	476491	476530	476568	476606	476645	19	1 =
41	9.476683	476721	476759	476798	476836	476874	476913	476951	476989	477027	477066	477104	18	2.
42	9.477142	477180	477219	477257	477295	477333	477372	477410	477448	477486	477524	477563	17	3.
43	9.477601	477639	477677	477716	477754	477792	477830	477868	477907	477945	477983	478021	16	4.
44	9.478059	478097	478136	478174	478212	478250	478288	478326	478365	478403	478441	478479	15	1 =
45	9.478517	478555	478594	478632	478670	478708	478746	478784	478822	478860	478899	478937	14	2.
46	9.478975	479013	479051	479089	479127	479165	479203	479242	479280	479318	479356	479394	13	3.
47	9.479432	479470	479508	479546	479584	479622	479660	479698	479737	479775	479813	479851	12	4.
48	9.479889	479927	479965	480003	480041	480079	480117	480155	480193	480231	480269	480307	11	1 =
49	9.480345	480383	480421	480459	480497	480535	480573	480611	480649	480687	480725	480763	10	2.
50	9.480801	480839	480877	480915	480953	480991	481029	481067	481105	481143	481181	481219	9	3.
51	9.481257	481295	481333	481371	481408	481446	481484	481522	481560	481598	481636	481674	8	4.
52	9.481712	481750	481788	481826	481863	481901	481939	481977	482015	482053	482091	482129	7	1 =
53	9.482167	482205	482242	482280	482318	482356	482394	482432	482470	482507	482545	482583	6	2.
54	9.482621	482659	482697	482735	482772	482810	482848	482886	482924	482962	482999	483037	5	3.
55	9.483075	483113	483151	483188	483226	483264	483302	483340	483377	483415	483453	483491	4	4.
56	9.483529	483566	483604	483642	483680	483717	483755	483793	483831	483869	483906	483944	3	1 =
57	9.483982	484020	484057	484095	484133	484171	484208	484246	484284	484321	484359	484397	2	2.
58	9.484435	484472	484510	484548	484585	484623	484661	484699	484736	484774	484812	484849	1	3.
59	9.484887	484925	484962	485000	485038	485075	485113	485151	485188	485226	485264	485301	0	4.
Minutes	60′	55″	50″	45″	40″	35″	30′	25″	20″	15′	10′	5′	Minutes	Propor. parts.
	Co-tangent of 73 degrees, or Tangent of 163 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 17 degrees, or Co-tangent of 107 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.485339	485377	485414	485452	485490	485527	485565	485603	485640	485678	485715	485753	59	1″ = 8
1	9.485791	485828	485866	485904	485941	485979	486016	486054	486092	486129	486167	486204	58	2. 15
2	9.486242	486280	486317	486355	486392	486430	486467	486505	486543	486580	486618	486655	57	3. 23
3	9.486693	486730	486768	486805	486843	486881	486918	486956	486993	487031	487068	487106	56	4. 30
4	9.487143	487181	487218	487256	487293	487331	487368	487406	487443	487481	487518	487556	55	1 = 8
5	9.487593	487631	487668	487706	487743	487781	487818	487856	487893	487931	487968	488006	54	2. 15
6	9.488043	488081	488118	488155	488193	488230	488268	488305	488343	488380	488418	488455	53	3. 23
7	9.488492	488530	488567	488605	488642	488680	488717	488754	488792	488829	488867	488904	52	4. 30
8	9.488941	488979	489016	489054	489091	489128	489166	489203	489240	489278	489315	489353	51	1 = 7
9	9.489390	489427	489465	489502	489539	489577	489614	489651	489689	489726	489763	489801	50	2. 15
10	9.489838	489875	489913	489950	489987	490025	490062	490099	490137	490174	490211	490249	49	3. 22
11	9.490286	490323	490360	490398	490435	490472	490510	490547	490584	490621	490659	490696	48	4. 30
12	9.490733	490771	490808	490845	490882	490920	490957	490994	491031	491069	491106	491143	47	1 = 7
13	9.491180	491218	491255	491292	491329	491366	491404	491441	491478	491515	491553	491590	46	2. 15
14	9.491627	491664	491701	491739	491776	491813	491850	491887	491924	491962	491999	492036	45	3. 22
15	9.492073	492110	492148	492185	492222	492259	492296	492333	492371	492408	492445	492482	44	4. 30
16	9.492519	492556	492593	492631	492668	492705	492742	492779	492816	492853	492890	492927	43	1 = 7
17	9.492965	493002	493039	493076	493113	493150	493187	493224	493261	493298	493336	493373	42	2. 15
18	9.493410	493447	493484	493521	493558	493595	493632	493669	493706	493743	493780	493817	41	3. 22
19	9.493855	493892	493929	493966	494003	494040	494077	494114	494151	494188	494225	494262	40	4. 30
20	9.494299	494336	494373	494410	494447	494484	494521	494558	494595	494632	494669	494706	39	1 = 7
21	9.494743	494780	494817	494854	494891	494928	494965	495002	495039	495076	495113	495150	38	2. 15
22	9.495187	495224	495260	495297	495334	495371	495408	495445	495482	495519	495556	495593	37	3. 22
23	9.495630	495667	495704	495741	495777	495814	495851	495888	495925	495962	495999	496036	36	4. 30
24	9.496073	496110	496146	496183	496220	496257	496294	496331	496368	496405	496442	496478	35	1 = 7
25	9.496515	496552	496589	496626	496663	496700	496736	496773	496810	496847	496884	496921	34	2. 15
26	9.496957	496994	497031	497068	497105	497142	497178	497215	497252	497289	497326	497362	33	3. 22
27	9.497399	497436	497473	497510	497546	497583	497620	497657	497694	497730	497767	497804	32	4. 29
28	9.497841	497877	497914	497951	497988	498024	498061	498098	498135	498171	498208	498245	31	1 = 7
29	9.498282	498318	498355	498392	498429	498465	498502	498539	498575	498612	498649	498686	30	2. 15
30	9.498722	498759	498796	498832	498869	498906	498943	498979	499016	499053	499089	499126	29	3. 22
31	9.499163	499199	499236	499273	499309	499346	499383	499419	499456	499493	499529	499566	28	4. 29
32	9.499603	499639	499676	499713	499749	499786	499822	499859	499896	499932	499969	500006	27	1 = 7
33	9.500042	500079	500115	500152	500189	500225	500262	500298	500335	500372	500408	500445	26	2. 15
34	9.500481	500518	500555	500591	500628	500664	500701	500737	500774	500811	500847	500884	25	3. 22
35	9.500920	500957	500993	501030	501067	501103	501140	501176	501213	501249	501286	501322	24	4. 29
36	9.501359	501395	501432	501468	501505	501541	501578	501614	501651	501687	501724	501760	23	1 = 7
37	9.501797	501833	501870	501906	501943	501979	502016	502052	502089	502125	502162	502198	22	2. 15
38	9.502235	502271	502308	502344	502381	502417	502453	502490	502526	502563	502599	502636	21	3. 22
39	9.502672	502709	502745	502781	502818	502854	502891	502927	502964	503000	503036	503073	20	4. 29
40	9.503109	503146	503182	503218	503255	503291	503328	503364	503400	503437	503473	503510	19	1 = 7
41	9.503546	503582	503619	503655	503691	503728	503764	503800	503837	503873	503910	503946	18	2. 15
42	9.503982	504019	504055	504091	504128	504164	504200	504237	504273	504309	504346	504382	17	3. 22
43	9.504418	504455	504491	504527	504563	504600	504636	504672	504709	504745	504781	504818	16	4. 29
44	9.504854	504890	504926	504963	504999	505035	505072	505108	505144	505180	505217	505253	15	1 = 7
45	9.505289	505325	505362	505398	505434	505470	505507	505543	505579	505615	505652	505688	14	2. 15
46	9.505724	505760	505796	505833	505869	505905	505941	505978	506014	506050	506086	506122	13	3. 22
47	9.506159	506195	506231	506267	506303	506340	506376	506412	506448	506484	506521	506557	12	4. 29
48	9.506593	506629	506665	506701	506738	506774	506810	506846	506882	506918	506954	506991	11	1 = 7
49	9.507027	507063	507099	507135	507171	507207	507244	507280	507316	507352	507388	507424	10	2. 14
50	9.507460	507496	507532	507569	507605	507641	507677	507713	507749	507785	507821	507857	9	3. 22
51	9.507893	507929	507966	508002	508038	508074	508110	508146	508182	508218	508254	508290	8	4. 29
52	9.508326	508362	508398	508434	508470	508506	508542	508578	508615	508651	508687	508723	7	1 = 7
53	9.508759	508795	508831	508867	508903	508939	508975	509011	509047	509083	509119	509155	6	2. 14
54	9.509191	509227	509263	509299	509335	509371	509407	509443	509479	509515	509551	509587	5	3. 22
55	9.509622	509658	509694	509730	509766	509802	509838	509874	509910	509946	509982	510018	4	4. 29
56	9.510054	510090	510126	510162	510198	510234	510269	510305	510341	510377	510413	510449	3	1 = 7
57	9.510485	510521	510557	510593	510629	510664	510700	510736	510772	510808	510844	510880	2	2. 14
58	9.510916	510952	510987	511023	511059	511095	511131	511167	511203	511239	511274	511310	1	3. 22
59	9.511346	511382	511418	511454	511489	511525	511561	511597	511633	511669	511704	511740	0	4. 29
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 72 degrees, or Tangent of 162 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 18 degrees, or Co-tangent of 108 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 511776	511812	511848	511884	511919	511955	511991	512027	512063	512098	512134	512170	59	1″ = 7
1	9. 512206	512242	512277	512313	512349	512385	512420	512456	512492	512528	512564	512599	58	2. 14
2	9. 512635	512671	512707	512742	512778	512814	512850	512885	512921	512957	512993	513028	57	3. 21
3	9. 513064	513100	513136	513171	513207	513243	513278	513314	513350	513386	513421	513457	56	4. 29
4	9. 513493	513528	513564	513600	513636	513671	513707	513743	513778	513814	513850	513885	55	1 = 7
5	9. 513921	513957	513992	514028	514064	514099	514135	514171	514206	514242	514278	514313	54	2. 14
6	9. 514349	514385	514420	514456	514492	514527	514563	514599	514634	514670	514705	514741	53	3. 21
7	9. 514777	514812	514848	514884	514919	514955	514990	515026	515062	515097	515133	515168	52	4. 29
8	9. 515204	515240	515275	515311	515346	515382	515417	515453	515489	515524	515560	515595	51	1 = 7
9	9. 515631	515666	515702	515738	515773	515809	515844	515880	515915	515951	515986	516022	50	2. 14
10	9. 516058	516093	516129	516164	516200	516235	516271	516306	516342	516377	516413	516448	49	3. 21
11	9. 516484	516519	516555	516590	516626	516661	516697	516732	516768	516803	516839	516874	48	4. 28
12	9. 516910	516945	516981	517016	517052	517087	517123	517158	517194	517229	517264	517300	47	1 = 7
13	9. 517335	517371	517406	517442	517477	517513	517548	517583	517619	517654	517690	517725	46	2. 14
14	9. 517761	517796	517831	517867	517902	517938	517973	518009	518044	518079	518115	518150	45	3. 21
15	9. 518186	518221	518256	518292	518327	518363	518398	518433	518469	518504	518539	518575	44	4. 28
16	9. 518610	518646	518681	518716	518752	518787	518822	518858	518893	518928	518964	518999	43	1 = 7
17	9. 519034	519070	519105	519140	519176	519211	519246	519282	519317	519352	519388	519423	42	2. 14
18	9. 519458	519494	519529	519564	519600	519635	519670	519706	519741	519776	519811	519847	41	3. 21
19	9. 519882	519917	519953	519988	520023	520058	520094	520129	520164	520199	520235	520270	40	4. 28
20	9. 520305	520341	520376	520411	520446	520482	520517	520552	520587	520622	520658	520693	39	1 = 7
21	9. 520728	520763	520799	520834	520869	520904	520940	520975	521010	521045	521080	521116	38	2. 14
22	9. 521151	521186	521221	521256	521292	521327	521362	521397	521432	521468	521503	521538	37	3. 21
23	9. 521573	521608	521643	521679	521714	521749	521784	521819	521854	521890	521925	521960	36	4. 28
24	9. 521995	522030	522065	522100	522136	522171	522206	522241	522276	522311	522346	522382	35	1 = 7
25	9. 522417	522452	522487	522522	522557	522592	522627	522662	522698	522733	522768	522803	34	2. 14
26	9. 522838	522873	522908	522943	522978	523013	523049	523084	523119	523154	523189	523224	33	3. 21
27	9. 523259	523294	523329	523364	523399	523434	523469	523504	523539	523574	523610	523645	32	4. 28
28	9. 523680	523715	523750	523785	523820	523855	523890	523925	523960	523995	524030	524065	31	1 = 7
29	9. 524100	524135	524170	524205	524240	524275	524310	524345	524380	524415	524450	524485	30	2. 14
30	9. 524520	524555	524590	524625	524660	524695	524730	524765	524800	524835	524870	524905	29	3. 21
31	9. 524940	524975	525009	525044	525079	525114	525149	525184	525219	525254	525289	525324	28	4. 28
32	9. 525359	525394	525429	525464	525499	525534	525568	525603	525638	525673	525708	525743	27	1 = 7
33	9. 525778	525813	525848	525883	525918	525952	525987	526022	526057	526092	526127	526162	26	2. 14
34	9. 526197	526232	526266	526301	526336	526371	526406	526441	526476	526510	526545	526580	25	3. 21
35	9. 526615	526650	526685	526720	526754	526789	526824	526859	526894	526929	526963	526998	24	4. 28
36	9. 527033	527068	527103	527138	527172	527207	527242	527277	527312	527346	527381	527416	23	1 = 7
37	9. 527451	527486	527520	527555	527590	527625	527660	527694	527729	527764	527799	527833	22	2. 14
38	9. 527868	527903	527938	527973	528007	528042	528077	528112	528146	528181	528216	528251	21	3. 21
39	9. 528285	528320	528355	528390	528424	528459	528494	528529	528563	528598	528633	528667	20	4. 28
40	9. 528702	528737	528772	528806	528841	528876	528910	528945	528980	529015	529049	529084	19	1 = 7
41	9. 529119	529153	529188	529223	529257	529292	529327	529361	529396	529431	529465	529500	18	2. 14
42	9. 529535	529569	529604	529639	529673	529708	529743	529777	529812	529847	529881	529916	17	3. 21
43	9. 529951	529985	530020	530055	530089	530124	530158	530193	530228	530262	530297	530331	16	4. 28
44	9. 530366	530401	530435	530470	530505	530539	530574	530608	530643	530678	530712	530747	15	1 = 7
45	9. 530781	530816	530850	530885	530920	530954	530989	531023	531058	531093	531127	531162	14	2. 14
46	9. 531196	531231	531265	531300	531334	531369	531404	531438	531473	531507	531542	531576	13	3. 21
47	9. 531611	531645	531680	531714	531749	531783	531818	531852	531887	531921	531956	531991	12	4. 28
48	9. 532025	532060	532094	532129	532163	532198	532232	532267	532301	532336	532370	532404	11	1 = 7
49	9. 532439	532473	532508	532542	532577	532611	532646	532680	532715	532749	532784	532818	10	2. 14
50	9. 532853	532887	532922	532956	532990	533025	533059	533094	533128	533163	533197	533231	9	3. 21
51	9. 533266	533300	533335	533369	533404	533438	533472	533507	533541	533576	533610	533645	8	4. 28
52	9. 533679	533713	533748	533782	533817	533851	533885	533920	533954	533988	534023	534057	7	1 = 7
53	9. 534092	534126	534160	534195	534229	534264	534298	534332	534367	534401	534435	534470	6	2. 14
54	9. 534504	534538	534573	534607	534641	534676	534710	534744	534779	534813	534847	534882	5	3. 21
55	9. 534916	534950	534985	535019	535053	535088	535122	535156	535191	535225	535259	535294	4	4. 28
56	9. 535328	535362	535396	535431	535465	535499	535534	535568	535602	535637	535671	535705	3	1 = 7
57	9. 535739	535774	535808	535842	535876	535911	535945	535979	536013	536048	536082	536116	2	2. 14
58	9. 536151	536185	536219	536253	536287	536322	536356	536390	536424	536459	536493	536527	1	3. 21
59	9. 536561	536596	536630	536664	536698	536732	536767	536801	536835	536869	536903	536938	0	4. 28
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-tangent of 71 degrees, or Tangent of 161 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 19 degrees, or Co-tangent of 109 degrees.													
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.536972	537006	537040	537074	537109	537143	537177	537211	537245	537280	537314	537348	59	1″ = 7
1	9.537382	537416	537450	537485	537519	537553	537587	537621	537655	537690	537724	537758	58	2. 14
2	9.537792	537826	537860	537895	537929	537963	537997	538031	538065	538099	538133	538168	57	3. 20
3	9.538202	538236	538270	538304	538338	538372	538406	538441	538475	538509	538543	538577	56	4. 27
4	9.538611	538645	538679	538713	538747	538781	538816	538850	538884	538918	538952	538986	55	1 = 7
5	9.539020	539054	539088	539122	539156	539190	539224	539259	539293	539327	539361	539395	54	2. 14
6	9.539429	539463	539497	539531	539565	539599	539633	539667	539701	539735	539769	539803	53	3. 20
7	9.539837	539871	539905	539939	539973	540007	540041	540075	540109	540143	540177	540211	52	4. 27
8	9.540245	540279	540313	540347	540381	540415	540449	540483	540517	540551	540585	540619	51	1 = 7
9	9.540653	540687	540721	540755	540789	540823	540857	540891	540925	540959	540993	541027	50	2. 14
0	9.541061	541095	541129	541162	541196	541230	541264	541298	541332	541366	541400	541434	49	3. 20
1	9.541468	541502	541536	541570	541604	541637	541671	541705	541739	541773	541807	541841	48	4. 27
2	9.541875	541909	541943	541976	542010	542044	542078	542112	542146	542180	542214	542248	47	1 = 7
3	9.542281	542315	542349	542383	542417	542451	542485	542518	542552	542586	542620	542654	46	2. 14
4	9.542688	542722	542755	542789	542823	542857	542891	542925	542958	542992	543026	543060	45	3. 20
5	9.543094	543128	543161	543195	543229	543264	543297	543330	543364	543398	543432	543466	44	4. 27
6	9.543499	543533	543567	543601	543635	543668	543702	543736	543770	543804	543837	543871	43	1 = 7
7	9.543905	543939	543972	544006	544040	544074	544107	544141	544175	544209	544243	544276	42	2. 14
8	9.544310	544344	544378	544411	544445	544479	544512	544546	544580	544614	544647	544681	41	3. 20
9	9.544715	544749	544782	544816	544850	544883	544917	544951	544985	545018	545052	545086	40	4. 27
0	9.545119	545153	545187	545220	545254	545288	545322	545355	545389	545423	545456	545490	39	1 = 7
1	9.545524	545557	545591	545625	545658	545692	545726	545759	545793	545827	545860	545894	38	2. 13
2	9.545928	545961	545995	546029	546062	546096	546129	546163	546197	546230	546264	546298	37	3. 20
3	9.546331	546365	546399	546432	546466	546499	546533	546567	546600	546634	546667	546701	36	4. 27
4	9.546735	546768	546802	546835	546869	546903	546936	546970	547003	547037	547071	547104	35	1 = 7
5	9.547138	547171	547205	547238	547272	547306	547339	547373	547406	547440	547473	547507	34	2. 13
6	9.547541	547574	547608	547641	547675	547708	547742	547775	547809	547842	547876	547909	33	3. 20
7	9.547943	547977	548010	548044	548077	548111	548144	548178	548211	548245	548278	548312	32	4. 27
8	9.548345	548379	548412	548446	548479	548513	548546	548580	548613	548647	548680	548714	31	1 = 7
9	9.548747	548781	548814	548848	548881	548915	548948	548981	549015	549048	549082	549115	30	2. 13
0	9.549149	549182	549216	549249	549283	549316	549349	549383	549416	549450	549483	549517	29	3. 20
1	9.549550	549584	549617	549650	549684	549717	549751	549784	549817	549851	549884	549918	28	4. 27
2	9.549951	549985	550018	550051	550085	550118	550152	550185	550218	550252	550285	550319	27	1 = 7
3	9.550352	550385	550419	550452	550485	550519	550552	550586	550619	550652	550686	550719	26	2. 13
4	9.550752	550786	550819	550852	550886	550919	550953	550986	551019	551053	551086	551119	25	3. 20
5	9.551153	551186	551219	551253	551286	551319	551353	551386	551419	551453	551486	551519	24	4. 27
6	9.551552	551586	551619	551652	551686	551719	551752	551786	551819	551852	551886	551919	23	1 = 7
7	9.551952	551985	552019	552052	552085	552119	552152	552185	552218	552252	552285	552318	22	2. 13
8	9.552351	552385	552418	552451	552484	552518	552551	552584	552618	552651	552684	552717	21	3. 20
9	9.552750	552784	552817	552850	552883	552917	552950	552983	553016	553050	553083	553116	20	4. 27
0	9.553149	553182	553216	553249	553282	553315	553349	553382	553415	553448	553481	553515	19	1 = 7
1	9.553548	553581	553614	553647	553681	553714	553747	553780	553813	553846	553880	553913	18	2. 13
2	9.553946	553979	554012	554045	554079	554112	554145	554178	554211	554244	554278	554311	17	3. 20
3	9.554344	554377	554410	554443	554476	554510	554543	554576	554609	554642	554675	554708	16	4. 27
4	9.554742	554775	554808	554841	554874	554907	554940	554973	555006	555040	555073	555106	15	1 = 7
5	9.555139	555172	555205	555238	555271	555304	555337	555371	555404	555437	555470	555503	14	2. 13
6	9.555536	555569	555602	555635	555668	555701	555734	555767	555801	555834	555867	555900	13	3. 20
7	9.555933	555966	555999	556032	556065	556098	556131	556164	556197	556230	556263	556296	12	4. 26
8	9.556329	556362	556395	556428	556461	556494	556527	556560	556593	556626	556659	556693	11	1 = 7
9	9.556726	556759	556792	556825	556858	556891	556924	556957	556990	557023	557056	557088	10	2. 13
0	9.557121	557154	557187	557220	557253	557286	557319	557352	557385	557418	557451	557484	9	3. 20
1	9.557517	557550	557583	557616	557649	557682	557715	557748	557781	557814	557847	557880	8	4. 26
2	9.557913	557946	557978	558011	558044	558077	558110	558143	558176	558209	558242	558275	7	1 = 7
3	9.558308	558341	558374	558406	558439	558472	558505	558538	558571	558604	558637	558670	6	2. 13
4	9.558703	558735	558768	558801	558834	558867	558900	558933	558966	558999	559031	559064	5	3. 20
5	9.559097	559130	559163	559196	559229	559261	559294	559327	559360	559393	559426	559459	4	4. 26
6	9.559491	559524	559557	559590	559623	559656	559688	559721	559754	559787	559820	559853	3	1 = 7
7	9.559885	559918	559951	559984	560017	560050	560082	560115	560148	560181	560214	560246	2	2. 13
8	9.560279	560312	560345	560378	560410	560443	560476	560509	560542	560574	560607	560640	1	3. 20
9	9.560673	560705	560738	560771	560804	560837	560869	560902	560935	560968	561000	561033	0	4. 26
	60′	55″	50′	45″	40′	35″	30′	25″	20″	15″	10′	5″	Minutes	Propor. parts.
Co-tangent of 70 degrees, or Tangent of 160 degrees.														

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 20 degrees, or Co-tangent of 110 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 561066	561099	561131	561164	561197	561230	561262	561295	561328	561361	561393	561426	59	1″ = 3
1	9. 561459	561492	561524	561557	561590	561622	561655	561688	561721	561753	561786	561819	58	2. 6
2	9. 561852	561884	561917	561950	561982	562015	562048	562080	562113	562146	562179	562211	57	3. 9
3	9. 562244	562277	562309	562342	562375	562407	562440	562473	562505	562538	562571	562603	56	4. 12
4	9. 562636	562669	562701	562734	562767	562799	562832	562865	562897	562930	562963	562995	55	1″ = 3
5	9. 563028	563061	563093	563126	563158	563191	563224	563256	563289	563322	563354	563387	54	2. 6
6	9. 563419	563452	563485	563517	563550	563583	563615	563648	563680	563713	563746	563778	53	3. 9
7	9. 563811	563843	563876	563909	563941	563974	564006	564039	564072	564104	564137	564169	52	4. 12
8	9. 564202	564234	564267	564300	564332	564365	564397	564430	564462	564495	564527	564560	51	1″ = 3
9	9. 564593	564625	564658	564690	564723	564755	564788	564820	564853	564886	564918	564951	50	2. 6
10	9. 564983	565016	565048	565081	565113	565146	565178	565211	565243	565276	565308	565341	49	3. 9
11	9. 565373	565406	565438	565471	565503	565536	565568	565601	565633	565666	565698	565731	48	4. 12
12	9. 565763	565796	565828	565861	565893	565926	565958	565991	566023	566056	566088	566121	47	1″ = 3
13	9. 566153	566185	566218	566250	566283	566315	566348	566380	566413	566445	566478	566510	46	2. 6
14	9. 566542	566575	566607	566640	566672	566705	566737	566770	566802	566834	566867	566899	45	3. 9
15	9. 566932	566964	566996	567029	567061	567094	567126	567159	567191	567223	567256	567288	44	4. 12
16	9. 567321	567353	567385	567418	567450	567483	567515	567547	567580	567612	567644	567677	43	1″ = 3
17	9. 567709	567742	567774	567806	567839	567871	567903	567936	567968	568000	568033	568065	42	2. 6
18	9. 568098	568130	568162	568195	568227	568259	568292	568324	568356	568389	568421	568453	41	3. 9
19	9. 568486	568518	568550	568583	568615	568647	568680	568712	568744	568777	568809	568841	40	4. 12
20	9. 568874	568906	568938	568970	569003	569035	569067	569100	569132	569164	569197	569229	39	1″ = 3
21	9. 569261	569293	569326	569358	569390	569423	569455	569487	569519	569552	569584	569616	38	2. 6
22	9. 569648	569681	569713	569745	569778	569810	569842	569874	569907	569939	569971	570003	37	3. 9
23	9. 570036	570068	570100	570132	570164	570197	570229	570261	570293	370326	570358	570390	36	4. 12
24	9. 570422	570455	570487	570519	570551	570583	570616	570648	570680	570712	570744	570777	35	1″ = 3
25	9. 570809	570841	570873	570905	570938	570970	571002	571034	571066	571099	571131	571163	34	2. 6
26	9. 571195	571227	571260	571292	571324	571356	571388	571420	571453	571485	571517	571549	33	3. 9
27	9. 571581	571613	571646	571678	571710	571742	571774	571806	571838	571871	571903	571935	32	4. 12
28	9. 571967	571999	572031	572063	572095	572128	572160	572192	572224	572256	572288	572320	31	1″ = 3
29	9. 572352	572385	572417	572449	572481	572513	572545	572577	572609	572641	572674	572706	30	2. 6
30	9. 572738	572770	572802	572834	572866	572898	572930	572962	572994	573026	573059	573091	29	3. 9
31	9. 573123	573155	573187	573219	573251	573283	573315	573347	573379	573411	573443	573475	28	4. 12
32	9. 573507	573539	573572	573604	573636	573668	573700	573732	573764	573796	573828	573860	27	1″ = 3
33	9. 573892	573924	573956	573988	574020	574052	574084	574116	574148	574180	574212	574244	26	2. 6
34	9. 574276	574308	574340	574372	574404	574436	574468	574500	574532	574564	574596	574628	25	3. 9
35	9. 574660	574692	574724	574756	574788	574820	574852	574884	574916	574948	574980	575012	24	4. 12
36	9. 575044	575076	575108	575140	575172	575204	575236	575268	575299	575331	575363	575395	23	1″ = 3
37	9. 575427	575459	575491	575523	575555	575587	575619	575651	575683	575715	575747	575779	22	2. 6
38	9. 575810	575842	575874	575906	575938	575970	576002	576034	576066	576098	576130	576162	21	3. 9
39	9. 576193	576225	576257	576289	576321	576353	576385	576417	576449	576480	576512	576544	20	4. 12
40	9. 576576	576608	576640	576672	576704	576736	576767	576799	576831	576863	576895	576927	19	1″ = 3
41	9. 576959	576990	577022	577054	577086	577118	577150	577182	577213	577245	577277	577309	18	2. 6
42	9. 577341	577373	577404	577436	577468	577500	577532	577564	577595	577627	577659	577691	17	3. 9
43	9. 577723	577755	577786	577818	577850	577882	577914	577945	577977	578009	578041	578073	16	4. 12
44	9. 578104	578136	578168	578200	578232	578263	578295	578327	578359	578390	578422	578454	15	1″ = 3
45	9. 578486	578518	578549	578581	578613	578645	578676	578708	578740	578772	578803	578835	14	2. 6
46	9. 578867	578899	578930	578962	578994	579026	579057	579089	579121	579153	579184	579216	13	3. 9
47	9. 579248	579280	579311	579343	579375	579407	579438	579470	579502	579533	579565	579597	12	4. 12
48	9. 579629	579660	579692	579724	579755	579787	579819	579851	579882	579914	579946	579977	11	1″ = 3
49	9. 580009	580041	580072	580104	580136	580167	580199	580231	580263	580294	580326	580358	10	2. 6
50	9. 580389	580421	580453	580484	580516	580548	580579	580611	580643	580674	580706	580738	9	3. 9
51	9. 580769	580801	580832	580864	580896	580927	580959	580991	581022	581054	581086	581117	8	4. 12
52	9. 581149	581180	581212	581244	581275	581307	581339	581370	581402	581433	581465	581497	7	1″ = 3
53	9. 581528	581560	581592	581623	581655	581686	581718	581750	581781	581813	581844	581876	6	2. 6
54	9. 581907	581939	581971	582002	582034	582065	582097	582129	582160	582192	582223	582255	5	3. 9
55	9. 582286	582318	582350	582381	582413	582444	582476	582507	582539	582570	582602	582634	4	4. 12
56	9. 582665	582697	582728	582760	582791	582823	582854	582886	582917	582949	582981	583012	3	1″ = 3
57	9. 583044	583075	583107	583138	583170	583201	583233	583264	583296	583327	583359	583390	2	2. 6
58	9. 583422	583453	583485	583516	583548	583579	583611	583642	583674	583705	583737	583768	1	3. 9
59	9. 583800	583831	583863	583894	583926	583957	583989	584020	584052	584083	584115	584146	0	4. 12
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Proportional parts.
	Co-tangent of 69 degrees, or Tangent of 159 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 21 degrees, or Co-tangent of 111 degrees.												Minutes	Propor. parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′		
0	9. 584177	584209	584240	584272	584303	584335	584366	584398	584429	584461	584492	584524	59	1″ = 6
1	9. 584555	584586	584618	584649	584681	584712	584744	584775	584806	584838	584869	584901	58	2. 13
2	9. 584932	584964	584995	585026	585058	585089	585121	585152	585184	585215	585246	585278	57	3. 19
3	9. 585309	585341	585372	585403	585435	585466	585498	585529	585560	585592	585623	585655	56	4. 25
4	9. 585686	585717	585749	585780	585811	585843	585874	585906	585937	585968	586000	586031	55	1 = 6
5	9. 586062	586094	586125	586157	586188	586219	586251	586282	586313	586345	586376	586407	54	2. 13
6	9. 586439	586470	586501	586533	586564	586595	586627	586658	586689	586721	586752	586783	53	3. 19
7	9. 586815	586846	586877	586909	586940	586971	587003	587034	587065	587097	587128	587159	52	4. 25
8	9. 587190	587222	587253	587284	587316	587347	587378	587410	587441	587472	587503	587535	51	1 = 6
9	9. 587566	587597	587629	587660	587691	587722	587754	587785	587816	587847	587879	587910	50	2. 13
10	9. 587941	587973	588004	588035	588066	588098	588129	588160	588191	588223	588254	588285	49	3. 19
11	9. 588316	588348	588379	588410	588441	588473	588504	588535	588566	588598	588620	588660	48	4. 25
12	9. 588691	588722	588754	588785	588816	588847	588879	588910	588941	588972	589003	589035	47	1 = 6
13	9. 589066	589097	589128	589159	589191	589222	589253	589284	589315	589347	589378	589409	46	2. 12
14	9. 589440	589471	589503	589534	589565	589596	589627	589658	589690	589721	589752	589783	45	3. 19
15	9. 589814	589845	589877	589908	589939	589970	590001	590032	590064	590095	590126	590157	44	4. 25
16	9. 590188	590219	590250	590282	590313	590344	590375	590406	590437	590468	590499	590531	43	1 = 6
17	9. 590562	590593	590624	590655	590686	590717	590748	590780	590811	590842	590873	590904	42	2. 12
18	9. 590935	590966	590997	591028	591060	591091	591122	591153	591184	591215	591246	591277	41	3. 19
19	9. 591308	591339	591370	591402	591433	591464	591495	591526	591557	591588	591619	591650	40	4. 25
20	9. 591681	591712	591743	591774	591805	591837	591868	591899	591930	591961	591992	592023	39	1 = 6
21	9. 592054	592085	592116	592147	592178	592209	592240	592271	592302	592333	592364	592395	38	2. 12
22	9. 592426	592457	592488	592519	592550	592581	592612	592644	592675	592706	592737	592768	37	3. 19
23	9. 592799	592830	592861	592892	592923	592954	592985	593016	593047	593078	593109	593140	36	4. 25
24	9 593171	593202	593233	593264	593295	593325	593356	593387	593418	593449	593480	593511	35	1 = 6
25	9. 593542	593573	593604	593635	593666	593697	593728	593759	593790	593821	593852	593883	34	2. 12
26	9. 593914	593945	593976	594007	594038	594069	594100	594130	594161	594192	594223	594254	33	3. 19
27	9. 594285	594316	594347	594378	594409	594440	594471	594502	594533	594563	594594	594625	32	4. 25
28	9. 594656	594687	594718	594749	594780	594811	594842	594873	594903	594934	594965	594996	31	1 = 6
29	9. 595027	595058	595089	595120	595151	595181	595212	595243	595274	595305	595336	595367	30	2. 12
30	9. 595398	595428	595459	595490	595521	595552	595583	595614	595645	595675	595706	595737	29	3. 19
31	9. 595768	595799	595830	595860	595891	595922	595953	595984	596015	596046	596076	596107	28	4. 25
32	9. 596138	596169	596200	596231	596261	596292	596323	596354	596385	596416	596446	596477	27	1 = 6
33	9. 596508	596539	596570	596600	596631	596662	596693	596724	596754	596785	596816	596847	26	2. 12
34	9. 596878	596908	596939	596970	597001	597032	597062	597093	597124	597155	597186	597216	25	3. 18
35	9. 597247	597278	597309	597339	597370	597401	597432	597462	597493	597524	597555	597586	24	4. 25
36	9. 597616	597647	597678	597709	597739	597770	597801	597832	597862	597893	597924	597955	23	1 = 6
37	9. 597985	598016	598047	598077	598108	598139	598170	598200	598231	598262	598293	598323	22	2. 12
38	9. 598354	598385	598415	598446	598477	598508	598538	598569	598600	598630	598661	598692	21	3. 18
39	9. 598723	598753	598784	598815	598845	598876	598907	598937	598968	598999	599029	599060	20	4. 25
40	9. 599091	599122	599152	599183	599214	599244	599275	599306	599336	599367	599398	599428	19	1 = 6
41	9. 599459	599490	599520	599551	599582	599612	599643	599673	599704	599735	599765	599796	18	2. 12
42	9 599827	599857	599888	599919	599949	599980	600011	600041	600072	600102	600133	600164	17	3. 18
43	9. 600194	600225	600256	600286	600317	600347	600378	600409	600439	600470	600501	600531	16	4. 25
44	9. 600562	600592	600623	600654	600684	600715	600745	600776	600807	600837	600868	600898	15	1 = 6
45	9. 600929	600959	600990	601021	601051	601082	601112	601143	601174	601204	601235	601265	14	2. 12
46	9. 601296	601326	601357	601388	601418	601449	601479	601510	601540	601571	601601	601632	13	3. 18
47	9. 601663	601693	601724	601754	601785	601815	601846	601876	601907	601937	601968	601999	12	4. 24
48	9. 602029	602060	602090	602121	602151	602182	602212	602243	602273	602304	602334	602365	11	1 = 6
49	9. 602395	602426	602456	602487	602517	602548	602578	602609	602639	602670	602700	602731	10	2. 12
50	9. 602761	602792	602822	602853	602883	602914	602944	602975	603005	603036	603066	603097	9	3. 18
51	9. 603127	603158	603188	603219	603249	603280	603310	603340	603371	603401	603432	603462	8	4. 24
52	9. 603493	603523	603554	603584	603615	603645	603676	603706	603736	603767	603797	603828	7	1 = 6
53	9. 603858	603889	603919	603949	603980	604010	604041	604071	604102	604132	604162	604193	6	2. 12
54	9. 604223	604254	604284	604315	604345	604375	604406	604436	604467	604497	604527	604558	5	3. 18
55	9. 604588	604619	604649	604679	604710	604740	604771	604801	604831	604862	604892	604923	4	4. 24
56	9. 604953	604983	605014	605044	605074	605105	605135	605166	605196	605226	605257	605287	3	1 = 6
57	9. 605317	605348	605378	605409	605439	605469	605500	605530	605560	605591	605621	605651	2	2. 12
58	9. 605682	605712	605742	605773	605803	605833	605864	605894	605924	605955	605985	606015	1	3. 18
59	9. 606046	606076	606106	606137	606167	606197	606228	606258	606288	606319	606349	606379	0	4. 24
Minutes	60′	55″	50′	45″	40′	35″	30′	25″	20′	15′	10′	5	Minutes	Propor. parts.
	Co-tangent of 68 degrees, or Tangent of 158 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 22 degrees, or Co-tangent of 112 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 606410	606440	606470	606501	606531	606561	606591	606622	606652	606682	606713	606743	59	1″ = 0.
1	9. 606773	606804	606834	606864	606894	606925	606955	606985	607016	607046	607076	607106	58	2. 12
2	9. 607137	607167	607197	607227	607258	607288	607318	607348	607379	607409	607439	607470	57	3. 18
3	9. 607500	607530	607560	607591	607621	607651	607681	607712	607742	607772	607802	607833	56	4. 24
4	9. 607863	607893	607923	607953	607984	608014	608044	608074	608105	608135	608165	608195	55	1 = 6
5	9. 608225	608256	608286	608316	608346	608377	608407	608437	608467	608497	608528	608558	54	2. 12
6	9. 608588	608618	608648	608679	608709	608739	608769	608799	608830	608860	608890	608920	53	3. 18
7	9. 608950	608980	609011	609041	609071	609101	609131	609162	609192	609222	609252	609282	52	4. 24
8	9. 609312	609343	609373	609403	609433	609463	609493	609524	609554	609584	609614	609644	51	1 = 6
9	9. 609674	609704	609735	609765	609795	609825	609855	609885	609915	609946	609976	610006	50	2. 12
10	9. 610036	610066	610096	610126	610156	610187	610217	610247	610277	610307	610337	610367	49	3. 18
11	9. 610397	610427	610458	610488	610518	610548	610578	610608	610638	610668	610698	610729	48	4. 24
12	9. 610759	610789	610819	610849	610879	610909	610939	610969	610999	611029	611059	611090	47	1 = 6
13	9. 611120	611150	611180	611210	611240	611270	611300	611330	611360	611390	611420	611450	46	2. 12
14	9. 611480	611510	611541	611571	611601	611631	611661	611691	611721	611751	611781	611811	45	3. 18
15	9. 611841	611871	611901	611931	611961	611991	612021	612051	612081	612111	612141	612171	44	4. 24
16	9. 612201	612231	612261	612291	612321	612351	612381	612411	612441	612472	612502	612532	43	1 = 6
17	9. 612562	612592	612622	612652	612682	612712	612742	612772	612802	612832	612861	612891	42	2. 12
18	9. 612921	612951	612981	613011	613041	613071	613101	613131	613161	613191	613221	613251	41	3. 18
19	9. 613281	613311	613341	613371	613401	613431	613461	613491	613521	613551	613581	613611	40	4. 24
20	9. 613641	613671	613701	613731	613761	613790	613820	613850	613880	613910	613940	613970	39	1 = 6
21	9. 614000	614030	614060	614090	614120	614150	614180	614210	614239	614269	614299	614329	38	2. 12
22	9. 614359	614389	614419	614449	614479	614509	614539	614569	614598	614628	614658	614688	37	3. 18
23	9. 614718	614748	614778	614808	614838	614867	614897	614927	614957	614987	615017	615047	36	4. 24
24	9. 615077	615107	615136	615166	615196	615226	615256	615286	615316	615346	615375	615405	35	1 = 6
25	9. 615435	615465	615495	615525	615555	615584	615614	615644	615674	615704	615734	615764	34	2. 12
26	9. 615793	615823	615853	615883	615913	615943	615972	616002	616032	616062	616092	616122	33	3. 18
27	9. 616151	616181	616211	616241	616271	616301	616330	616360	616390	616420	616450	616479	32	4. 24
28	9. 616509	616539	616569	616599	616629	616658	616688	616718	616748	616778	616807	616837	31	1 = 6
29	9. 616867	616897	616927	616956	616986	617016	617046	617075	617105	617135	617165	617195	30	2. 12
30	9. 617224	617254	617284	617314	617343	617373	617403	617433	617463	617492	617522	617552	29	3. 18
31	9. 617582	617611	617641	617671	617701	617730	617760	617790	617820	617849	617879	617909	28	4. 24
32	9. 617939	617968	617998	618028	618058	618087	618117	618147	618176	618206	618236	618266	27	1 = 6
33	9. 618295	618325	618355	618385	618414	618444	618474	618503	618533	618563	618593	618622	26	2. 12
34	9. 618652	618682	618711	618741	618771	618800	618830	618860	618890	618919	618949	618979	25	3. 18
35	9. 619008	619038	619068	619097	619127	619157	619186	619216	619246	619276	619305	619335	24	4. 24
36	9. 619365	619394	619424	619454	619483	619513	619543	619572	619602	619632	619661	619691	23	1 = 6
37	9. 619721	619750	619780	619809	619839	619869	619898	619928	619958	619987	620017	620047	22	2. 12
38	9. 620076	620106	620136	620165	620195	620224	620254	620284	620313	620343	620373	620402	21	3. 18
39	9. 620432	620461	620491	620521	620550	620580	620610	620639	620669	620698	620728	620758	20	4. 24
40	9. 620787	620817	620846	620876	620906	620935	620965	620994	621024	621054	621083	621113	19	1 = 6
41	9. 621142	621172	621202	621231	621261	621290	621320	621349	621379	621409	621438	621468	18	2. 12
42	9. 621497	621527	621556	621586	621616	621645	621675	621704	621734	621763	621793	621823	17	3. 18
43	9. 621852	621882	621911	621941	621970	622000	622029	622059	622088	622118	622148	622177	16	4. 24
44	9. 622207	622236	622266	622295	622325	622354	622384	622413	622443	622472	622502	622531	15	1 = 6
45	9. 622561	622590	622620	622650	622679	622709	622738	622768	622797	622827	622856	622886	14	2. 12
46	9. 622915	622945	622974	623004	623033	623063	623092	623122	623151	623181	623210	623240	13	3. 18
47	9. 623269	623299	623328	623357	623387	623416	623446	623475	623505	623534	623564	623593	12	4. 24
48	9. 623623	623652	623682	623711	623741	623770	623800	623829	623858	623888	623917	623947	11	1 = 6
49	9. 623976	624006	624035	624065	624094	624124	624153	624182	624212	624241	624271	624300	10	2. 12
50	9. 624330	624359	624389	624418	624447	624477	624506	624536	624565	624595	624624	624653	9	3. 18
51	9. 624683	624712	624742	624771	624800	624830	624859	624889	624918	624947	624977	625006	8	4. 24
52	9. 625036	625065	625095	625124	625153	625183	625212	625241	625271	625300	625330	625359	7	1 = 6
53	9. 625388	625418	625447	625477	625506	625535	625565	625594	625623	625653	625682	625712	6	2. 12
54	9. 625741	625770	625800	625829	625858	625888	625917	625947	625976	626005	626035	626064	5	3. 18
55	9. 626093	626123	626152	626181	626211	626240	626269	626299	626328	626357	626387	626416	4	4. 24
56	9. 626445	626475	626504	626533	626563	626592	626621	626651	626680	626709	626739	626768	3	1 = 6
57	9. 626797	626827	626856	626885	626915	626944	626973	627003	627032	627061	627090	627120	2	2. 12
58	9. 627149	627178	627208	627237	627266	627296	627325	627354	627383	627413	627442	627471	1	3. 18
59	9. 627501	627530	627559	627588	627618	627647	627676	627706	627735	627764	627793	627823	0	4. 24
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 67 degrees, or Tangent of 157 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 23 degrees, or Co-tangent of 113 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.627852	627881	627911	627940	627969	627998	628028	628057	628086	628115	628145	628174	59	1″ = 6
1	9.628203	628232	628262	628291	628320	628349	628379	628408	628437	628466	628496	628525	58	2. 12
2	9.628554	628583	628613	628642	628671	628700	628729	628759	628788	628817	628846	628876	57	3. 18
3	9.628905	628934	628963	628992	629022	629051	629080	629109	629139	629168	629197	629226	56	4. 23
4	9.629255	629285	629314	629343	629372	629401	629431	629460	629489	629518	629547	629577	55	1 = 6
5	9.629606	629635	629664	629693	629722	629752	629781	629810	629839	629868	629898	629927	54	2. 12
6	9.629956	629985	630014	630043	630073	630102	630131	630160	630189	630218	630248	630277	53	3. 18
7	9.630306	630335	630364	630393	630422	630452	630481	630510	630539	630568	630597	630626	52	4. 23
8	9.630656	630685	630714	630743	630772	630801	630830	630860	630889	630918	630947	630976	51	1 = 6
9	9.631005	631034	631063	631093	631122	631151	631180	631209	631238	631267	631296	631325	50	2. 12
10	9.631355	631384	631413	631442	631471	631500	631529	631558	631587	631616	631646	631675	49	3. 17
11	9.631704	631733	631762	631791	631820	631849	631878	631907	631936	631966	631995	632024	48	4. 23
12	9.632053	632082	632111	632140	632169	632198	632227	632256	632285	632314	632343	632373	47	1 = 6
13	9.632402	632431	632460	632489	632518	632547	632576	632605	632634	632663	632692	632721	46	2. 12
14	9.632750	632779	632808	632837	632866	632895	632924	632953	632982	633012	633041	633070	45	3. 17
15	9.633099	633128	633157	633186	633215	633244	633273	633302	633331	633360	633389	633418	44	4. 23
16	9.633447	633476	633505	633534	633563	633592	633621	633650	633679	633708	633737	633766	43	1 = 6
17	9.633795	633824	633853	633882	633911	633940	633969	633998	634027	634056	634085	634114	42	2. 12
18	9.634143	634172	634201	634230	634259	634288	634317	634346	634374	634403	634432	634461	41	3. 17
19	9.634490	634519	634548	634577	634606	634635	634664	634693	634722	634751	634780	634809	40	4. 23
20	9.634838	634867	634896	634925	634954	634983	635011	635040	635069	635098	635127	635156	39	1 = 6
21	9.635185	635214	635243	635272	635301	635330	635359	635388	635416	635445	635474	635503	38	2. 12
22	9.635532	635561	635590	635619	635648	635677	635706	635735	635763	635792	635821	635850	37	3. 17
23	9.635879	635908	635937	635966	635995	636024	636052	636081	636110	636139	636168	636197	36	4. 23
24	9.636226	636255	636283	636312	636341	636370	636399	636428	636457	636486	636514	636543	35	1 = 6
25	9.636572	636601	636630	636659	636688	636717	636745	636774	636803	636832	636861	636890	34	2. 12
26	9.636919	636947	636976	637005	637034	637063	637092	637120	637149	637178	637207	637236	33	3. 17
27	9.637265	637294	637322	637351	637380	637409	637438	637467	637495	637524	637553	637582	32	4. 23
28	9.637611	637639	637668	637697	637726	637755	637784	637812	637841	637870	637899	637928	31	1 = 6
29	9.637956	637985	638014	638043	638072	638100	638129	638158	638187	638216	638244	638273	30	2. 12
30	9.638302	638331	638360	638388	638417	638446	638475	638503	638532	638561	638590	638619	29	3. 17
31	9.638647	638676	638705	638734	638762	638791	638820	638849	638877	638906	638935	638964	28	4. 23
32	9.638993	639021	639050	639079	639108	639136	639165	639194	639223	639251	639280	639309	27	1 = 6
33	9.639338	639366	639395	639424	639452	639481	639510	639539	639567	639596	639625	639654	26	2. 11
34	9.639682	639711	639740	639769	639797	639826	639855	639883	639912	639941	639970	639998	25	3. 17
35	9.640027	640056	640084	640113	640142	640171	640199	640228	640257	640285	640314	640343	24	4. 23
36	9.640371	640400	640429	640457	640486	640515	640544	640572	640601	640630	640658	640687	23	1 = 6
37	9.640716	640744	640773	640802	640830	640859	640888	640916	640945	640974	641002	641031	22	2. 11
38	9.641060	641088	641117	641146	641174	641203	641232	641260	641289	641318	641346	641375	21	3. 17
39	9.641404	641432	641461	641490	641518	641547	641576	641604	641633	641661	641690	641719	20	4. 23
40	9.641747	641776	641805	641833	641862	641891	641919	641948	641976	642005	642034	642062	19	1 = 6
41	9.642091	642119	642148	642177	642205	642234	642263	642291	642320	642348	642377	642406	18	2. 11
42	9.642434	642463	642491	642520	642549	642577	642606	642634	642663	642692	642720	642749	17	3. 17
43	9.642777	642806	642835	642863	642892	642920	642949	642977	643006	643035	643063	643092	16	4. 23
44	9.643120	643149	643177	643206	643235	643263	643292	643320	643349	643377	643406	643435	15	1 = 6
45	9.643463	643492	643520	643549	643577	643606	643634	643663	643692	643720	643749	643777	14	2. 11
46	9.643806	643834	643863	643891	643920	643948	643977	644005	644034	644063	644091	644120	13	3. 17
47	9.644148	644177	644205	644234	644262	644291	644319	644348	644376	644405	644433	644462	12	4. 23
48	9.644490	644519	644547	644576	644604	644633	644661	644690	644718	644747	644775	644804	11	1 = 6
49	9.644832	644861	644889	644918	644946	644975	645003	645032	645060	645089	645117	645146	10	2. 11
50	9.645174	645203	645231	645260	645288	645317	645345	645374	645402	645431	645459	645488	9	3. 17
51	9.645516	645544	645573	645601	645630	645658	645687	645715	645744	645772	645801	645829	8	4. 23
52	9.645858	645886	645914	645943	645971	646000	646028	646057	646085	646114	646142	646170	7	1 = 6
53	9.646199	646227	646256	646284	646313	646341	646369	646398	646426	646455	646483	646512	6	2. 11
54	9.646540	646568	646597	646625	646654	646682	646711	646739	646767	646796	646824	646853	5	3. 17
55	9.646881	646909	646938	646966	646995	647023	647051	647080	647108	647137	647165	647193	4	4. 23
56	9.647222	647250	647279	647307	647335	647364	647392	647421	647449	647477	647506	647534	3	1 = 6
57	9.647562	647591	647619	647648	647676	647704	647733	647761	647789	647818	647846	647874	2	2. 11
58	9.647903	647931	647960	647988	648016	648045	648073	648101	648130	648158	648186	648215	1	3. 17
59	9.648243	648271	648300	648328	648356	648385	648413	648442	648470	648498	648527	648555	0	4. 23
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 66 degrees, or Tangent of 156 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 24 degrees, or Co-tangent of 114 degrees.

Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Proportional parts.
0	9. 648583	648612	648640	648668	648697	648725	648753	648781	648810	648838	648866	648895	59	1″=
1	9. 648923	648951	648980	649008	649036	649065	649093	649121	649150	649178	649206	649235	58	2.
2	9. 649263	649291	649319	649348	649376	649404	649433	649461	649489	649517	649546	649574	57	3.
3	9. 649602	649631	649659	649687	649716	649744	649772	649800	649829	649857	649885	649913	56	4.
4	9. 649942	649970	649998	650027	650055	650083	650111	650140	650168	650196	650224	650253	55	1 =
5	9. 650281	650309	650337	650366	650394	650422	650450	650479	650507	650535	650563	650592	54	2.
6	9. 650620	650648	650676	650705	650733	650761	650789	650818	650846	650874	650902	650931	53	3.
7	9. 650959	650987	651015	651043	651072	651100	651128	651156	651185	651213	651241	651269	52	4.
8	9. 651297	651326	651354	651382	651410	651438	651467	651495	651523	651551	651580	651608	51	1 =
9	9. 651636	651664	651692	651721	651749	651777	651805	651833	651861	651890	651918	651946	50	2.
10	9. 651974	652002	652031	652059	652087	652115	652143	652172	652200	652228	652256	652284	49	3.
11	9. 652312	652341	652369	652397	652425	652453	652481	652510	652538	652566	652594	652622	48	4.
12	9. 652650	652678	652707	652735	652763	652791	652819	652847	652876	652904	652932	652960	47	1 =
13	9. 652988	653016	653044	653073	653101	653129	653157	653185	653213	653241	653269	653298	46	2.
14	9. 653326	653354	653382	653410	653438	653466	653494	653523	653551	653579	653607	653635	45	3.
15	9. 653663	653691	653719	653748	653776	653804	653832	653860	653888	653916	653944	653972	44	4.
16	9. 654000	654029	654057	654085	654113	654141	654169	654197	654225	654253	654281	654309	43	1 =
17	9. 654338	654366	654394	654422	654450	654478	654506	654534	654562	654590	654618	654646	42	2.
18	9. 654674	654703	654731	654759	654787	654815	654843	654871	654899	654927	654955	654983	41	3.
19	9. 655011	655039	655067	655095	655123	655151	655180	655208	655236	655264	655292	655320	40	4.
20	9. 655348	655376	655404	655432	655460	655488	655516	655544	655572	655600	655628	655656	39	1 =
21	9. 655684	655712	655740	655768	655796	655824	655852	655880	655908	655936	655964	655992	38	2.
22	9. 656020	656048	656076	656104	656132	656160	656188	656216	656244	656272	656300	656328	37	3.
23	9. 656356	656384	656412	656440	656468	656496	656524	656552	656580	656608	656636	656664	36	4.
24	9. 656692	656720	656748	656776	656804	656832	656860	656888	656916	656944	656972	657000	35	1 =
25	9. 657028	657056	657084	657112	657140	657168	657196	657224	657252	657280	657308	657336	34	2.
26	9. 657364	657392	657420	657447	657475	657503	657531	657559	657587	657615	657643	657671	33	3.
27	9. 657699	657727	657755	657783	657811	657839	657867	657895	657922	657950	657978	658006	32	4.
28	9. 658034	658062	658090	658118	658146	658174	658202	658230	658258	658285	658313	658341	31	1 =
29	9. 658369	658397	658425	658453	658481	658509	658537	658565	658592	658620	658648	658676	30	2.
30	9. 658704	658732	658760	658788	658816	658844	658871	658899	658927	658955	658983	659011	29	3.
31	9. 659039	659067	659095	659122	659150	659178	659206	659234	659262	659290	659318	659345	28	4.
32	9. 659373	659401	659429	659457	659485	659513	659541	659568	659596	659624	659652	659680	27	1 =
33	9. 659708	659736	659763	659791	659819	659847	659875	659903	659930	659958	659986	660014	26	2.
34	9. 660042	660070	660098	660125	660153	660181	660209	660237	660265	660292	660320	660348	25	3.
35	9. 660376	660404	660432	660459	660487	660515	660543	660571	660598	660626	660654	660682	24	4.
36	9. 660710	660738	660765	660793	660821	660849	660877	660904	660932	660960	660988	661016	23	1 =
37	9. 661043	661071	661099	661127	661155	661182	661210	661238	661266	661294	661321	661349	22	2.
38	9. 661377	661405	661433	661460	661488	661516	661544	661571	661599	661627	661655	661683	21	3.
39	9. 661710	661738	661766	661794	661821	661849	661877	661905	661932	661960	661988	662016	20	4.
40	9. 662043	662071	662099	662127	662155	662182	662210	662238	662266	662293	662321	662349	19	1 =
41	9. 662377	662404	662432	662460	662487	662515	662543	662571	662598	662626	662654	662682	18	2.
42	9. 662709	662737	662765	662793	662820	662848	662876	662903	662931	662959	662987	663014	17	3.
43	9. 663042	663070	663097	663125	663153	663181	663208	663236	663264	663291	663319	663347	16	4.
44	9. 663375	663402	663430	663458	663485	663513	663541	663568	663596	663624	663652	663679	15	1 =
45	9. 663707	663735	663762	663790	663818	663845	663873	663901	663928	663956	663984	664011	14	2.
46	9. 664039	664067	664094	664122	664150	664177	664205	664233	664260	664288	664316	664343	13	3.
47	9. 664371	664399	664426	664454	664482	664509	664537	664565	664592	664620	664648	664675	12	4.
48	9. 664703	664731	664758	664786	664814	664841	664869	664897	664924	664952	664979	665007	11	1 =
49	9. 665035	665062	665090	665118	665145	665173	665200	665228	665256	665283	665311	665339	10	2.
50	9. 665366	665394	665421	665449	665477	665504	665532	665560	665587	665615	665642	665670	9	3.
51	9. 665698	665725	665753	665780	665808	665836	665863	665891	665918	665946	665974	666001	8	4.
52	9. 666029	666056	666084	666112	666139	666167	666194	666222	666250	666277	666305	666332	7	1 =
53	9. 666360	666387	666415	666443	666470	666498	666525	666553	666580	666608	666636	666663	6	2.
54	9. 666691	666718	666746	666773	666801	666829	666856	666884	666911	666939	666966	666994	5	3.
55	9. 667021	667049	667077	667104	667132	667159	667187	667214	667242	667269	667297	667324	4	4.
56	9. 667352	667380	667407	667435	667462	667490	667517	667545	667572	667600	667627	667655	3	1 =
57	9. 667682	667710	667737	667765	667792	667820	667848	667875	667903	667930	667958	667985	2	2.
58	9. 668013	668040	668068	668095	668123	668150	668178	668205	668233	668260	668288	668315	1	3.
59	9. 668343	668370	668398	668425	668453	668480	668508	668535	668563	668590	668618	668645	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proportional parts.

Co-tangent of 65 degrees, or Tangent of 155 degrees.

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LOGARITHMIC TANGENTS.

Tangent of 25 degrees, or Co-tangent of 115 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.668673	668700	668728	668755	668783	668810	668837	668865	668892	668920	668947	668975	59	1″ = 5
1	9.669002	669030	669057	669085	669112	669140	669167	669195	669222	669250	669277	669304	58	2. 11
2	9.669332	669359	669387	669414	669442	669469	669497	669524	669552	669579	669606	669634	57	3. 16
3	9.669661	669689	669716	669744	669771	669799	669826	669853	669881	669908	669936	669963	56	4. 22
4	9.669991	670018	670045	670073	670100	670128	670155	670183	670210	670237	670265	670292	55	1 = 5
5	9.670320	670347	670375	670402	670429	670457	670484	670512	670539	670566	670594	670621	54	2. 11
6	9.670649	670676	670703	670731	670758	670786	670813	670840	670868	670895	670923	670950	53	3. 16
7	9.670977	671005	671032	671060	671087	671114	671142	671169	671197	671224	671251	671279	52	4. 22
8	9.671306	671333	671361	671388	671416	671443	671470	671498	671525	671552	671580	671607	51	1 = 5
9	9.671635	671662	671689	671717	671744	671771	671799	671826	671853	671881	671908	671936	50	2. 11
10	9.671963	671990	672018	672045	672072	672100	672127	672154	672182	672209	672236	672264	49	3. 16
11	9.672291	672318	672346	672373	672400	672428	672455	672482	672510	672537	672564	672592	48	4. 22
12	9.672619	672646	672674	672701	672728	672756	672783	672810	672838	672865	672892	672920	47	1 = 5
13	9.672947	672974	673001	673029	673056	673083	673111	673138	673165	673193	673220	673247	46	2. 11
14	9.673275	673302	673329	673356	673384	673411	673438	673466	673493	673520	673547	673575	45	3. 16
15	9.673602	673629	673657	673684	673711	673738	673766	673793	673820	673848	673875	673902	44	4. 22
16	9.673929	673957	673984	674011	674038	674066	674093	674120	674148	674175	674202	674229	43	1 = 5
17	9.674257	674284	674311	674338	674366	674393	674420	674447	674475	674502	674529	674556	42	2. 11
18	9.674584	674611	674638	674665	674693	674720	674747	674774	674802	674829	674856	674883	41	3. 16
19	9.674911	674938	674965	674992	675019	675047	675074	675101	675128	675156	675183	675210	40	4. 22
20	9.675237	675265	675292	675319	675346	675373	675401	675428	675455	675482	675509	675537	39	1 = 5
21	9.675564	675591	675618	675645	675673	675700	675727	675754	675782	675809	675836	675863	38	2. 11
22	9.675890	675917	675945	675972	675999	676026	676053	676081	676108	676135	676162	676189	37	3. 16
23	9.676217	676244	676271	676298	676325	676352	676380	676407	676434	676461	676488	676516	36	4. 22
24	9.676543	676570	676597	676624	676651	676679	676706	676733	676760	676787	676814	676841	35	1 = 5
25	9.676869	676896	676923	676950	676977	677004	677032	677059	677086	677113	677140	677167	34	2. 11
26	9.677194	677222	677249	677276	677303	677330	677357	677384	677412	677439	677466	677493	33	3. 16
27	9.677520	677547	677574	677602	677629	677656	677683	677710	677737	677764	677791	677818	32	4. 22
28	9.677846	677873	677900	677927	677954	677981	678008	678035	678063	678090	678117	678144	31	1 = 5
29	9.678171	678198	678225	678252	678279	678306	678334	678361	678388	678415	678442	678469	30	2. 11
30	9.678496	678523	678550	678577	678605	678632	678659	678686	678713	678740	678767	678794	29	3. 16
31	9.678821	678848	678875	678902	678930	678957	678984	679011	679038	679065	679092	679119	28	4. 22
32	9.679146	679173	679200	679227	679254	679281	679308	679336	679363	679390	679417	679444	27	1 = 5
33	9.679471	679498	679525	679552	679579	679606	679633	679660	679687	679714	679741	679768	26	2. 11
34	9.679795	679822	679849	679877	679904	679931	679958	679985	680012	680039	680066	680093	25	3. 16
35	9.680120	680147	680174	680201	680228	680255	680282	680309	680336	680363	680390	680417	24	4. 22
36	9.680444	680471	680498	680525	680552	680579	680606	680633	680660	680687	680714	680741	23	1 = 5
37	9.680768	680795	680822	680849	680876	680903	680930	680957	680984	681011	681038	681065	22	2. 11
38	9.681092	681119	681146	681173	681200	681227	681254	681281	681308	681335	681362	681389	21	3. 16
39	9.681416	681443	681470	681497	681524	681551	681578	681605	681632	681659	681686	681713	20	4. 22
40	9.681740	681767	681794	681821	681848	681875	681901	681928	681955	681982	682009	682036	19	1 = 5
41	9.682063	682090	682117	682144	682171	682198	682225	682252	682279	682306	682333	682360	18	2. 11
42	9.682387	682414	682440	682467	682494	682521	682548	682575	682602	682629	682656	682683	17	3. 16
43	9.682710	682737	682764	682791	682818	682844	682871	682898	682925	682952	682979	683006	16	4. 22
44	9.683033	683060	683087	683114	683141	683167	683194	683221	683248	683275	683302	683329	15	1 = 5
45	9.683356	683383	683410	683437	683463	683490	683517	683544	683571	683598	683625	683652	14	2. 11
46	9.683679	683705	683732	683759	683786	683813	683840	683867	683894	683921	683947	683974	13	3. 16
47	9.684001	684028	684055	684082	684109	684136	684162	684189	684216	684243	684270	684297	12	4. 22
48	9.684324	684351	684377	684404	684431	684458	684485	684512	684539	684565	684592	684619	11	1 = 5
49	9.684646	684673	684700	684727	684753	684780	684807	684834	684861	684888	684914	684941	10	2. 11
50	9.684968	684995	685022	685049	685076	685102	685129	685156	685183	685210	685237	685263	9	3. 16
51	9.685290	685317	685344	685371	685398	685424	685451	685478	685505	685532	685558	685585	8	4. 21
52	9.685612	685639	685666	685693	685719	685746	685773	685800	685827	685853	685880	685907	7	1 = 5
53	9.685934	685961	685987	686014	686041	686068	686095	686121	686148	686175	686202	686229	6	2. 11
54	9.686255	686282	686309	686336	686363	686389	686416	686443	686470	686496	686523	686550	5	3. 16
55	9.686577	686604	686630	686657	686684	686711	686737	686764	686791	686818	686845	686871	4	4. 21
56	9.686898	686925	686952	686978	687005	687032	687059	687085	687112	687139	687166	687193	3	1 = 5
57	9.687219	687246	687273	687300	687326	687353	687380	687407	687433	687460	687487	687514	2	2. 11
58	9.687540	687567	687594	687620	687647	687674	687701	687727	687754	687781	687808	687834	1	3. 16
59	9.687861	687888	687915	687941	687968	687995	688021	688048	688075	688102	688128	688155	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 64 degrees, or Tangent of 154 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 26 degrees, or Co-tangent of 116 degrees.												Minutes	Proportional parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 688182	688209	688235	688262	688289	688315	688342	688369	688396	688422	688449	688476	59	1″ = 5
1	9. 688502	688529	688556	688583	688609	688636	688663	688689	688716	688743	688769	688796	58	2. 11
2	9. 688823	688849	688876	688903	688930	688956	688983	689010	689036	689063	689090	689116	57	3. 16
3	9. 689143	689170	689196	689223	689250	689276	689303	689330	689357	689383	689410	689437	56	4. 21
4	9. 689463	689490	689517	689543	689570	689597	689623	689650	689677	689703	689730	689757	55	1 = 5
5	9. 689783	689810	689836	689863	689890	689916	689943	689970	689996	690023	690050	690076	54	2. 11
6	9. 690103	690130	690156	690183	690210	690236	690263	690290	690316	690343	690369	690396	53	3. 16
7	9. 690423	690449	690476	690503	690529	690556	690582	690609	690636	690662	690689	690716	52	4. 21
8	9. 690742	690769	690795	690822	690849	690875	690902	690929	690955	690982	691008	691035	51	1 = 5
9	9. 691062	691088	691115	691141	691168	691195	691221	691248	691275	691301	691328	691354	50	2. 11
10	9. 691381	691408	691434	691461	691487	691514	691540	691567	691594	691620	691647	691673	49	3. 16
11	9. 691700	691727	691753	691780	691806	691833	691860	691886	691913	691939	691966	691992	48	4. 21
12	9. 692019	692046	692072	692099	692125	692152	692178	692205	692232	692258	692285	692311	47	1 = 5
13	9. 692338	692364	692391	692418	692444	692471	692497	692524	692550	692577	692603	692630	46	2. 11
14	9. 692657	692683	692710	692736	692763	692789	692816	692842	692869	692895	692922	692949	45	3. 16
15	9. 692975	693002	693028	693055	693081	693108	693134	693161	693187	693214	693240	693267	44	4. 21
16	9. 693293	693320	693347	693373	693400	693426	693453	693479	693506	693532	693559	693585	43	1 = 5
17	9. 693612	693638	693665	693691	693718	693744	693771	693797	693824	693850	693877	693903	42	2. 11
18	9. 693930	693956	693983	694009	694036	694062	694089	694115	694142	694168	694195	694221	41	3. 16
19	9. 694248	694274	694301	694327	694354	694380	694407	694433	694460	694486	694513	694539	40	4. 21
20	9. 694566	694592	694619	694645	694672	694698	694725	694751	694777	694804	694830	694857	39	1 = 5
21	9. 694883	694910	694936	694963	694989	695016	695042	695069	695095	695122	695148	695174	38	2. 11
22	9. 695201	695227	695254	695280	695307	695333	695360	695386	695413	695439	695465	695492	37	3. 16
23	9. 695518	695545	695571	695598	695624	695651	695677	695703	695730	695756	695783	695809	36	4. 21
24	9. 695836	695862	695888	695915	695941	695968	695994	696021	696047	696073	696100	696126	35	1 = 5
25	9. 696153	696179	696206	696232	696258	696285	696311	696338	696364	696390	696417	696443	34	2. 11
26	9. 696470	696496	696523	696549	696575	696602	696628	696655	696681	696707	696734	696760	33	3. 16
27	9. 696787	696813	696839	696866	696892	696919	696945	696971	696998	697024	697051	697077	32	4. 21
28	9. 697103	697130	697156	697182	697209	697235	697262	697288	697314	697341	697367	697393	31	1 = 5
29	9. 697420	697446	697473	697499	697525	697552	697578	697604	697631	697657	697684	697710	30	2. 11
30	9. 697736	697763	697789	697815	697842	697868	697894	697921	697947	697974	698000	698026	29	3. 16
31	9. 698053	698079	698105	698132	698158	698184	698211	698237	698263	698290	698316	698342	28	4. 21
32	9. 698369	698395	698421	698448	698474	698500	698527	698553	698579	698606	698632	698658	27	1 = 5
33	9. 698685	698711	698737	698764	698790	698816	698843	698869	698895	698922	698948	698974	26	2. 11
34	9. 699001	699027	699053	699080	699106	699132	699159	699185	699211	699237	699264	699290	25	3. 16
35	9. 699316	699343	699369	699395	699422	699448	699474	699501	699527	699553	699579	699606	24	4. 21
36	9. 699632	699658	699685	699711	699737	699763	699790	699816	699842	699869	699895	699921	23	1 = 5
37	9. 699947	699974	700000	700026	700053	700079	700105	700131	700158	700184	700210	700237	22	2. 11
38	9. 700263	700289	700315	700342	700368	700394	700420	700447	700473	700499	700525	700552	21	3. 16
39	9. 700578	700604	700631	700657	700683	700709	700736	700762	700788	700814	700841	700867	20	4. 21
40	9. 700893	700919	700946	700972	700998	701024	701051	701077	701103	701129	701156	701182	19	1 = 5
41	9. 701208	701234	701260	701287	701313	701339	701365	701392	701418	701444	701470	701497	18	2. 11
42	9. 701523	701549	701575	701601	701628	701654	701680	701706	701733	701759	701785	701811	17	3. 16
43	9. 701837	701864	701890	701916	701942	701969	701995	702021	702047	702073	702100	702126	16	4. 21
44	9. 702152	702178	702204	702231	702257	702283	702309	702335	702362	702388	702414	702440	15	1 = 5
45	9. 702466	702493	702519	702545	702571	702597	702623	702650	702676	702702	702728	702754	14	2. 11
46	9. 702781	702807	702833	702859	702885	702911	702938	702964	702990	703016	703042	703069	13	3. 16
47	9. 703095	703121	703147	703173	703199	703226	703252	703278	703304	703330	703356	703383	12	4. 21
48	9. 703409	703435	703461	703487	703513	703539	703566	703592	703618	703644	703670	703696	11	1 = 5
49	9. 703723	703749	703775	703801	703827	703853	703879	703906	703932	703958	703984	704010	10	2. 11
50	9. 704036	704062	704088	704115	704141	704167	704193	704219	704245	704271	704298	704324	9	3. 16
51	9. 704350	704376	704402	704428	704454	704480	704507	704533	704559	704585	704611	704637	8	4. 21
52	9. 704663	704689	704715	704742	704768	704794	704820	704846	704872	704898	704924	704950	7	1 = 5
53	9. 704977	705003	705029	705055	705081	705107	705133	705159	705185	705211	705238	705264	6	2. 10
54	9. 705290	705316	705342	705368	705394	705420	705446	705472	705498	705524	705551	705577	5	3. 16
55	9. 705603	705629	705655	705681	705707	705733	705759	705785	705811	705837	705863	705890	4	4. 21
56	9. 705916	705942	705968	705994	706020	706046	706072	706098	706124	706150	706176	706202	3	1 = 5
57	9. 706228	706254	706281	706307	706333	706359	706385	706411	706437	706463	706489	706515	2	2. 10
58	9. 706541	706567	706593	706619	706645	706671	706697	706723	706749	706775	706801	706828	1	3. 16
59	9. 706854	706880	706906	706932	706958	706984	707010	707036	707062	707088	707114	707140	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts
	Co-tangent of 63 degrees, or Tangent of 153 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 27 degrees, or Co-tangent of 117 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.707166	707192	707218	707244	707270	707296	707322	707348	707374	707400	707426	707452	59	1″ = 5
1	9.707478	707504	707530	707556	707582	707608	707634	707660	707686	707712	707738	707764	58	2. 10
2	9.707790	707816	707842	707868	707894	707920	707946	707972	707998	708024	708050	708076	57	3. 16
3	9.708102	708128	708154	708180	708206	708232	708258	708284	708310	708336	708362	708388	56	4. 21
4	9.708414	708440	708466	708492	708518	708544	708570	708596	708622	708648	708674	708700	55	1 = 5
5	9.708726	708752	708778	708804	708830	708856	708882	708908	708934	708960	708985	709011	54	2. 10
6	9.709037	709063	709089	709115	709141	709167	709193	709219	709245	709271	709297	709323	53	3. 16
7	9.709349	709375	709401	709427	709453	709479	709505	709530	709556	709582	709608	709634	52	4. 21
8	9.709660	709686	709712	709738	709764	709790	709816	709842	709868	709894	709920	709945	51	1 = 5
9	9.709971	709997	710023	710049	710075	710101	710127	710153	710179	710205	710231	710257	50	2. 10
10	9.710282	710308	710334	710360	710386	710412	710438	710464	710490	710516	710542	710567	49	3. 16
11	9.710593	710619	710645	710671	710697	710723	710749	710775	710801	710826	710852	710878	48	4. 21
12	9.710904	710930	710956	710982	711008	711034	711060	711085	711111	711137	711163	711189	47	1 = 5
13	9.711215	711241	711267	711293	711318	711344	711370	711396	711422	711448	711474	711500	46	2. 10
14	9.711525	711551	711577	711603	711629	711655	711681	711706	711732	711758	711784	711810	45	3. 16
15	9.711836	711862	711888	711913	711939	711965	711991	712017	712043	712069	712094	712120	44	4. 21
16	9.712146	712172	712198	712224	712250	712275	712301	712327	712353	712379	712405	712430	43	1 = 5
17	9.712456	712482	712508	712534	712560	712585	712611	712637	712663	712689	712715	712740	42	2. 10
18	9.712766	712792	712818	712844	712870	712895	712921	712947	712973	712999	713025	713050	41	3. 16
19	9.713076	713102	713128	713154	713179	713205	713231	713257	713283	713309	713334	713360	40	4. 21
20	9.713386	713412	713438	713463	713489	713515	713541	713567	713592	713618	713644	713670	39	1 = 5
21	9.713696	713721	713747	713773	713799	713825	713850	713876	713902	713928	713954	713979	38	2. 10
22	9.714005	714031	714057	714082	714108	714134	714160	714186	714211	714237	714263	714289	37	3. 15
23	9.714315	714340	714366	714392	714418	714443	714469	714495	714521	714546	714572	714598	36	4. 21
24	9.714624	714650	714675	714701	714727	714753	714778	714804	714830	714856	714881	714907	35	1 = 5
25	9.714933	714959	714984	715010	715036	715062	715087	715113	715139	715165	715190	715216	34	2. 10
26	9.715242	715268	715293	715319	715345	715371	715396	715422	715448	715474	715499	715525	33	3. 15
27	9.715551	715577	715602	715628	715654	715679	715705	715731	715757	715782	715808	715834	32	4. 21
28	9.715860	715885	715911	715937	715962	715988	716014	716040	716065	716091	716117	716143	31	1 = 5
29	9.716168	716194	716220	716245	716271	716297	716322	716348	716374	716400	716425	716451	30	2. 10
30	9.716477	716502	716528	716554	716580	716605	716631	716657	716682	716708	716734	716759	29	3. 15
31	9.716785	716811	716836	716862	716888	716914	716939	716965	716991	717016	717042	717068	28	4. 21
32	9.717093	717119	717145	717170	717196	717222	717247	717273	717299	717324	717350	717376	27	1 = 5
33	9.717401	717427	717453	717479	717504	717530	717556	717581	717607	717633	717658	717684	26	2. 10
34	9.717709	717735	717761	717786	717812	717838	717863	717889	717915	717940	717966	717992	25	3. 15
35	9.718017	718043	718069	718094	718120	718146	718171	718197	718223	718248	718274	718299	24	4. 21
36	9.718325	718351	718376	718402	718428	718453	718479	718505	718530	718556	718582	718607	23	1 = 5
37	9.718633	718658	718684	718710	718735	718761	718787	718812	718838	718863	718889	718915	22	2. 10
38	9.718940	718966	718992	719017	719043	719068	719094	719120	719145	719171	719196	719222	21	3. 15
39	9.719248	719273	719299	719324	719350	719376	719401	719427	719453	719478	719504	719529	20	4. 21
40	9.719555	719581	719606	719632	719657	719683	719708	719734	719760	719785	719811	719836	19	1 = 5
41	9.719862	719888	719913	719939	719964	719990	720016	720041	720067	720092	720118	720143	18	2. 10
42	9.720169	720195	720220	720246	720271	720297	720323	720348	720374	720399	720425	720450	17	3. 15
43	9.720476	720502	720527	720553	720578	720604	720629	720655	720680	720706	720732	720757	16	4. 20
44	9.720783	720808	720834	720859	720885	720911	720936	720962	720987	721013	721038	721064	15	1 = 5
45	9.721089	721115	721140	721166	721192	721217	721243	721268	721294	721319	721345	721370	14	2. 10
46	9.721396	721421	721447	721472	721498	721524	721549	721575	721600	721626	721651	721677	13	3. 15
47	9.721702	721728	721753	721779	721804	721830	721855	721881	721906	721932	721958	721983	12	4. 20
48	9.722009	722034	722060	722085	722111	722136	722162	722187	722213	722238	722264	722289	11	1 = 5
49	9.722315	722340	722366	722391	722417	722442	722468	722493	722519	722544	722570	722595	10	2. 10
50	9.722621	722646	722672	722697	722723	722748	722774	722799	722825	722850	722876	722901	9	3. 15
51	9.722927	722952	722978	723003	723029	723054	723080	723105	723131	723156	723181	723207	8	4. 20
52	9.723232	723258	723283	723309	723334	723360	723385	723411	723436	723462	723487	723513	7	1 = 5
53	9.723538	723564	723589	723615	723640	723665	723691	723716	723742	723767	723793	723818	6	2. 10
54	9.723844	723869	723895	723920	723945	723971	723996	724022	724047	724073	724098	724124	5	3. 15
55	9.724149	724175	724200	724225	724251	724276	724302	724327	724353	724378	724404	724429	4	4. 20
56	9.724454	724480	724505	724531	724556	724582	724607	724632	724658	724683	724709	724734	3	1 = 5
57	9.724760	724785	724810	724836	724861	724887	724912	724938	724963	724988	725014	725039	2	2. 10
58	9.725065	725090	725115	725141	725166	725192	725217	725243	725268	725293	725319	725344	1	3. 15
59	9.725370	725395	725420	725446	725471	725497	725522	725547	725573	725598	725624	725649	0	4. 20
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 62 degrees, or Tangent of 152 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 28 degrees, or Co-tangent of 118 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 725674	725700	725725	725751	725776	725801	725827	725852	725878	725903	725928	725954	59	1″ = 5
1	9. 725979	726005	726030	726055	726081	726106	726131	726157	726182	726208	726233	726258	58	2. 10
2	9. 726284	726309	726334	726360	726385	726411	726436	726461	726487	726512	726537	726563	57	3. 15
3	9. 726588	726614	726639	726664	726690	726715	726740	726766	726791	726816	726842	726867	56	4. 20
4	9. 726893	726918	726943	726969	726994	727019	727045	727070	727095	727121	727146	727171	55	1 = 5
5	9. 727197	727222	727247	727273	727298	727323	727349	727374	727400	727425	727450	727476	54	2. 10
6	9. 727501	727526	727552	727577	727602	727628	727653	727678	727704	727729	727754	727780	53	3. 15
7	9. 727805	727830	727856	727881	727906	727931	727957	727982	728007	728033	728058	728083	52	4. 20
8	9. 728109	728134	728159	728185	728210	728235	728261	728286	728311	728337	728362	728387	51	1 = 5
9	9. 728412	728438	728463	728488	728514	728539	728564	728590	728615	728640	728666	728691	50	2. 10
10	9. 728716	728741	728767	728792	728817	728843	728868	728893	728918	728944	728969	728994	49	3. 15
11	9. 729020	729045	729070	729096	729121	729146	729171	729197	729222	729247	729272	729298	48	4. 20
12	9. 729323	729348	729374	729399	729424	729449	729475	729500	729525	729551	729576	729601	47	1 = 5
13	9. 729626	729652	729677	729702	729727	729753	729778	729803	729828	729854	729879	729904	46	2. 10
14	9. 729930	729955	729980	730005	730031	730056	730081	730106	730132	730157	730182	730207	45	3. 15
15	9. 730233	730258	730283	730308	730334	730359	730384	730409	730435	730460	730485	730510	44	4. 20
16	9. 730535	730561	730586	730611	730636	730662	730687	730712	730737	730763	730788	730813	43	1 =
17	9. 730838	730864	730889	730914	730939	730964	730990	731015	731040	731065	731091	731116	42	2. 10
18	9. 731141	731166	731191	731217	731242	731267	731292	731318	731343	731368	731393	731418	41	3. 15
19	9. 731444	731469	731494	731519	731544	731570	731595	731620	731645	731670	731696	731721	40	4. 20
20	9. 731746	731771	731796	731822	731847	731872	731897	731922	731948	731973	731998	732023	39	1 = 5
21	9. 732048	732074	732099	732124	732149	732174	732200	732225	732250	732275	732300	732325	38	2. 10
22	9. 732351	732376	732401	732426	732451	732477	732502	732527	732552	732577	732602	732628	37	3. 15
23	9. 732653	732678	732703	732728	732753	732779	732804	732829	732854	732879	732904	732930	36	4. 20
24	9. 732955	732980	733005	733030	733055	733081	733106	733131	733156	733181	733206	733232	35	1 = 5
25	9. 733257	733282	733307	733332	733357	733382	733408	733433	733458	733483	733508	733533	34	2. 10
26	9. 733558	733584	733609	733634	733659	733684	733709	733734	733760	733785	733810	733835	33	3. 15
27	9. 733860	733885	733910	733936	733961	733986	734011	734036	734061	734086	734111	734137	32	4. 20
28	9. 734162	734187	734212	734237	734262	734287	734312	734338	734363	734388	734413	734438	31	1 = 5
29	9. 734463	734488	734513	734538	734564	734589	734614	734639	734664	734689	734714	734739	30	2. 10
30	9. 734764	734790	734815	734840	734865	734890	734915	734940	734965	734990	735015	735041	29	3. 15
31	9. 735066	735091	735116	735141	735166	735191	735216	735241	735266	735291	735317	735342	28	4. 20
32	9. 735367	735392	735417	735442	735467	735492	735517	735542	735567	735592	735618	735643	27	1 = 5
33	9. 735668	735693	735718	735743	735768	735793	735818	735843	735868	735893	735918	735944	26	2. 10
34	9. 735969	735994	736019	736044	736069	736094	736119	736144	736169	736194	736219	736244	25	3. 15
35	9. 736269	736294	736319	736345	736370	736395	736420	736445	736470	736495	736520	736545	24	4. 20
36	9. 736570	736595	736620	736645	736670	736695	736720	736745	736770	736795	736820	736845	23	1 = 5
37	9. 736871	736896	736921	736946	736971	736996	737021	737046	737071	737096	737121	737146	22	2. 10
38	9. 737171	737196	737221	737246	737271	737296	737321	737346	737371	737396	737421	737446	21	3. 15
39	9. 737471	737496	737521	737546	737571	737596	737621	737646	737671	737696	737721	737746	20	4. 20
40	9. 737771	737796	737821	737846	737871	737896	737921	737946	737972	737997	738022	738047	19	1 = 5
41	9. 738072	738097	738122	738147	738172	738197	738222	738247	738272	738297	738322	738346	18	2. 10
42	9. 738371	738396	738421	738446	738471	738496	738521	738546	738571	738596	738621	738646	17	3. 15
43	9. 738671	738696	738721	738746	738771	738796	738821	738846	738871	738896	738921	738946	16	4. 20
44	9. 738971	738996	739021	739046	739071	739096	739121	739146	739171	739196	739221	739246	15	1 = 5
45	9. 739271	739296	739321	739346	739371	739396	739421	739445	739470	739495	739520	739545	14	2. 10
46	9. 739570	739595	739620	739645	739670	739695	739720	739745	739770	739795	739820	739845	13	3. 15
47	9. 739870	739895	739920	739944	739969	739994	740019	740044	740069	740094	740119	740144	12	4. 20
48	9. 740169	740194	740219	740244	740269	740294	740319	740344	740368	740393	740418	740443	11	1 = 5
49	9. 740468	740493	740518	740543	740568	740593	740618	740643	740668	740692	740717	740742	10	2. 10
50	9. 740767	740792	740817	740842	740867	740892	740917	740942	740967	740991	741016	741041	9	3. 15
51	9. 741066	741091	741116	741141	741166	741191	741216	741241	741265	741290	741315	741340	8	4. 20
52	9. 741365	741390	741415	741440	741465	741490	741514	741539	741564	741589	741614	741639	7	1 = 5
53	9. 741664	741689	741714	741738	741763	741788	741813	741838	741863	741888	741913	741938	6	2. 10
54	9. 741962	741987	742012	742037	742062	742087	742112	742137	742161	742186	742211	742236	5	3. 15
55	9. 742261	742286	742311	742336	742360	742385	742410	742435	742460	742485	742510	742535	4	4. 20
56	9. 742559	742584	742609	742634	742659	742684	742709	742733	742758	742783	742808	742833	3	1 = 5
57	9. 742858	742883	742907	742932	742957	742982	743007	743032	743057	743081	743106	743131	2	2. 10
58	9. 743156	743181	743206	743230	743255	743280	743305	743330	743355	743380	743404	743429	1	3. 15
59	9. 743454	743479	743504	743529	743553	743578	743603	743628	743653	743678	743702	743727	0	4. 20
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-tangent of 61 degrees, or Tangent of 151 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 29 degrees, or Co-tangent of 119 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.743752	743777	743802	743827	743851	743876	743901	743926	743951	743975	744000	744025	59	1″ = 5
1	9.744050	744075	744100	744124	744149	744174	744199	744224	744248	744273	744298	744323	58	2. 10
2	9.744348	744372	744397	744422	744447	744472	744497	744521	744546	744571	744596	744621	57	3. 15
3	9.744645	744670	744695	744720	744745	744769	744794	744819	744844	744869	744893	744918	56	4. 20
4	9.744943	744968	744992	745017	745042	745067	745092	745116	745141	745166	745191	745216	55	1 = 5
5	9.745240	745265	745290	745315	745339	745364	745389	745414	745439	745463	745488	745513	54	2. 10
6	9.745538	745562	745587	745612	745637	745662	745686	745711	745736	745761	745785	745810	53	3. 15
7	9.745835	745860	745884	745909	745934	745959	745983	746008	746033	746058	746083	746107	52	4. 20
8	9.746132	746157	746182	746206	746231	746256	746281	746305	746330	746355	746380	746404	51	1 = 5
9	9.746429	746454	746479	746503	746528	746553	746578	746602	746627	746652	746676	746701	50	2. 10
10	9.746726	746751	746775	746800	746825	746850	746874	746899	746924	746949	746973	746998	49	3. 15
11	9.747023	747048	747072	747097	747122	747146	747171	747196	747221	747245	747270	747295	48	4. 20
12	9.747319	747344	747369	747394	747418	747443	747468	747493	747517	747542	747567	747591	47	1 = 5
13	9.747616	747641	747665	747690	747715	747740	747764	747789	747814	747838	747863	747888	46	2. 10
14	9.747913	747937	747962	747987	748011	748036	748061	748085	748110	748135	748160	748184	45	3. 15
15	9.748209	748234	748258	748283	748308	748332	748357	748382	748406	748431	748456	748481	44	4. 20
16	9.748505	748530	748555	748579	748604	748629	748653	748678	748703	748727	748752	748777	43	1 = 5
17	9.748801	748826	748851	748875	748900	748925	748949	748974	748999	749023	749048	749073	42	2. 10
18	9.749097	749122	749147	749171	749196	749221	749245	749270	749295	749319	749344	749369	41	3. 15
19	9.749393	749418	749443	749467	749492	749517	749541	749566	749591	749615	749640	749665	40	4. 20
20	9.749689	749714	749739	749763	749788	749813	749837	749862	749886	749911	749936	749960	39	1 = 5
21	9.749985	750010	750034	750059	750084	750108	750133	750157	750182	750207	750231	750256	38	2. 10
22	9.750281	750305	750330	750355	750379	750404	750428	750453	750478	750502	750527	750552	37	3. 15
23	9.750576	750601	750625	750650	750675	750699	750724	750749	750773	750798	750822	750847	36	4. 20
24	9.750872	750896	750921	750945	750970	750995	751019	751044	751069	751093	751118	751142	35	1 = 5
25	9.751167	751192	751216	751241	751265	751290	751315	751339	751364	751388	751413	751438	34	2. 10
26	9.751462	751487	751511	751536	751561	751585	751610	751634	751659	751684	751708	751733	33	3. 15
27	9.751757	751782	751807	751831	751856	751880	751905	751929	751954	751979	752003	752028	32	4. 20
28	9.752052	752077	752102	752126	752151	752175	752200	752224	752249	752274	752298	752323	31	1 = 5
29	9.752347	752372	752396	752421	752446	752470	752495	752519	752544	752568	752593	752618	30	2. 10
30	9.752642	752667	752691	752716	752740	752765	752789	752814	752839	752863	752888	752912	29	3. 15
31	9.752937	752961	752986	753010	753035	753060	753084	753109	753133	753158	753182	753207	28	4. 20
32	9.753231	753256	753281	753305	753330	753354	753379	753403	753428	753452	753477	753501	27	1 = 5
33	9.753526	753550	753575	753600	753624	753649	753673	753698	753722	753747	753771	753796	26	2. 10
34	9.753820	753845	753869	753894	753918	753943	753967	753992	754017	754041	754066	754090	25	3. 15
35	9.754115	754139	754164	754188	754213	754237	754262	754286	754311	754335	754360	754384	24	4. 20
36	9.754409	754433	754458	754482	754507	754531	754556	754580	754605	754629	754654	754678	23	1 = 5
37	9.754703	754727	754752	754776	754801	754825	754850	754874	754899	754923	754948	754972	22	2. 10
38	9.754997	755021	755046	755070	755095	755119	755144	755168	755193	755217	755242	755266	21	3. 15
39	9.755291	755315	755340	755364	755389	755413	755438	755462	755487	755511	755536	755560	20	4. 20
40	9.755585	755609	755634	755658	755683	755707	755731	755756	755780	755805	755829	755854	19	1 = 5
41	9.755878	755903	755927	755952	755976	756001	756025	756050	756074	756099	756123	756147	18	2. 10
42	9.756172	756196	756221	756245	756270	756294	756319	756343	756368	756392	756416	756441	17	3. 15
43	9.756465	756490	756514	756539	756563	756588	756612	756637	756661	756685	756710	756734	16	4. 20
44	9.756759	756783	756808	756832	756857	756881	756905	756930	756954	756979	757003	757028	15	1 = 5
45	9.757052	757077	757101	757125	757150	757174	757199	757223	757248	757272	757296	757321	14	2. 10
46	9.757345	757370	757394	757419	757443	757467	757492	757516	757541	757565	757589	757614	13	3. 15
47	9.757638	757663	757687	757712	757736	757760	757785	757809	757834	757858	757883	757907	12	4. 20
48	9.757931	757956	757980	758005	758029	758053	758078	758102	758127	758151	758175	758200	11	1 = 5
49	9.758224	758249	758273	758297	758322	758346	758371	758395	758419	758444	758468	758493	10	2. 10
50	9.758517	758541	758566	758590	758615	758639	758663	758688	758712	758737	758761	758785	9	3. 15
51	9.758810	758834	758858	758883	758907	758932	758956	758980	759005	759029	759054	759078	8	4. 19
52	9.759102	759127	759151	759175	759200	759224	759249	759273	759297	759322	759346	759370	7	1 = 5
53	9.759395	759419	759444	759468	759492	759517	759541	759565	759590	759614	759638	759663	6	2. 10
54	9.759687	759712	759736	759760	759785	759809	759833	759858	759882	759906	759931	759955	5	3. 15
55	9.759979	760004	760028	760053	760077	760101	760126	760150	760174	760199	760223	760247	4	4. 19
56	9.760272	760296	760320	760345	760369	760393	760418	760442	760466	760491	760515	760539	3	1 = 5
57	9.760564	760588	760612	760637	760661	760685	760710	760734	760758	760783	760807	760831	2	2. 10
58	9.760856	760880	760904	760929	760953	760977	761002	761026	761050	761075	761099	761123	1	3. 15
59	9.761148	761172	761196	761221	761245	761269	761294	761318	761342	761366	761391	761415	0	4. 19
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-tangent of 60 degrees, or Tangent of 150 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 20 degrees, or Co-tangent of 110 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 561066	561099	561131	561164	561197	561230	561262	561295	561328	561361	561393	561426	59	1″= 7
1	9. 561459	561492	561524	561557	561590	561622	561655	561688	561721	561753	561786	561819	58	2. 13
2	9. 561852	561884	561917	561950	561982	562015	562048	562080	562113	562146	562179	562211	57	3. 20
3	9. 562244	562277	562309	562342	562375	562407	562440	562473	562505	562538	562571	562603	56	4. 26
4	9. 562636	562669	562701	562734	562767	562799	562832	562865	562897	562930	562963	562995	55	1 = 7
5	9. 563028	563061	563093	563126	563158	563191	563224	563256	563289	563322	563354	563387	54	2. 13
6	9. 563419	563452	563485	563517	563550	563583	563615	563648	563680	563713	563746	563778	53	3. 20
7	9. 563811	563843	563876	563909	563941	563974	564006	564039	564072	564104	564137	564169	52	4. 26
8	9. 564202	564234	564267	564300	564332	564365	564397	564430	564462	564495	564527	564560	51	1 = 7
9	9. 564593	564625	564658	564690	564723	564755	564788	564820	564853	564886	564918	564951	50	2. 13
10	9. 564983	565016	565048	565081	565113	565146	565178	565211	565243	565276	565308	565341	49	3. 20
11	9. 565373	565406	565438	565471	565503	565536	565568	565601	565633	565666	565698	565731	48	4. 26
12	9. 565763	565796	565828	565861	565893	565926	565958	565991	566023	566056	566088	566121	47	1 = 7
13	9. 566153	566185	566218	566250	566283	566315	566348	566380	566413	566445	566478	566510	46	2. 13
14	9. 566542	566575	566607	566640	566672	566705	566737	566770	566802	566834	566867	566899	45	3. 19
15	9. 566932	566964	566996	567029	567061	567094	567126	567159	567191	567223	567256	567288	44	4. 25
16	9. 567321	567353	567385	567418	567450	567483	567515	567547	567580	567612	567644	567677	43	1 = 7
17	9. 567709	567742	567774	567806	567839	567871	567903	567936	567968	568000	568033	568065	42	2. 13
18	9. 568098	568130	568162	568195	568227	568259	568292	568324	568356	568389	568421	568453	41	3. 19
19	9. 568486	568518	568550	568583	568615	568647	568680	568712	568744	568777	568809	568841	40	4. 25
20	9. 568874	568906	568938	568970	569003	569035	569067	569100	569132	569164	569197	569229	39	1 = 6
21	9. 569261	569293	569326	569358	569390	569423	569455	569487	569519	569552	569584	569616	38	2. 13
22	9. 569648	569681	569713	569745	569778	569810	569842	569874	569907	569939	569971	570003	37	3. 19
23	9. 570036	570068	570100	570132	570164	570197	570229	570261	570293	570326	570358	570390	36	4. 25
24	9. 570422	570455	570487	570519	570551	570583	570616	570648	570680	570712	570744	570777	35	1 = 6
25	9. 570809	570841	570873	570905	570938	570970	571002	571034	571066	571099	571131	571163	34	2. 13
26	9. 571195	571227	571260	571292	571324	571356	571388	571420	571453	571485	571517	571549	33	3. 19
27	9. 571581	571613	571646	571678	571710	571742	571774	571806	571838	571871	571903	571935	32	4. 25
28	9. 571967	571999	572031	572063	572095	572128	572160	572192	572224	572256	572288	572320	31	1 = 6
29	9. 572352	572385	572417	572449	572481	572513	572545	572577	572609	572641	572674	572706	30	2. 13
30	9. 572738	572770	572802	572834	572866	572898	572930	572962	572994	573026	573059	573091	29	3. 19
31	9. 573123	573155	573187	573219	573251	573283	573315	573347	573379	573411	573443	573475	28	4. 25
32	9. 573507	573539	573572	573604	573636	573668	573700	573732	573764	573796	573828	573860	27	1 = 6
33	9. 573892	573924	573956	573988	574020	574052	574084	574116	574148	574180	574212	574244	26	2. 13
34	9. 574276	574308	574340	574372	574404	574436	574468	574500	574532	574564	574596	574628	25	3. 19
35	9. 574660	574692	574724	574756	574788	574820	574852	574884	574916	574948	574980	575012	24	4. 25
36	9. 575044	575076	575108	575140	575172	575204	575236	575268	575299	575331	575363	575395	23	1 = 6
37	9. 575427	575459	575491	575523	575555	575587	575619	575651	575683	575715	575747	575779	22	2. 13
38	9. 575810	575842	575874	575906	575938	575970	576002	576034	576066	576098	576130	576162	21	3. 19
39	9. 576193	576225	576257	576289	576321	576353	576385	576417	576449	576480	576512	576544	20	4. 25
40	9. 576576	576608	576640	576672	576704	576736	576767	576799	576831	576863	576895	576927	19	1 = 6
41	9. 576959	576990	577022	577054	577086	577118	577150	577182	577213	577245	577277	577309	18	2. 13
42	9. 577341	577373	577404	577436	577468	577500	577532	577564	577595	577627	577659	577691	17	3. 19
43	9. 577723	577755	577786	577818	577850	577882	577914	577945	577977	578009	578041	578073	16	4. 25
44	9. 578104	578136	578168	578200	578232	578263	578295	578327	578359	578390	578422	578454	15	1 = 6
45	9. 578486	578518	578549	578581	578613	578645	578676	578708	578740	578772	578803	578835	14	2. 13
46	9. 578867	578899	578930	578962	578994	579026	579057	579089	579121	579153	579184	579216	13	3. 19
47	9. 579248	579280	579311	579343	579375	579407	579438	579470	579502	579533	579565	579597	12	4. 25
48	9. 579629	579660	579692	579724	579755	579787	579819	579851	579882	579914	579946	579977	11	1 = 6
49	9. 580009	580041	580072	580104	580136	580167	580199	580231	580263	580294	580326	580358	10	2. 13
50	9. 580389	580421	580453	580484	580516	580548	580579	580611	580643	580674	580706	580738	9	3. 19
51	9. 580769	580801	580832	580864	580896	580927	580959	580991	581022	581054	581086	581117	8	4. 25
52	9. 581149	581180	581212	581244	581275	581307	581339	581370	581402	581433	581465	581497	7	1 = 6
53	9. 581528	581560	581592	581623	581655	581686	581718	581750	581781	581813	581844	581876	6	2. 13
54	9. 581907	581939	581971	582002	582034	582065	582097	582129	582160	582192	582223	582255	5	3. 19
55	9. 582286	582318	582350	582381	582413	582444	582476	582507	582539	582570	582602	582634	4	4. 25
56	9. 582665	582697	582728	582760	582791	582823	582854	582886	582917	582949	582981	583012	3	1 = 6
57	9. 583044	583075	583107	583138	583170	583201	583233	583264	583296	583327	583359	583390	2	2. 13
58	9. 583422	583453	583485	583516	583548	583579	583611	583642	583674	583705	583737	583768	1	3. 19
59	9. 583800	583831	583863	583894	583926	583957	583989	584020	584052	584083	584115	584146	0	4. 25
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Proportional parts.
	Co-tangent of 69 degrees, or Tangent of 159 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 21 degrees, or Co-tangent of 111 degrees.												Minutes	Proper. parts.
	0′	5″	10″	15″	20′	25″	30′	35′	40′	45′	50′	55″		
0	9. 584177	584209	584240	584272	584303	584335	584366	584398	584429	584461	584492	584524	59	1″ = 6
1	9. 584555	584586	584618	584649	584681	584712	584744	584775	584806	584838	584869	584901	58	2. 13
2	9. 584932	584964	584995	585026	585058	585089	585121	585152	585184	585215	585246	585278	57	3. 19
3	9. 585309	585341	585372	585403	585435	585466	585498	585529	585560	585592	585623	585655	56	4. 25
4	9. 585686	585717	585749	585780	585811	585843	585874	585906	585937	585968	586000	586031	55	1 = 6
5	9. 586062	586094	586125	586157	586188	586219	586251	586282	586313	586345	586376	586407	54	2. 13
6	9. 586439	586470	586501	586533	586564	586595	586627	586658	586689	586721	586752	586783	53	3. 19
7	9. 586815	586846	586877	586909	586940	586971	587003	587034	587065	587097	587128	587159	52	4. 25
8	9. 587190	587222	587253	587284	587316	587347	587378	587410	587441	587472	587503	587535	51	1 = 6
9	9. 587566	587597	587629	587660	587691	587722	587754	587785	587816	587847	587879	587910	50	2. 13
10	9. 587941	587973	588004	588035	588066	588098	588129	588160	588191	588223	588254	588285	49	3. 19
11	9. 588316	588348	588379	588410	588441	588473	588504	588535	588566	588598	588629	588660	48	4. 25
12	9. 588691	588722	588754	588785	588816	588847	588879	588910	588941	588972	589003	589035	47	1 = 6
13	9. 589066	589097	589128	589159	589191	589222	589253	589284	589315	589347	589378	589409	46	2. 12
14	9. 589440	589471	589503	589534	589565	589596	589627	589658	589690	589721	589752	589783	45	3. 19
15	9. 589814	589845	589877	589908	589939	589970	590001	590032	590064	590095	590126	590157	44	4. 25
16	9. 590188	590219	590250	590282	590313	590344	590375	590406	590437	590468	590499	590531	43	1 = 6
17	9. 590562	590593	590624	590655	590686	590717	590748	590780	590811	590842	590873	590904	42	2. 12
18	9. 590935	590966	590997	591028	591060	591091	591122	591153	591184	591215	591246	591277	41	3. 19
19	9. 591308	591339	591370	591402	591433	591464	591495	591526	591557	591588	591619	591650	40	4. 25
20	9. 591681	591712	591743	591774	591805	591837	591868	591899	591930	591961	591992	592023	39	1 = 6
21	9. 592054	592085	592116	592147	592178	592209	592240	592271	592302	592333	592364	592395	38	2. 12
22	9. 592426	592457	592488	592519	592550	592581	592612	592644	592675	592706	592737	592768	37	3. 19
23	9. 592799	592830	592861	592892	592923	592954	592985	593016	593047	593078	593109	593140	36	4. 25
24	9. 593171	593202	593233	593264	593295	593325	593356	593387	593418	593449	593480	593511	35	1 = 6
25	9. 593542	593573	593604	593635	593666	593697	593728	593759	593790	593821	593852	593883	34	2. 12
26	9. 593914	593945	593976	594007	594038	594069	594100	594130	594161	594192	594223	594254	33	3. 19
27	9. 594285	594316	594347	594378	594409	594440	594471	594502	594533	594563	594594	594625	32	4. 25
28	9. 594656	594687	594718	594749	594780	594811	594842	594873	594903	594934	594965	594996	31	1 = 6
29	9. 595027	595058	595089	595120	595151	595181	595212	595243	595274	595305	595336	595367	30	2. 12
30	9. 595398	595428	595459	595490	595521	595552	595583	595614	595645	595675	595706	595737	29	3. 19
31	9. 595768	595799	595830	595860	595891	595922	595953	595984	596015	596046	596076	596107	28	4. 25
32	9. 596138	596169	596200	596231	596261	596292	596323	596354	596385	596416	596446	596477	27	1 = 6
33	9. 596508	596539	596570	596600	596631	596662	596693	596724	596754	596785	596816	596847	26	2. 12
34	9. 596878	596908	596939	596970	597001	597032	597062	597093	597124	597155	597186	597216	25	3. 18
35	9. 597247	597278	597309	597339	597370	597401	597432	597462	597493	597524	597555	597586	24	4. 25
36	9. 597616	597647	597678	597709	597739	597770	597801	597832	597862	597893	597924	597955	23	1 = 6
37	9. 597985	598016	598047	598077	598108	598139	598170	598200	598231	598262	598293	598323	22	2. 12
38	9. 598354	598385	598415	598446	598477	598508	598538	598569	598600	598630	598661	598692	21	3. 18
39	9. 598723	598753	598784	598815	598845	598876	598907	598937	598968	598999	599029	599060	20	4. 25
40	9. 599091	599122	599152	599183	599214	599244	599275	599306	599336	599367	599398	599428	19	1 = 6
41	9. 599459	599490	599520	599551	599582	599612	599643	599673	599704	599735	599765	599796	18	2. 12
42	9. 599827	599857	599888	599919	599949	599980	600011	600041	600072	600102	600133	600164	17	3. 18
43	9. 600194	600225	600256	600286	600317	600347	600378	600409	600439	600470	600501	600531	16	4. 25
44	9. 600562	600592	600623	600654	600684	600715	600745	600776	600807	600837	600868	600898	15	1 = 6
45	9. 600929	600959	600990	601021	601051	601082	601112	601143	601174	601204	601235	601265	14	2. 12
46	9. 601296	601326	601357	601388	601418	601449	601479	601510	601540	601571	601601	601632	13	3. 18
47	9. 601663	601693	601724	601754	601785	601815	601846	601876	601907	601937	601968	601999	12	4. 24
48	9. 602029	602060	602090	602121	602151	602182	602212	602243	602273	602304	602334	602365	11	1 = 6
49	9. 602395	602426	602456	602487	602517	602548	602578	602609	602639	602670	602700	602731	10	2. 12
50	9. 602761	602792	602822	602853	602883	602914	602944	602975	603005	603036	603066	603097	9	3. 18
51	9. 603127	603158	603188	603219	603249	603280	603310	603340	603371	603401	603432	603462	8	4. 24
52	9. 603493	603523	603554	603584	603615	603645	603676	603706	603736	603767	603797	603828	7	1 = 6
53	9. 603858	603889	603919	603949	603980	604010	604041	604071	604102	604132	604162	604193	6	2. 12
54	9. 604223	604254	604284	604315	604345	604375	604406	604436	604467	604497	604527	604558	5	3. 18
55	9. 604588	604619	604649	604679	604710	604740	604771	604801	604831	604862	604892	604923	4	4. 24
56	9. 604953	604983	605014	605044	605074	605105	605135	605166	605196	605226	605257	605287	3	1 = 6
57	9. 605317	605348	605378	605409	605439	605469	605500	605530	605560	605591	605621	605651	2	2. 12
58	9. 605682	605712	605742	605773	605803	605833	605864	605894	605924	605955	605985	606015	1	3. 18
59	9. 606046	606076	606106	606137	606167	606197	606228	606258	606288	606319	606349	606379	0	4. 24
Minutes	60′	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Proper. parts.
	Co-tangent of 68 degrees, or Tangent of 158 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 22 degrees, or Co-tangent of 112 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 606410	606440	606470	606501	606531	606561	606591	606622	606652	606682	606713	606743	59	1″ = 6
1	9. 606773	606804	606834	606864	606894	606925	606955	606985	607016	607046	607076	607106	58	2. 12
2	9. 607137	607167	607197	607227	607258	607288	607318	607348	607379	607409	607439	607470	57	3. 18
3	9. 607500	607530	607560	607591	607621	607651	607681	607712	607742	607772	607802	607833	56	4. 24
4	9. 607863	607893	607923	607953	607984	608014	608044	608074	608105	608135	608165	608195	55	1 = 6
5	9. 608225	608256	608286	608316	608346	608377	608407	608437	608467	608497	608528	608558	54	2. 12
6	9. 608588	608618	608648	608679	608709	608739	608769	608799	608830	608860	608890	608920	53	3. 18
7	9. 608950	608980	609011	609041	609071	609101	609131	609162	609192	609222	609252	609282	52	4. 24
8	9. 609312	609343	609373	609403	609433	609463	609493	609524	609554	609584	609614	609644	51	1 = 6
9	9. 609674	609704	609735	609765	609795	609825	609855	609885	609915	609946	609976	610006	50	2. 12
10	9. 610036	610066	610096	610126	610156	610187	610217	610247	610277	610307	610337	610367	49	3. 18
11	9. 610397	610427	610458	610488	610518	610548	610578	610608	610638	610668	610698	610729	48	4. 24
12	9. 610759	610789	610819	610849	610879	610909	610939	610969	610999	611029	611059	611090	47	1 = 6
13	9. 611120	611150	611180	611210	611240	611270	611300	611330	611360	611390	611420	611450	46	2. 12
14	9. 611480	611510	611541	611571	611601	611631	611661	611691	611721	611751	611781	611811	45	3. 18
15	9. 611841	611871	611901	611931	611961	611991	612021	612051	612081	612111	612141	612171	44	4. 24
16	9. 612201	612231	612261	612291	612321	612351	612381	612411	612441	612472	612502	612532	43	1 = 6
17	9. 612562	612592	612622	612652	612682	612712	612742	612772	612802	612832	612861	612891	42	2. 12
18	9. 612921	612951	612981	613011	613041	613071	613101	613131	613161	613191	613221	613251	41	3. 18
19	9. 613281	613311	613341	613371	613401	613431	613461	613491	613521	613551	613581	613611	40	4. 24
20	9. 613641	613671	613701	613731	613761	613790	613820	613850	613880	613910	613940	613970	39	1 = 6
21	9. 614000	614030	614060	614090	614120	614150	614180	614210	614239	614269	614299	614329	38	2. 12
22	9. 614359	614389	614419	614449	614479	614509	614539	614569	614598	614628	614658	614688	37	3. 18
23	9. 614718	614748	614778	614808	614838	614867	614897	614927	614957	614987	615017	615047	36	4. 24
24	9. 615077	615107	615136	615166	615196	615226	615256	615286	615316	615346	615375	615405	35	1 = 6
25	9. 615435	615465	615495	615525	615555	615584	615614	615644	615674	615704	615734	615764	34	2. 12
26	9. 615793	615823	615853	615883	615913	615943	615972	616002	616032	616062	616092	616122	33	3. 18
27	9. 616151	616181	616211	616241	616271	616301	616330	616360	616390	616420	616450	616479	32	4. 24
28	9. 616509	616539	616569	616599	616629	616658	616688	616718	616748	616778	616807	616837	31	1 = 6
29	9. 616867	616897	616927	616956	616986	617016	617046	617075	617105	617135	617165	617195	30	2. 12
30	9. 617224	617254	617284	617314	617343	617373	617403	617433	617463	617492	617522	617552	29	3. 18
31	9. 617582	617611	617641	617671	617701	617730	617760	617790	617820	617849	617879	617909	28	4. 24
32	9. 617939	617968	617998	618028	618058	618087	618117	618147	618176	618206	618236	618266	27	1 = 6
33	9. 618295	618325	618355	618385	618414	618444	618474	618503	618533	618563	618593	618622	26	2. 12
34	9. 618652	618682	618711	618741	618771	618800	618830	618860	618890	618919	618949	618979	25	3. 18
35	9. 619008	619038	619068	619097	619127	619157	619186	619216	619246	619276	619305	619335	24	4. 24
36	9. 619365	619394	619424	619454	619483	619513	619543	619572	619602	619632	619661	619691	23	1 = 6
37	9. 619721	619750	619780	619809	619839	619869	619898	619928	619958	619987	620017	620047	22	2. 12
38	9. 620076	620106	620136	620165	620195	620224	620254	620284	620313	620343	620373	620402	21	3. 18
39	9. 620432	620461	620491	620521	620550	620580	620610	620639	620669	620698	620728	620758	20	4. 24
40	9. 620787	620817	620846	620876	620906	620935	620965	620994	621024	621054	621083	621113	19	1 = 6
41	9. 621142	621172	621202	621231	621261	621290	621320	621349	621379	621409	621438	621468	18	2. 12
42	9. 621497	621527	621556	621586	621616	621645	621675	621704	621734	621763	621793	621823	17	3. 18
43	9. 621852	621882	621911	621941	621970	622000	622029	622059	622088	622118	622148	622177	16	4. 24
44	9. 622207	622236	622266	622295	622325	622354	622384	622413	622443	622472	622502	622531	15	1 = 6
45	9. 622561	622590	622620	622650	622679	622709	622738	622768	622797	622827	622856	622886	14	2. 12
46	9. 622915	622945	622974	623004	623033	623063	623092	623122	623151	623181	623210	623240	13	3. 18
47	9. 623269	623299	623328	623357	623387	623416	623446	623475	623505	623534	623564	623593	12	4. 24
48	9. 623623	623652	623682	623711	623741	623770	623800	623829	623858	623888	623917	623947	11	1 = 6
49	9. 623976	624006	624035	624065	624094	624124	624153	624182	624212	624241	624271	624300	10	2. 12
50	9. 624330	624359	624389	624418	624447	624477	624506	624536	624565	624595	624624	624653	9	3. 18
51	9. 624683	624712	624742	624771	624800	624830	624859	624889	624918	624947	624977	625006	8	4. 24
52	9. 625036	625065	625095	625124	625153	625183	625212	625241	625271	625300	625330	625359	7	1 = 6
53	9. 625388	625418	625447	625477	625506	625535	625565	625594	625623	625653	625682	625712	6	2. 12
54	9. 625741	625770	625800	625829	625858	625888	625917	625947	625976	626005	626035	626064	5	3. 18
55	9. 626093	626123	626152	626181	626211	626240	626269	626299	626328	626357	626387	626416	4	4. 24
56	9. 626445	626475	626504	626533	626563	626592	626621	626651	626680	626709	626739	626768	3	1 = 6
57	9. 626797	626827	626856	626885	626915	626944	626973	627003	627032	627061	627090	627120	2	2. 12
58	9. 627149	627178	627208	627237	627266	627296	627325	627354	627383	627413	627442	627471	1	3. 18
59	9. 627501	627530	627559	627588	627618	627647	627676	627706	627735	627764	627793	627823	0	4. 24
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-tangent of 67 degrees, or Tangent of 157 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 23 degrees, or Co-tangent of 113 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 627852	627881	627911	627940	627969	627998	628028	628057	628086	628115	628145	628174	59	1″ = 6
1	9. 628203	628232	628262	628291	628320	628349	628379	628408	628437	628466	628496	628525	58	2. 12
2	9. 628554	628583	628613	628642	628671	628700	628729	628759	628788	628817	628846	628876	57	3. 18
3	9. 628905	628934	628963	628992	629022	629051	629080	629109	629139	629168	629197	629226	56	4. 23
4	9. 629255	629285	629314	629343	629372	629401	629431	629460	629489	629518	629547	629577	55	1 = 6
5	9. 629606	629635	629664	629693	629722	629752	629781	629810	629839	629868	629898	629927	54	2. 12
6	9. 629956	629985	630014	630043	630073	630102	630131	630160	630189	630218	630248	630277	53	3. 18
7	9. 630306	630335	630364	630393	630422	630452	630481	630510	630539	630568	630597	630626	52	4. 23
8	9. 630656	630685	630714	630743	630772	630801	630830	630860	630889	630918	630947	630976	51	1 = 6
9	9. 631005	631034	631063	631093	631122	631151	631180	631209	631238	631267	631296	631325	50	2. 12
10	9. 631355	631384	631413	631442	631471	631500	631529	631558	631587	631616	631646	631675	49	3. 17
11	9. 631704	631733	631762	631791	631820	631849	631878	631907	631936	631966	631995	632024	48	4. 23
12	9. 632053	632082	632111	632140	632169	632198	632227	632256	632285	632314	632343	632373	47	1 = 6
13	9. 632402	632431	632460	632489	632518	632547	632576	632605	632634	632663	632692	632721	46	2. 12
14	9. 632750	632779	632808	632837	632866	632895	632924	632953	632982	633012	633041	633070	45	3. 17
15	9. 633099	633128	633157	633186	633215	633244	633273	633302	633331	633360	633389	633418	44	4. 23
16	9. 633447	633476	633505	633534	633563	633592	633621	633650	633679	633708	633737	633766	43	1 = 6
17	9. 633795	633824	633853	633882	633911	633940	633969	633998	634027	634056	634085	634114	42	2. 12
18	9. 634143	634172	634201	634230	634259	634288	634317	634346	634374	634403	634432	634461	41	3. 17
19	9. 634490	634519	634548	634577	634606	634635	634664	634693	634722	634751	634780	634809	40	4. 23
20	9. 634838	634867	634896	634925	634954	634983	635011	635040	635069	635098	635127	635156	39	1 = 6
21	9. 635185	635214	635243	635272	635301	635330	635359	635388	635416	635445	635474	635503	38	2. 12
22	9. 635532	635561	635590	635619	635648	635677	635706	635735	635763	635792	635821	635850	37	3. 17
23	9. 635879	635908	635937	635966	635995	636024	636052	636081	636110	636139	636168	636197	36	4. 23
24	9. 636226	636255	636283	636312	636341	636370	636399	636428	636457	636486	636514	636543	35	1 = 6
25	9. 636572	636601	636630	636659	636688	636717	636745	636774	636803	636832	636861	636890	34	2. 12
26	9. 636919	636947	636976	637005	637034	637063	637092	637120	637149	637178	637207	637236	33	3. 17
27	9. 637265	637294	637322	637351	637380	637409	637438	637467	637495	637524	637553	637582	32	4. 23
28	9. 637611	637639	637668	637697	637726	637755	637784	637812	637841	637870	637899	637928	31	1 = 6
29	9. 637956	637985	638014	638043	638072	638100	638129	638158	638187	638216	638244	638273	30	2. 12
30	9. 638302	638331	638360	638388	638417	638446	638475	638503	638532	638561	638590	638619	29	3. 17
31	9. 638647	638676	638705	638734	638762	638791	638820	638849	638877	638906	638935	638964	28	4. 23
32	9. 638993	639021	639050	639079	639108	639136	639165	639194	639223	639251	639280	639309	27	1 = 6
33	9. 639338	639366	639395	639424	639452	639481	639510	639539	639567	639596	639625	639654	26	2. 11
34	9. 639682	639711	639740	639769	639797	639826	639855	639883	639912	639941	639970	639998	25	3. 17
35	9. 640027	640056	640084	640113	640142	640171	640199	640228	640257	640285	640314	640343	24	4. 23
36	9. 640371	640400	640429	640457	640486	640515	640544	640572	640601	640630	640658	640687	23	1 = 6
37	9. 640716	640744	640773	640802	640830	640859	640888	640916	640945	640974	641002	641031	22	2. 11
38	9. 641060	641088	641117	641146	641174	641203	641232	641260	641289	641318	641346	641375	21	3. 17
39	9. 641404	641432	641461	641490	641518	641547	641576	641604	641633	641661	641690	641719	20	4. 23
40	9. 641747	641776	641805	641833	641862	641891	641919	641948	641976	642005	642034	642062	19	1 = 6
41	9. 642091	642119	642148	642177	642205	642234	642263	642291	642320	642348	642377	642406	18	2. 11
42	9. 642434	642463	642491	642520	642549	642577	642606	642634	642663	642692	642720	642749	17	3. 17
43	9 642777	642806	642835	642863	642892	642920	642949	642977	643006	643035	643063	643092	16	4. 23
44	9. 643120	643149	643177	643206	643235	643263	643292	643320	643349	643377	643406	643435	15	1 = 6
45	9. 643463	643492	643520	643549	643577	643606	643634	643663	643692	643720	643749	643777	14	2. 11
46	9. 643806	643834	643863	643891	643920	643948	643977	644005	644034	644063	644091	644120	13	3. 17
47	9. 644148	644177	644205	644234	644262	644291	644319	644348	644376	644405	644433	644462	12	4. 23
48	9. 644490	644519	644547	644576	644604	644633	644661	644690	644718	644747	644775	644804	11	1 = 6
49	9. 644832	644861	644889	644918	644946	644975	645003	645032	645060	645089	645117	645146	10	2. 11
50	9. 645174	645203	645231	645260	645288	645317	645345	645374	645402	645431	645459	645488	9	3. 17
51	9. 645516	645544	645573	645601	645630	645658	645687	645715	645744	645772	645801	645829	8	4. 23
52	9. 645858	645886	645914	645943	645971	646000	646028	646057	646085	646114	646142	646170	7	1 = 6
53	9. 646199	646227	646256	646284	646313	646341	646369	646398	646426	646455	646483	646512	6	2. 11
54	9. 646540	646568	646597	646625	646654	646682	646711	646739	646767	646796	646824	646853	5	3. 17
55	9. 646881	646909	646938	646966	646995	647023	647051	647080	647108	647137	647165	647193	4	4. 23
56	9. 647222	647250	647279	647307	647335	647364	647392	647421	647449	647477	647506	647534	3	1 = 6
57	9. 647562	647591	647619	647648	647676	647704	647733	647761	647789	647818	647846	647874	2	2. 11
58	9. 647903	647931	647960	647988	648016	648045	648073	648101	648130	648158	648186	648215	1	3. 17
59	9. 648243	648271	648300	648328	648356	648385	648413	648442	648470	648498	648527	648555	0	4. 23
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.
	Co-tangent of 66 degrees, or Tangent of 156 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 24 degrees, or Co-tangent of 114 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 648583	648612	648640	648668	648697	648725	648753	648781	648810	648838	648866	648895	59	1″ = 0
1	9. 648923	648951	648980	649008	649036	649065	649093	649121	649150	649178	649206	649235	58	2. 1
2	9. 649263	649291	649319	649348	649376	649404	649433	649461	649489	649517	649546	649574	57	3. 1
3	9. 649602	649631	649659	649687	649716	649744	649772	649800	649829	649857	649885	649913	56	4. 2
4	9. 649942	649970	649998	650027	650055	650083	650111	650140	650168	650196	650224	650253	55	1 = 0
5	9. 650281	650309	650337	650366	650394	650422	650450	650479	650507	650535	650563	650592	54	2. 1
6	9. 650620	650648	650676	650705	650733	650761	650789	650818	650846	650874	650902	650931	53	3. 1
7	9. 650959	650987	651015	651043	651072	651100	651128	651156	651185	651213	651241	651269	52	4. 2
8	9. 651297	651326	651354	651382	651410	651438	651467	651495	651523	651551	651580	651608	51	1 = 0
9	9. 651636	651664	651692	651721	651749	651777	651805	651833	651861	651890	651918	651946	50	2. 1
10	9. 651974	652002	652031	652059	652087	652115	652143	652172	652200	652228	652256	652284	49	3. 1
11	9. 652312	652341	652369	652397	652425	652453	652481	652510	652538	652566	652594	652622	48	4. 2
12	9. 652650	652678	652707	652735	652763	652791	652819	652847	652876	652904	652932	652960	47	1 = 0
13	9. 652988	653016	653044	653073	653101	653129	653157	653185	653213	653241	653269	653298	46	2. 1
14	9. 653326	653354	653382	653410	653438	653466	653494	653523	653551	653579	653607	653635	45	3. 1
15	9. 653663	653691	653719	653748	653776	653804	653832	653860	653888	653916	653944	653972	44	4. 2
16	9. 654000	654029	654057	654085	654113	654141	654169	654197	654225	654253	654281	654309	43	1 = 0
17	9. 654338	654366	654394	654422	654450	654478	654506	654534	654562	654590	654618	654646	42	2. 1
18	9. 654674	654703	654731	654759	654787	654815	654843	654871	654899	654927	654955	654983	41	3. 1
19	9. 655011	655039	655067	655095	655123	655151	655180	655208	655236	655264	655292	655320	40	4. 2
20	9. 655348	655376	655404	655432	655460	655488	655516	655544	655572	655600	655628	655656	39	1 = 0
21	9. 655684	655712	655740	655768	655796	655824	655852	655880	655908	655936	655964	655992	38	2. 1
22	9. 656020	656048	656076	656104	656132	656160	656188	656216	656244	656272	656300	656328	37	3. 1
23	9. 656356	656384	656412	656440	656468	656496	656524	656552	656580	656608	656636	656664	36	4. 2
24	9. 656692	656720	656748	656776	656804	656832	656860	656888	656916	656944	656972	657000	35	1 = 0
25	9. 657028	657056	657084	657112	657140	657168	657196	657224	657252	657280	657308	657336	34	2. 1
26	9. 657364	657392	657420	657447	657475	657503	657531	657559	657587	657615	657643	657671	33	3. 1
27	9. 657699	657727	657755	657783	657811	657839	657867	657895	657922	657950	657978	658006	32	4. 2
28	9. 658034	658062	658090	658118	658146	658174	658202	658230	658258	658285	658313	658341	31	1 = 0
29	9. 658369	658397	658425	658453	658481	658509	658537	658565	658592	658620	658648	658676	30	2. 1
30	9. 658704	658732	658760	658788	658816	658844	658871	658899	658927	658955	658983	659011	29	3. 1
31	9. 659039	659067	659095	659122	659150	659178	659206	659234	659262	659290	659318	659345	28	4. 2
32	9. 659373	659401	659429	659457	659485	659513	659541	659568	659596	659624	659652	659680	27	1 = 0
33	9. 659708	659736	659763	659791	659819	659847	659875	659903	659930	659958	659986	660014	26	2. 1
34	9. 660042	660070	660098	660125	660153	660181	660209	660237	660265	660292	660320	660348	25	3. 1
35	9. 660376	660404	660432	660459	660487	660515	660543	660571	660598	660626	660654	660682	24	4. 2
36	9. 660710	660738	660765	660793	660821	660849	660877	660904	660932	660960	660988	661016	23	1 = 0
37	9. 661043	661071	661099	661127	661155	661182	661210	661238	661266	661294	661321	661349	22	2. 1
38	9. 661377	661405	661433	661460	661488	661516	661544	661571	661599	661627	661655	661683	21	3. 1
39	9. 661710	661738	661766	661794	661821	661849	661877	661905	661932	661960	661988	662016	20	4. 2
40	9. 662043	662071	662099	662127	662155	662182	662210	662238	662266	662293	662321	662349	19	1 = 0
41	9. 662377	662404	662432	662460	662487	662515	662543	662571	662598	662626	662654	662682	18	2. 1
42	9. 662709	662737	662765	662793	662820	662848	662876	662903	662931	662959	662987	663014	17	3. 1
43	9. 663042	663070	663097	663125	663153	663181	663208	663236	663264	663291	663319	663347	16	4. 2
44	9. 663375	663402	663430	663458	663485	663513	663541	663568	663596	663624	663652	663679	15	1 = 0
45	9. 663707	663735	663762	663790	663818	663845	663873	663901	663928	663956	663984	664011	14	2. 1
46	9. 664039	664067	664094	664122	664150	664177	664205	664233	664260	664288	664316	664343	13	3. 1
47	9. 664371	664399	664426	664454	664482	664509	664537	664565	664592	664620	664648	664675	12	4. 2
48	9. 664703	664731	664758	664786	664814	664841	664869	664897	664924	664952	664979	665007	11	1 = 0
49	9. 665035	665062	665090	665118	665145	665173	665200	665228	665256	665283	665311	665339	10	2. 1
50	9. 665366	665394	665421	665449	665477	665504	665532	665560	665587	665615	665642	665670	9	3. 1
51	9. 665698	665725	665753	665780	665808	665836	665863	665891	665918	665946	665974	666001	8	4. 2
52	9. 666029	666056	666084	666112	666139	666167	666194	666222	666250	666277	666305	666332	7	1 = 0
53	9. 666360	666387	666415	666443	666470	666498	666525	666553	666580	666608	666636	666663	6	2. 1
54	9. 666691	666718	666746	666773	666801	666829	666856	666884	666911	666939	666966	666994	5	3. 1
55	9. 667021	667049	667077	667104	667132	667159	667187	667214	667242	667269	667297	667324	4	4. 2
56	9. 667352	667380	667407	667435	667462	667490	667517	667545	667572	667600	667627	667655	3	1 = 0
57	9. 667682	667710	667737	667765	667792	667820	667848	667875	667903	667930	667958	667985	2	2. 1
58	9. 668013	668040	668068	668095	668123	668150	668178	668205	668233	668260	668288	668315	1	3. 1
59	9. 668343	668370	668398	668425	668453	668480	668508	668535	668563	668590	668618	668645	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 65 degrees, or Tangent of 155 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 25 degrees, or Co-tangent of 115 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.668673	668700	668728	668755	668783	668810	668837	668865	668892	668920	668947	668975	59	1″ = 5
1	9.669002	669030	669057	669085	669112	669140	669167	669195	669222	669250	669277	669304	58	2. 11
2	9.669332	669359	669387	669414	669442	669469	669497	669524	669552	669579	669606	669634	57	3. 16
3	9.669661	669689	669716	669744	669771	669799	669826	669853	669881	669908	669936	669963	56	4. 22
4	9.669991	670018	670045	670073	670100	670128	670155	670183	670210	670237	670265	670292	55	1 = 5
5	9.670320	670347	670375	670402	670429	670457	670484	670512	670539	670566	670594	670621	54	2. 11
6	9.670649	670676	670703	670731	670758	670786	670813	670840	670868	670895	670923	670950	53	3. 16
7	9.670977	671005	671032	671060	671087	671114	671142	671169	671197	671224	671251	671279	52	4. 22
8	9.671306	671333	671361	671388	671416	671443	671470	671498	671525	671552	671580	671607	51	1 = 5
9	9.671635	671662	671689	671717	671744	671771	671799	671826	671853	671881	671908	671936	50	2. 11
10	9.671963	671990	672018	672045	672072	672100	672127	672154	672182	672209	672236	672264	49	3. 16
11	9.672291	672318	672346	672373	672400	672428	672455	672482	672510	672537	672564	672592	48	4. 22
12	9.672619	672646	672674	672701	672728	672756	672783	672810	672838	672865	672892	672920	47	1 = 5
13	9.672947	672974	673001	673029	673056	673083	673111	673138	673165	673193	673220	673247	46	2. 11
14	9.673275	673302	673329	673356	673384	673411	673438	673466	673493	673520	673547	673575	45	3. 16
15	9.673602	673629	673657	673684	673711	673738	673766	673793	673820	673848	673875	673902	44	4. 22
16	9.673929	673957	673984	674011	674038	674066	674093	674120	674148	674175	674202	674229	43	1 = 5
17	9.674257	674284	674311	674338	674366	674393	674420	674447	674475	674502	674529	674556	42	2. 11
18	9.674584	674611	674638	674665	674693	674720	674747	674774	674802	674829	674856	674883	41	3. 16
19	9.674911	674938	674965	674992	675019	675047	675074	675101	675128	675156	675183	675210	40	4. 22
20	9.675237	675265	675292	675319	675346	675373	675401	675428	675455	675482	675509	675537	39	1 = 5
21	9.675564	675591	675618	675645	675673	675700	675727	675754	675782	675809	675836	675863	38	2. 11
22	9.675890	675917	675945	675972	675999	676026	676053	676081	676108	676135	676162	676189	37	3. 16
23	9.676217	676244	676271	676298	676325	676352	676380	676407	676434	676461	676488	676516	36	4. 22
24	9.676543	676570	676597	676624	676651	676679	676706	676733	676760	676787	676814	676841	35	1 = 5
25	9.676869	676896	676923	676950	676977	677004	677032	677059	677086	677113	677140	677167	34	2. 11
26	9.677194	677222	677249	677276	677303	677330	677357	677384	677412	677439	677466	677493	33	3. 16
27	9.677520	677547	677574	677602	677629	677656	677683	677710	677737	677764	677791	677818	32	4. 22
28	9.677846	677873	677900	677927	677954	677981	678008	678035	678063	678090	678117	678144	31	1 = 5
29	9.678171	678198	678225	678252	678279	678306	678334	678361	678388	678415	678442	678469	30	2. 11
30	9.678496	678523	678550	678577	678605	678632	678659	678686	678713	678740	678767	678794	29	3. 16
31	9.678821	678848	678875	678902	678930	678957	678984	679011	679038	679065	679092	679119	28	4. 22
32	9.679146	679173	679200	679227	679254	679281	679308	679336	679363	679390	679417	679444	27	1 = 5
33	9.679471	679498	679525	679552	679579	679606	679633	679660	679687	679714	679741	679768	26	2. 11
34	9.679795	679822	679849	679877	679904	679931	679958	679985	680012	680039	680066	680093	25	3. 16
35	9.680120	680147	680174	680201	680228	680255	680282	680309	680336	680363	680390	680417	24	4. 22
36	9.680444	680471	680498	680525	680552	680579	680606	680633	680660	680687	680714	680741	23	1 = 5
37	9.680768	680795	680822	680849	680876	680903	680930	680957	680984	681011	681038	681065	22	2. 11
38	9.681092	681119	681146	681173	681200	681227	681254	681281	681308	681335	681362	681389	21	3. 16
39	9.681416	681443	681470	681497	681524	681551	681578	681605	681632	681659	681686	681713	20	4. 22
40	9.681740	681767	681794	681821	681848	681875	681901	681928	681955	681982	682009	682036	19	1 = 5
41	9.682063	682090	682117	682144	682171	682198	682225	682252	682279	682306	682333	682360	18	2. 11
42	9.682387	682414	682440	682467	682494	682521	682548	682575	682602	682629	682656	682683	17	3. 16
43	9.682710	682737	682764	682791	682818	682844	682871	682898	682925	682952	682979	683006	16	4. 22
44	9.683033	683060	683087	683114	683141	683167	683194	683221	683248	683275	683302	683329	15	1 = 5
45	9.683356	683383	683410	683437	683463	683490	683517	683544	683571	683598	683625	683652	14	2. 11
46	9.683679	683705	683732	683759	683786	683813	683840	683867	683894	683921	683947	683974	13	3. 16
47	9.684001	684028	684055	684082	684109	684136	684162	684189	684216	684243	684270	684297	12	4. 22
48	9.684324	684351	684377	684404	684431	684458	684485	684512	684539	684565	684592	684619	11	1 = 5
49	9.684646	684673	684700	684727	684753	684780	684807	684834	684861	684888	684914	684941	10	2. 11
50	9.684968	684995	685022	685049	685076	685102	685129	685156	685183	685210	685237	685263	9	3. 16
51	9.685290	685317	685344	685371	685398	685424	685451	685478	685505	685532	685558	685585	8	4. 21
52	9.685612	685639	685666	685693	685719	685746	685773	685800	685827	685853	685880	685907	7	1 = 5
53	9.685934	685961	685987	686014	686041	686068	686095	686121	686148	686175	686202	686229	6	2. 11
54	9.686255	686282	686309	686336	686363	686389	686416	686443	686470	686496	686523	686550	5	3. 16
55	9.686577	686604	686630	686657	686684	686711	686737	686764	686791	686818	686845	686871	4	4. 21
56	9.686898	686925	686952	686978	687005	687032	687059	687085	687112	687139	687166	687193	3	1 = 5
57	9.687219	687246	687273	687300	687326	687353	687380	687407	687433	687460	687487	687514	2	2. 11
58	9.687540	687567	687594	687620	687647	687674	687701	687727	687754	687781	687808	687834	1	3. 16
59	9.687861	687888	687915	687941	687968	687995	688021	688048	688075	688102	688128	688155	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 64 degrees, or Tangent of 154 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 26 degrees, or Co-tangent of 116 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts.
0	9. 688182	688209	688235	688262	688289	688315	688342	688369	688396	688422	688449	688476	59	1″ = 5
1	9. 688502	688529	688556	688583	688609	688636	688663	688689	688716	688743	688769	688796	58	2. 11
2	9. 688823	688849	688876	688903	688930	688956	688983	689010	689036	689063	689090	689116	57	3. 16
3	9. 689143	689170	689196	689223	689250	689276	689303	689330	689357	689383	689410	689437	56	4. 21
4	9. 689463	689490	689517	689543	689570	689597	689623	689650	689677	689703	689730	689757	55	1 = 5
5	9. 689783	689810	689836	689863	689890	689916	689943	689970	689996	690023	690050	690076	54	2. 11
6	9. 690103	690130	690156	690183	690210	690236	690263	690290	690316	690343	690369	690396	53	3. 16
7	9. 690423	690449	690476	690503	690529	690556	690582	690609	690636	690662	690689	690716	52	4. 21
8	9. 690742	690769	690795	690822	690849	690875	690902	690929	690955	690982	691008	691035	51	1 = 5
9	9. 691062	691088	691115	691141	691168	691195	691221	691248	691275	691301	691328	691354	50	2. 11
10	9. 691381	691408	691434	691461	691487	691514	691540	691567	691594	691620	691647	691673	49	3. 16
11	9. 691700	691727	691753	691780	691806	691833	691860	691886	691913	691939	691966	691992	48	4. 21
12	9. 692019	692046	692072	692099	692125	692152	692178	692205	692232	692258	692285	692311	47	1 = 5
13	9. 692338	692364	692391	692418	692444	692471	692497	692524	692550	692577	692603	692630	46	2. 11
14	9. 692657	692683	692710	692736	692763	692789	692816	692842	692869	692895	692922	692949	45	3. 16
15	9. 692975	693002	693028	693055	693081	693108	693134	693161	693187	693214	693240	693267	44	4. 21
16	9. 693293	693320	693347	693373	693400	693426	693453	693479	693506	693532	693559	693585	43	1 = 5
17	9. 693612	693638	693665	693691	693718	693744	693771	693797	693824	693850	693877	693903	42	2. 11
18	9. 693930	693956	693983	694009	694036	694062	694089	694115	694142	694168	694195	694221	41	3. 16
19	9. 694248	694274	694301	694327	694354	694380	694407	694433	694460	694486	694513	694539	40	4. 21
20	9. 694566	694592	694619	694645	694672	694698	694725	694751	694777	694804	694830	694857	39	1 = 5
21	9. 694883	694910	694936	694963	694989	695016	695042	695069	695095	695122	695148	695174	38	2. 11
22	9. 695201	695227	695254	695280	695307	695333	695360	695386	695413	695439	695465	695492	37	3. 16
23	9. 695518	695545	695571	695598	695624	695651	695677	695703	695730	695756	695783	695809	36	4. 21
24	9. 695836	695862	695888	695915	695941	695968	695994	696021	696047	696073	696100	696126	35	1 = 5
25	9. 696153	696179	696206	696232	696258	696285	696311	696338	696364	696390	696417	696443	34	2. 11
26	9. 696470	696496	696523	696549	696575	696602	696628	696655	696681	696707	696734	696760	33	3. 16
27	9. 696787	696813	696839	696866	696892	696919	696945	696971	696998	697024	697051	697077	32	4. 21
28	9. 697103	697130	697156	697182	697209	697235	697262	697288	697314	697341	697367	697393	31	1 = 5
29	9. 697420	697446	697473	697499	697525	697552	697578	697604	697631	697657	697684	697710	30	2. 11
30	9. 697736	697763	697789	697815	697842	697868	697894	697921	697947	697974	698000	698026	29	3. 16
31	9. 698053	698079	698105	698132	698158	698184	698211	698237	698263	698290	698316	698342	28	4. 21
32	9. 698369	698395	698421	698448	698474	698500	698527	698553	698579	698606	698632	698658	27	1 = 5
33	9. 698685	698711	698737	698764	698790	698816	698843	698869	698895	698922	698948	698974	26	2. 11
34	9. 699001	699027	699053	699080	699106	699132	699159	699185	699211	699237	699264	699290	25	3. 16
35	9. 699316	699343	699369	699395	699422	699448	699474	699501	699527	699553	699579	699606	24	4. 21
36	9. 699632	699658	699685	699711	699737	699763	699790	699816	699842	699869	699895	699921	23	1 = 5
37	9. 699947	699974	700000	700026	700053	700079	700105	700131	700158	700184	700210	700237	22	2. 11
38	9. 700263	700289	700315	700342	700368	700394	700420	700447	700473	700499	700525	700552	21	3. 16
39	9. 700578	700604	700631	700657	700683	700709	700736	700762	700788	700814	700841	700867	20	4. 21
40	9. 700893	700919	700946	700972	700998	701024	701051	701077	701103	701129	701156	701182	19	1 = 5
41	9. 701208	701234	701260	701287	701313	701339	701365	701392	701418	701444	701470	701497	18	2. 11
42	9. 701523	701549	701575	701601	701628	701654	701680	701706	701733	701759	701785	701811	17	3. 16
43	9. 701837	701864	701890	701916	701942	701969	701995	702021	702047	702073	702100	702126	16	4. 21
44	9. 702152	702178	702204	702231	702257	702283	702309	702335	702362	702388	702414	702440	15	1 = 5
45	9. 702466	702493	702519	702545	702571	702597	702623	702650	702676	702702	702728	702754	14	2. 11
46	9. 702781	702807	702833	702859	702885	702911	702938	702964	702990	703016	703042	703069	13	3. 16
47	9. 703095	703121	703147	703173	703199	703226	703252	703278	703304	703330	703356	703383	12	4. 21
48	9. 703409	703435	703461	703487	703513	703539	703566	703592	703618	703644	703670	703696	11	1 = 5
49	9. 703723	703749	703775	703801	703827	703853	703879	703906	703932	703958	703984	704010	10	2. 11
50	9. 704036	704062	704088	704115	704141	704167	704193	704219	704245	704271	704298	704324	9	3. 16
51	9. 704350	704376	704402	704428	704454	704480	704507	704533	704559	704585	704611	704637	8	4. 21
52	9. 704663	704689	704715	704742	704768	704794	704820	704846	704872	704898	704924	704950	7	1 = 5
53	9. 704977	705003	705029	705055	705081	705107	705133	705159	705185	705211	705238	705264	6	2. 11
54	9. 705290	705316	705342	705368	705394	705420	705446	705472	705498	705524	705551	705577	5	3. 16
55	9. 705603	705629	705655	705681	705707	705733	705759	705785	705811	705837	705863	705890	4	4. 21
56	9. 705916	705942	705968	705994	706020	706046	706072	706098	706124	706150	706176	706202	3	1 = 5
57	9. 706228	706254	706281	706307	706333	706359	706385	706411	706437	706463	706489	706515	2	2. 11
58	9. 706541	706567	706593	706619	706645	706671	706697	706723	706749	706775	706801	706828	1	3. 16
59	9. 706854	706880	706906	706932	706958	706984	707010	707036	707062	707088	707114	707140	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.

Co-tangent of 63 degrees, or Tangent of 153 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 27 degrees, or Co-tangent of 117 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.707166	707192	707218	707244	707270	707296	707322	707348	707374	707400	707426	707452	59	1″ = 5
1	9.707478	707504	707530	707556	707582	707608	707634	707660	707686	707712	707738	707764	58	2. 10
2	9.707790	707816	707842	707868	707894	707920	707946	707972	707998	708024	708050	708076	57	3. 16
3	9.708102	708128	708154	708180	708206	708232	708258	708284	708310	708336	708362	708388	56	4. 21
4	9.708414	708440	708466	708492	708518	708544	708570	708596	708622	708648	708674	708700	55	1 = 5
5	9.708726	708752	708778	708804	708830	708856	708882	708908	708934	708960	708985	709011	54	2. 10
6	9.709037	709063	709089	709115	709141	709167	709193	709219	709245	709271	709297	709323	53	3. 16
7	9.709349	709375	709401	709427	709453	709479	709505	709530	709556	709582	709608	709634	52	4. 21
8	9.709660	709686	709712	709738	709764	709790	709816	709842	709868	709894	709920	709945	51	1 = 5
9	9.709971	709997	710023	710049	710075	710101	710127	710153	710179	710205	710231	710257	50	2. 10
10	9.710282	710308	710334	710360	710386	710412	710438	710464	710490	710516	710542	710567	49	3. 16
11	9.710593	710619	710645	710671	710697	710723	710749	710775	710801	710826	710852	710878	48	4. 21
12	9.710904	710930	710956	710982	711008	711034	711060	711085	711111	711137	711163	711189	47	1 = 5
13	9.711215	711241	711267	711293	711318	711344	711370	711396	711422	711448	711474	711500	46	2. 10
14	9.711525	711551	711577	711603	711629	711655	711681	711706	711732	711758	711784	711810	45	3. 16
15	9.711836	711862	711888	711913	711939	711965	711991	712017	712043	712069	712094	712120	44	4. 21
16	9.712146	712172	712198	712224	712250	712275	712301	712327	712353	712379	712405	712430	43	1 = 5
17	9.712456	712482	712508	712534	712560	712585	712611	712637	712663	712689	712715	712740	42	2. 10
18	9.712766	712792	712818	712844	712870	712895	712921	712947	712973	712999	713025	713050	41	3. 16
19	9.713076	713102	713128	713154	713179	713205	713231	713257	713283	713309	713334	713360	40	4. 21
20	9.713386	713412	713438	713463	713489	713515	713541	713567	713592	713618	713644	713670	39	1 = 5
21	9.713696	713721	713747	713773	713799	713825	713850	713876	713902	713928	713954	713979	38	2. 10
22	9.714005	714031	714057	714082	714108	714134	714160	714186	714211	714237	714263	714289	37	3. 15
23	9.714315	714340	714366	714392	714418	714443	714469	714495	714521	714546	714572	714598	36	4. 21
24	9.714624	714650	714675	714701	714727	714753	714778	714804	714830	714856	714881	714907	35	1 = 5
25	9.714933	714959	714984	715010	715036	715062	715087	715113	715139	715165	715190	715216	34	2. 10
26	9.715242	715268	715293	715319	715345	715371	715396	715422	715448	715474	715499	715525	33	3. 15
27	9.715551	715577	715602	715628	715654	715679	715705	715731	715757	715782	715808	715834	32	4. 21
28	9.715860	715885	715911	715937	715962	715988	716014	716040	716065	716091	716117	716143	31	1 = 5
29	9.716168	716194	716220	716245	716271	716297	716322	716348	716374	716400	716425	716451	30	2. 10
30	9.716477	716502	716528	716554	716580	716605	716631	716657	716682	716708	716734	716759	29	3. 15
31	9.716785	716811	716836	716862	716888	716914	716939	716965	716991	717016	717042	717068	28	4. 21
32	9.717093	717119	717145	717170	717196	717222	717247	717273	717299	717324	717350	717376	27	1 = 5
33	9.717401	717427	717453	717479	717504	717530	717556	717581	717607	717633	717658	717684	26	2. 10
34	9.717709	717735	717761	717786	717812	717838	717863	717889	717915	717940	717966	717992	25	3. 15
35	9.718017	718043	718069	718094	718120	718146	718171	718197	718223	718248	718274	718299	24	4. 21
36	9.718325	718351	718376	718402	718428	718453	718479	718505	718530	718556	718582	718607	23	1 = 5
37	9.718633	718658	718684	718710	718735	718761	718787	718812	718838	718863	718889	718915	22	2. 10
38	9.718940	718966	718992	719017	719043	719068	719094	719120	719145	719171	719196	719222	21	3. 15
39	9.719248	719273	719299	719324	719350	719376	719401	719427	719453	719478	719504	719529	20	4. 21
40	9.719555	719581	719606	719632	719657	719683	719708	719734	719760	719785	719811	719836	19	1 = 5
41	9.719862	719888	719913	719939	719964	719990	720016	720041	720067	720092	720118	720143	18	2. 10
42	9.720169	720195	720220	720246	720271	720297	720323	720348	720374	720399	720425	720450	17	3. 15
43	9.720476	720502	720527	720553	720578	720604	720629	720655	720680	720706	720732	720757	16	4. 20
44	9.720783	720808	720834	720859	720885	720911	720936	720962	720987	721013	721038	721064	15	1 = 5
45	9.721089	721115	721140	721166	721192	721217	721243	721268	721294	721319	721345	721370	14	2. 10
46	9.721396	721421	721447	721472	721498	721524	721549	721575	721600	721626	721651	721677	13	3. 15
47	9.721702	721728	721753	721779	721804	721830	721855	721881	721906	721932	721958	721983	12	4. 20
48	9.722009	722034	722060	722085	722111	722136	722162	722187	722213	722238	722264	722289	11	1 = 5
49	9.722315	722340	722366	722391	722417	722442	722468	722493	722519	722544	722570	722595	10	2. 10
50	9.722621	722646	722672	722697	722723	722748	722774	722799	722825	722850	722876	722901	9	3. 15
51	9.722927	722952	722978	723003	723029	723054	723080	723105	723131	723156	723181	723207	8	4. 20
52	9.723232	723258	723283	723309	723334	723360	723385	723411	723436	723462	723487	723513	7	1 = 5
53	9.723538	723564	723589	723615	723640	723665	723691	723716	723742	723767	723793	723818	6	2. 10
54	9.723844	723869	723895	723920	723945	723971	723996	724022	724047	724073	724098	724124	5	3. 15
55	9.724149	724175	724200	724225	724251	724276	724302	724327	724353	724378	724404	724429	4	4. 20
56	9.724454	724480	724505	724531	724556	724582	724607	724632	724658	724683	724709	724734	3	1 = 5
57	9.724760	724785	724810	724836	724861	724887	724912	724938	724963	724988	725014	725039	2	2. 10
58	9.725065	725090	725115	725141	725166	725192	725217	725243	725268	725293	725319	725344	1	3. 15
59	9.725370	725395	725420	725446	725471	725497	725522	725547	725573	725598	725624	725649	0	4. 20
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 62 degrees, or Tangent of 152 degrees.

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LOGARITHMIC TANGENTS.

Tangent of 28 degrees, or Co-tangent of 118 degrees.

0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
9. 725674	725700	725725	725751	725776	725801	725827	725852	725878	725903	725928	725954	59	1″ = 5
9. 725979	726005	726030	726055	726081	726106	726131	726157	726182	726208	726233	726258	58	2. 10
9. 726284	726309	726334	726360	726385	726411	726436	726461	726487	726512	726537	726563	57	3. 15
9. 726588	726614	726639	726664	726690	726715	726740	726766	726791	726816	726842	726867	56	4. 20
9. 726893	726918	726943	726969	726994	727019	727045	727070	727095	727121	727146	727171	55	1″ = 5
9. 727197	727222	727247	727273	727298	727323	727349	727374	727400	727425	727450	727476	54	2. 10
9. 727501	727526	727552	727577	727602	727628	727653	727678	727704	727729	727754	727780	53	3. 15
9. 727805	727830	727856	727881	727906	727931	727957	727982	728007	728033	728058	728083	52	4. 20
9. 728109	728134	728159	728185	728210	728235	728261	728286	728311	728337	728362	728387	51	1″ = 5
9. 728412	728438	728463	728488	728514	728539	728564	728590	728615	728640	728666	728691	50	2. 10
9. 728716	728741	728767	728792	728817	728843	728868	728893	728918	728944	728969	728994	49	3. 15
9. 729020	729045	729070	729096	729121	729146	729171	729197	729222	729247	729272	729298	48	4. 20
9. 729323	729348	729374	729399	729424	729449	729475	729500	729525	729551	729576	729601	47	1″ = 5
9. 729626	729652	729677	729702	729727	729753	729778	729803	729828	729854	729879	729904	46	2. 10
9. 729930	729955	729980	730005	730031	730056	730081	730106	730132	730157	730182	730207	45	3. 15
9. 730233	730258	730283	730308	730334	730359	730384	730409	730435	730460	730485	730510	44	4. 20
9. 730535	730561	730586	730611	730636	730662	730687	730712	730737	730763	730788	730813	43	1″ =
9. 730838	730864	730889	730914	730939	730964	730990	731015	731040	731065	731091	731116	42	2. 10
9. 731141	731166	731191	731217	731242	731267	731292	731318	731343	731368	731393	731418	41	3. 15
9. 731444	731469	731494	731519	731544	731570	731595	731620	731645	731670	731696	731721	40	4. 20
9. 731746	731771	731796	731822	731847	731872	731897	731922	731948	731973	731998	732023	39	1″ = 5
9. 732048	732074	732099	732124	732149	732174	732200	732225	732250	732275	732300	732325	38	2. 10
9. 732351	732376	732401	732426	732451	732477	732502	732527	732552	732577	732602	732628	37	3. 15
9. 732653	732678	732703	732728	732753	732779	732804	732829	732854	732879	732904	732930	36	4. 20
9. 732955	732980	733005	733030	733055	733081	733106	733131	733156	733181	733206	733232	35	1″ = 5
9. 733257	733282	733307	733332	733357	733382	733408	733433	733458	733483	733508	733533	34	2. 10
9. 733558	733584	733609	733634	733659	733684	733709	733734	733760	733785	733810	733835	33	3. 15
9. 733860	733885	733910	733936	733961	733986	734011	734036	734061	734086	734111	734137	32	4. 20
9. 734162	734187	734212	734237	734262	734287	734312	734338	734363	734388	734413	734438	31	1″ = 5
9. 734463	734488	734513	734538	734564	734589	734614	734639	734664	734689	734714	734739	30	2. 10
9. 734764	734790	734815	734840	734865	734890	734915	734940	734965	734990	735015	735041	29	3. 15
9. 735066	735091	735116	735141	735166	735191	735216	735241	735266	735291	735317	735342	28	4. 20
9. 735367	735392	735417	735442	735467	735492	735517	735542	735567	735592	735618	735643	27	1″ = 5
9. 735668	735693	735718	735743	735768	735793	735818	735843	735868	735893	735918	735944	26	2. 10
9. 735969	735994	736019	736044	736069	736094	736119	736144	736169	736194	736219	736244	25	3. 15
9. 736269	736294	736319	736345	736370	736395	736420	736445	736470	736495	736520	736545	24	4. 20
9. 736570	736595	736620	736645	736670	736695	736720	736745	736770	736795	736820	736845	23	1″ = 5
9. 736871	736896	736921	736946	736971	736996	737021	737046	737071	737096	737121	737146	22	2. 10
9. 737171	737196	737221	737246	737271	737296	737321	737346	737371	737396	737421	737446	21	3. 15
9. 737471	737496	737521	737546	737571	737596	737621	737646	737671	737696	737721	737746	20	4. 20
9. 737771	737796	737821	737846	737871	737896	737921	737946	737972	737997	738022	738047	19	1″ = 5
9. 738072	738097	738122	738147	738172	738197	738222	738247	738272	738297	738322	738346	18	2. 10
9. 738371	738396	738421	738446	738471	738496	738521	738546	738571	738596	738621	738646	17	3. 15
9. 738671	738696	738721	738746	738771	738796	738821	738846	738871	738896	738921	738946	16	4. 20
9. 738971	738996	739021	739046	739071	739096	739121	739146	739171	739196	739221	739246	15	1″ = 5
9. 739271	739296	739321	739346	739371	739396	739421	739445	739470	739495	739520	739545	14	2. 10
9. 739570	739595	739620	739645	739670	739695	739720	739745	739770	739795	739820	739845	13	3. 15
9. 739870	739895	739920	739944	739969	739994	740019	740044	740069	740094	740119	740144	12	4. 20
9. 740169	740194	740219	740244	740269	740294	740319	740344	740368	740393	740418	740443	11	1″ = 5
9. 740468	740493	740518	740543	740568	740593	740618	740643	740668	740692	740717	740742	10	2. 10
9. 740767	740792	740817	740842	740867	740892	740917	740942	740967	740991	741016	741041	9	3. 15
9. 741066	741091	741116	741141	741166	741191	741216	741241	741265	741290	741315	741340	8	4. 20
9. 741365	741390	741415	741440	741465	741490	741514	741539	741564	741589	741614	741639	7	1″ = 5
9. 741664	741689	741714	741738	741763	741788	741813	741838	741863	741888	741913	741938	6	2. 10
9. 741962	741987	742012	742037	742062	742087	742112	742137	742161	742186	742211	742236	5	3. 15
9. 742261	742286	742311	742336	742360	742385	742410	742435	742460	742485	742510	742535	4	4. 20
9. 742559	742584	742609	742634	742659	742684	742709	742733	742758	742783	742808	742833	3	1″ = 5
9. 742858	742883	742907	742932	742957	742982	743007	743032	743057	743081	743106	743131	2	2. 10
9. 743156	743181	743206	743230	743255	743280	743305	743330	743355	743380	743404	743429	1	3. 15
9. 743454	743479	743504	743529	743553	743578	743603	743628	743653	743678	743702	743727	0	4. 20
60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts

Co-tangent of 61 degrees, or Tangent of 151 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 29 degrees, or Co-tangent of 119 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.743752	743777	743802	743827	743851	743876	743901	743926	743951	743975	744000	744025	59	1″ = 5
1	9.744050	744075	744100	744124	744149	744174	744199	744224	744248	744273	744298	744323	58	2. 10
2	9.744348	744372	744397	744422	744447	744472	744497	744521	744546	744571	744596	744621	57	3. 15
3	9.744645	744670	744695	744720	744745	744769	744794	744819	744844	744869	744893	744918	56	4. 20
4	9.744943	744968	744992	745017	745042	745067	745092	745116	745141	745166	745191	745216	55	1 = 5
5	9.745240	745265	745290	745315	745339	745364	745389	745414	745439	745463	745488	745513	54	2. 10
6	9.745538	745562	745587	745612	745637	745662	745686	745711	745736	745761	745785	745810	53	3. 15
7	9.745835	745860	745884	745909	745934	745959	745983	746008	746033	746058	746083	746107	52	4. 20
8	9.746132	746157	746182	746206	746231	746256	746281	746305	746330	746355	746380	746404	51	1 = 5
9	9.746429	746454	746479	746503	746528	746553	746578	746602	746627	746652	746676	746701	50	2. 10
10	9.746726	746751	746775	746800	746825	746850	746874	746899	746924	746949	746973	746998	49	3. 15
11	9.747023	747048	747072	747097	747122	747146	747171	747196	747221	747245	747270	747295	48	4. 20
12	9.747319	747344	747369	747394	747418	747443	747468	747493	747517	747542	747567	747591	47	1 = 5
13	9.747616	747641	747665	747690	747715	747740	747764	747789	747814	747838	747863	747888	46	2. 10
14	9.747913	747937	747962	747987	748011	748036	748061	748085	748110	748135	748160	748184	45	3. 15
15	9.748209	748234	748258	748283	748308	748332	748357	748382	748406	748431	748456	748481	44	4. 20
16	9.748505	748530	748555	748579	748604	748629	748653	748678	748703	748727	748752	748777	43	1 = 5
17	9.748801	748826	748851	748875	748900	748925	748949	748974	748999	749023	749048	749073	42	2. 10
18	9.749097	749122	749147	749171	749196	749221	749245	749270	749295	749319	749344	749369	41	3. 15
19	9.749393	749418	749443	749467	749492	749517	749541	749566	749591	749615	749640	749665	40	4. 20
20	9.749689	749714	749739	749763	749788	749813	749837	749862	749886	749911	749936	749960	39	1 = 5
21	9.749985	750010	750034	750059	750084	750108	750133	750157	750182	750207	750231	750256	38	2. 10
22	9.750281	750305	750330	750355	750379	750404	750428	750453	750478	750502	750527	750552	37	3. 15
23	9.750576	750601	750625	750650	750675	750699	750724	750749	750773	750798	750822	750847	36	4. 20
24	9.750872	750896	750921	750945	750970	750995	751019	751044	751069	751093	751118	751142	35	1 = 5
25	9.751167	751192	751216	751241	751265	751290	751315	751339	751364	751388	751413	751438	34	2. 10
26	9.751462	751487	751511	751536	751561	751585	751610	751634	751659	751684	751708	751733	33	3. 15
27	9.751757	751782	751807	751831	751856	751880	751905	751929	751954	751979	752003	752028	32	4. 20
28	9.752052	752077	752102	752126	752151	752175	752200	752224	752249	752274	752298	752323	31	1 = 5
29	9.752347	752372	752396	752421	752446	752470	752495	752519	752544	752568	752593	752618	30	2. 10
30	9.752642	752667	752691	752716	752740	752765	752789	752814	752839	752863	752888	752912	29	3. 15
31	9.752937	752961	752986	753010	753035	753060	753084	753109	753133	753158	753182	753207	28	4. 20
32	9.753231	753256	753281	753305	753330	753354	753379	753403	753428	753452	753477	753501	27	1 = 5
33	9.753526	753550	753575	753600	753624	753649	753673	753698	753722	753747	753771	753796	26	2. 10
34	9.753820	753845	753869	753894	753918	753943	753967	753992	754017	754041	754066	754090	25	3. 15
35	9.754115	754139	754164	754188	754213	754237	754262	754286	754311	754335	754360	754384	24	4. 20
36	9.754409	754433	754458	754482	754507	754531	754556	754580	754605	754629	754654	754678	23	1 = 5
37	9.754703	754727	754752	754776	754801	754825	754850	754874	754899	754923	754948	754972	22	2. 10
38	9.754997	755021	755046	755070	755095	755119	755144	755168	755193	755217	755242	755266	21	3. 15
39	9.755291	755315	755340	755364	755389	755413	755438	755462	755487	755511	755536	755560	20	4. 20
40	9.755585	755609	755634	755658	755683	755707	755731	755756	755780	755805	755829	755854	19	1 = 5
41	9.755878	755903	755927	755952	755976	756001	756025	756050	756074	756099	756123	756147	18	2. 10
42	9.756172	756196	756221	756245	756270	756294	756319	756343	756368	756392	756416	756441	17	3. 15
43	9.756465	756490	756514	756539	756563	756588	756612	756637	756661	756685	756710	756734	16	4. 20
44	9.756759	756783	756808	756832	756857	756881	756905	756930	756954	756979	757003	757028	15	1 = 5
45	9.757052	757077	757101	757125	757150	757174	757199	757223	757248	757272	757296	757321	14	2. 10
46	9.757345	757370	757394	757419	757443	757467	757492	757516	757541	757565	757589	757614	13	3. 15
47	9.757638	757663	757687	757712	757736	757760	757785	757809	757834	757858	757883	757907	12	4. 20
48	9.757931	757956	757980	758005	758029	758053	758078	758102	758127	758151	758175	758200	11	1 = 5
49	9.758224	758249	758273	758297	758322	758346	758371	758395	758419	758444	758468	758493	10	2. 10
50	9.758517	758541	758566	758590	758615	758639	758663	758688	758712	758737	758761	758785	9	3. 15
51	9.758810	758834	758858	758883	758907	758932	758956	758980	759005	759029	759054	759078	8	4. 19
52	9.759102	759127	759151	759175	759200	759224	759249	759273	759297	759322	759346	759370	7	1 = 5
53	9.759395	759419	759444	759468	759492	759517	759541	759565	759590	759614	759638	759663	6	2. 10
54	9.759687	759712	759736	759760	759785	759809	759833	759858	759882	759906	759931	759955	5	3. 15
55	9.759979	760004	760028	760053	760077	760101	760126	760150	760174	760199	760223	760247	4	4. 19
56	9.760272	760296	760320	760345	760369	760393	760418	760442	760466	760491	760515	760539	3	1 = 5
57	9.760564	760588	760612	760637	760661	760685	760710	760734	760758	760783	760807	760831	2	2. 10
58	9.760856	760880	760904	760929	760953	760977	761002	761026	761050	761075	761099	761123	1	3. 15
59	9.761148	761172	761196	761221	761245	761269	761294	761318	761342	761366	761391	761415	0	4. 19
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5	Minutes	Propor. parts.
	Co-tangent of 60 degrees, or Tangent of 150 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 30 degrees, or Co-tangent of 120 degrees.												Minutes	Proper.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 761439	761464	761488	761512	761537	761561	761585	761610	761634	761658	761683	761707	59	1″ =
1	9. 761731	761755	761780	761804	761828	761853	761877	761901	761926	761950	761974	761998	58	2.
2	9. 762023	762047	762071	762096	762120	762144	762168	762193	762217	762241	762266	762290	57	3.
3	9 762314	762339	762363	762387	762411	762436	762460	762484	762509	762533	762557	762581	56	4.
4	9. 762606	762630	762654	762678	762703	762727	762751	762776	762800	762824	762848	762873	55	1″ =
5	9. 762897	762921	762945	762970	762994	763018	763043	763067	763091	763115	763140	763164	54	2.
6	9. 763188	763212	763237	763261	763285	763309	763334	763358	763382	763407	763431	763455	53	3.
7	9. 763479	763504	763528	763552	763576	763601	763625	763649	763673	763698	763722	763746	52	4.
8	9. 763770	763795	763819	763843	763867	763892	763916	763940	763964	763988	764013	764037	51	1 =
9	9. 764061	764085	764110	764134	764158	764182	764207	764231	764255	764279	764304	764328	50	2.
10	9. 764352	764376	764401	764425	764449	764473	764497	764522	764546	764570	764594	764619	49	3.
11	9. 764643	764667	764691	764715	764740	764764	764788	764812	764837	764861	764885	764909	48	4.
12	9. 764933	764958	764982	765006	765030	765054	765079	765103	765127	765151	765176	765200	47	1 =
13	9. 765224	765248	765272	765297	765321	765345	765369	765393	765418	765442	765466	765490	46	2.
14	9. 765514	765539	765563	765587	765611	765635	765660	765684	765708	765732	765756	765781	45	3.
15	9. 765805	765829	765853	765877	765901	765926	765950	765974	765998	766022	766047	766071	44	4.
16	9. 766095	766119	766143	766168	766192	766216	766240	766264	766288	766313	766337	766361	43	1 =
17	9. 766385	766409	766433	766458	766482	766506	766530	766554	766579	766603	766627	766651	42	2.
18	9. 766675	766699	766724	766748	766772	766796	766820	766844	766869	766893	766917	766941	41	3.
19	9. 766965	766989	767013	767038	767062	767086	767110	767134	767158	767183	767207	767231	40	4.
20	9. 767255	767279	767303	767327	767352	767376	767400	767424	767448	767472	767497	767521	39	1 =
21	9. 767545	767569	767593	767617	767641	767666	767690	767714	767738	767762	767786	767810	38	2.
22	9. 767834	767859	767883	767907	767931	767955	767979	768003	768028	768052	768076	768100	37	3.
23	9. 768124	768148	768172	768196	768221	768245	768269	768293	768317	768341	768365	768389	36	4.
24	9. 768414	768438	768462	768486	768510	768534	768558	768582	768607	768631	768655	768679	35	1 =
25	9 768703	768727	768751	768775	768799	768824	768848	768872	768896	768920	768944	768968	34	2.
26	9. 768992	769016	769040	769065	769089	769113	769137	769161	769185	769209	769233	769257	33	3.
27	9. 769281	769306	769330	769354	769378	769402	769426	769450	769474	769498	769522	769546	32	4.
28	9. 769571	769595	769619	769643	769667	769691	769715	769739	769763	769787	769811	769836	31	1 =
29	9. 769860	769884	769908	769932	769956	769980	770004	770028	770052	770076	770100	770124	30	2.
30	9. 770149	770173	770197	770221	770245	770269	770293	770317	770341	770365	770389	770413	29	3.
31	9. 770437	770461	770486	770510	770534	770558	770582	770606	770630	770654	770678	770702	28	4.
32	9. 770726	770750	770774	770798	770822	770846	770870	770895	770919	770943	770967	770991	27	1 =
33	9. 771015	771039	771063	771087	771111	771135	771159	771183	771207	771231	771255	771279	26	2.
34	9. 771303	771327	771351	771375	771399	771424	771448	771472	771496	771520	771544	771568	25	3.
35	9. 771592	771616	771640	771664	771688	771712	771736	771760	771784	771808	771832	771856	24	4.
36	9. 771880	771904	771928	771952	771976	772000	772024	772048	772072	772096	772120	772144	23	1 =
37	9. 772168	772192	772216	772240	772265	772289	772313	772337	772361	772385	772409	772433	22	2.
38	9. 772457	772481	772505	772529	772553	772577	772601	772625	772649	772673	772697	772721	21	3.
39	9. 772745	772769	772793	772817	772841	772865	772889	772913	772937	772961	772985	773009	20	4.
40	9. 773033	773057	773081	773105	773129	773153	773177	773201	773225	773249	773273	773297	19	1 =
41	9. 773321	773345	773369	773393	773417	773441	773465	773489	773513	773537	773560	773584	18	2.
42	9. 773608	773632	773656	773680	773704	773728	773752	773776	773800	773824	773848	773872	17	3.
43	9. 773896	773920	773944	773968	773992	774016	774040	774064	774088	774112	774136	774160	16	4.
44	9. 774184	774208	774232	774256	774280	774304	774328	774352	774376	774400	774423	774447	15	1 =
45	9. 774471	774495	774519	774543	774567	774591	774615	774639	774663	774687	774711	774735	14	2.
46	9. 774759	774783	774807	774831	774855	774879	774903	774926	774950	774974	774998	775022	13	3.
47	9. 775046	775070	775094	775118	775142	775166	775190	775214	775238	775262	775286	775310	12	4.
48	9. 775333	775357	775381	775405	775429	775453	775477	775501	775525	775549	775573	775597	11	1 =
49	9. 775621	775645	775669	775692	775716	775740	775764	775788	775812	775836	775860	775884	10	2.
50	9. 775908	775932	775956	775980	776003	776027	776051	776075	776099	776123	776147	776171	9	3.
51	9. 776195	776219	776243	776267	776290	776314	776338	776362	776386	776410	776434	776458	8	4.
52	9. 776482	776506	776529	776553	776577	776601	776625	776649	776673	776697	776721	776745	7	1 =
53	9. 776769	776792	776816	776840	776864	776888	776912	776936	776960	776984	777007	777031	6	2.
54	9. 777055	777079	777103	777127	777151	777175	777199	777222	777246	777270	777294	777318	5	3.
55	9. 777342	777366	777390	777414	777437	777461	777485	777509	777533	777557	777581	777605	4	4.
56	9. 777628	777652	777676	777700	777724	777748	777772	777796	777819	777843	777867	777891	3	1 =
57	9. 777915	777939	777963	777987	778010	778034	778058	778082	778106	778130	778154	778177	2	2.
58	9. 778201	778225	778249	778273	778297	778321	778344	778368	778392	778416	778440	778464	1	3.
59	9. 778488	778511	778535	778559	778583	778607	778631	778655	778678	778702	778726	778750	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper.
	Co-tangent of 59 degrees, or Tangent of 149 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 31 *degrees, or Co-tangent of* 121 *degrees.*

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.778774	778798	778821	778845	778869	778893	778917	778941	778965	778988	779012	779036	59	1″ = 5
1	9.779060	779084	779108	779131	779155	779179	779203	779227	779251	779274	779298	779322	58	2. 10
2	9.779346	779370	779394	779417	779441	779465	779489	779513	779537	779560	779584	779608	57	3. 14
3	9.779632	779656	779680	779703	779727	779751	779775	779799	779822	779846	779870	779894	56	4. 19
4	9.779918	779942	779965	779989	780013	780037	780061	780084	780108	780132	780156	780180	55	1 = 5
5	9.780203	780227	780251	780275	780299	780323	780346	780370	780394	780418	780442	780465	54	2. 10
6	9.780489	780513	780537	780561	780584	780608	780632	780656	780680	780703	780727	780751	53	3. 14
7	9.780775	780799	780822	780846	780870	780894	780917	780941	780965	780989	781013	781036	52	4. 19
8	9.781060	781084	781108	781132	781155	781179	781203	781227	781251	781274	781298	781322	51	1 = 5
9	9.781346	781369	781393	781417	781441	781465	781488	781512	781536	781560	781583	781607	50	2. 10
10	9.781631	781655	781679	781702	781726	781750	781774	781797	781821	781845	781869	781892	49	3. 14
11	9.781916	781940	781964	781987	782011	782035	782059	782083	782106	782130	782154	782178	48	4. 19
12	9.782201	782225	782249	782273	782296	782320	782344	782368	782391	782415	782439	782463	47	1 = 5
13	9.782486	782510	782534	782558	782581	782605	782629	782653	782676	782700	782724	782748	46	2. 10
14	9.782771	782795	782819	782843	782866	782890	782914	782938	782961	782985	783009	783033	45	3. 14
15	9.783056	783080	783104	783127	783151	783175	783199	783222	783246	783270	783294	783317	44	4. 19
16	9.783341	783365	783389	783412	783436	783460	783483	783507	783531	783555	783578	783602	43	1 = 5
17	9.783626	783650	783673	783697	783721	783744	783768	783792	783816	783839	783863	783887	42	2. 9
18	9.783910	783934	783958	783982	784005	784029	784053	784076	784100	784124	784148	784171	41	3. 14
19	9.784195	784219	784242	784266	784290	784314	784337	784361	784385	784408	784432	784456	40	4. 19
20	9.784479	784503	784527	784551	784574	784598	784622	784645	784669	784693	784716	784740	39	1 = 5
21	9.784764	784788	784811	784835	784859	784882	784906	784930	784953	784977	785001	785024	38	2. 9
22	9.785048	785072	785095	785119	785143	785167	785190	785214	785238	785261	785285	785309	37	3. 14
23	9.785332	785356	785380	785403	785427	785451	785474	785498	785522	785545	785569	785593	36	4. 19
24	9.785616	785640	785664	785687	785711	785735	785758	785782	785806	785829	785853	785877	35	1 = 5
25	9.785900	785924	785948	785971	785995	786019	786042	786066	786090	786113	786137	786161	34	2. 9
26	9.786184	786208	786232	786255	786279	786303	786326	786350	786374	786397	786421	786445	33	3. 14
27	9.786468	786492	786516	786539	786563	786587	786610	786634	786657	786681	786705	786728	32	4. 19
28	9.786752	786776	786799	786823	786847	786870	786894	786918	786941	786965	786988	787012	31	1 = 5
29	9.787036	787059	787083	787107	787130	787154	787178	787201	787225	787248	787272	787296	30	2. 9
30	9.787319	787343	787367	787390	787414	787438	787461	787485	787508	787532	787556	787579	29	3. 14
31	9.787603	787627	787650	787674	787697	787721	787745	787768	787792	787815	787839	787863	28	4. 19
32	9.787886	787910	787934	787957	787981	788004	788028	788052	788075	788099	788122	788146	27	1 = 5
33	9.788170	788193	788217	788241	788264	788288	788311	788335	788359	788382	788406	788429	26	2. 9
34	9.788453	788477	788500	788524	788547	788571	788595	788618	788642	788665	788689	788713	25	3. 14
35	9.788736	788760	788783	788807	788831	788854	788878	788901	788925	788949	788972	788996	24	4. 19
36	9.789019	789043	789066	789090	789114	789137	789161	789184	789208	789232	789255	789279	23	1 = 5
37	9.789302	789326	789349	789373	789397	789420	789444	789467	789491	789515	789538	789562	22	2. 9
38	9.789585	789609	789632	789656	789680	789703	789727	789750	789774	789797	789821	789845	21	3. 14
39	9.789868	789892	789915	789939	789962	789986	790010	790033	790057	790080	790104	790127	20	4. 19
40	9.790151	790174	790198	790222	790245	790269	790292	790316	790339	790363	790386	790410	19	1 = 5
41	9.790434	790457	790481	790504	790528	790551	790575	790598	790622	790646	790669	790693	18	2. 9
42	9.790716	790740	790763	790787	790810	790834	790857	790881	790905	790928	790952	790975	17	3. 14
43	9.790999	791022	791046	791069	791093	791116	791140	791163	791187	791211	791234	791258	16	4. 19
44	9.791281	791305	791328	791352	791375	791399	791422	791446	791469	791493	791516	791540	15	1 = 5
45	9.791564	791587	791611	791634	791658	791681	791705	791728	791752	791775	791799	791822	14	2. 9
46	9.791846	791869	791893	791916	791940	791963	791987	792010	792034	792057	792081	792105	13	3. 14
47	9.792128	792152	792175	792199	792222	792246	792269	792293	792316	792340	792363	792387	12	4. 19
48	9.792410	792434	792457	792481	792504	792528	792551	792575	792598	792622	792645	792669	11	1 = 5
49	9.792692	792716	792739	792763	792786	792810	792833	792857	792880	792904	792927	792951	10	2. 9
50	9.792974	792998	793021	793045	793068	793092	793115	793139	793162	793186	793209	793233	9	3. 14
51	9.793256	793279	793303	793326	793350	793373	793397	793420	793444	793467	793491	793514	8	4. 19
52	9.793538	793561	793585	793608	793632	793655	793679	793702	793726	793749	793773	793796	7	1 = 5
53	9.793820	793843	793866	793890	793913	793937	793960	793984	794007	794031	794054	794078	6	2. 9
54	9.794101	794125	794148	794172	794195	794218	794242	794265	794289	794312	794336	794359	5	3. 14
55	9.794383	794406	794430	794453	794477	794500	794523	794547	794570	794594	794617	794641	4	4. 19
56	9.794664	794688	794711	794735	794758	794781	794805	794828	794852	794875	794899	794922	3	1 = 5
57	9.794946	794969	794992	795016	795039	795063	795086	795110	795133	795157	795180	795203	2	2. 9
58	9.795227	795250	795274	795297	795321	795344	795368	795391	795414	795438	795461	795485	1	3. 14
59	9.795508	795532	795555	795578	795602	795625	795649	795672	795696	795719	795742	795766	0	4. 19
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.

Co-tangent of 58 *degrees, or Tangent of* 148 *degrees.*

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 32 degrees, or Co-tangent of 122 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 795789	795813	795836	795860	795883	795906	795930	795953	795977	796000	796024	796047	59	1″ = 5
1	9. 796070	796094	796117	796141	796164	796187	796211	796234	796258	796281	796305	796328	58	2. 9
2	9. 796351	796375	796398	796422	796445	796468	796492	796515	796539	796562	796585	796609	57	3. 14
3	9. 796632	796656	796679	796702	796726	796749	796773	796796	796819	796843	796866	796890	56	4. 19
4	9. 796913	796936	796960	796983	797007	797030	797053	797077	797100	797124	797147	797170	55	1 = 5
5	9. 797194	797217	797241	797264	797287	797311	797334	797358	797381	797404	797428	797451	54	2. 9
6	9. 797475	797498	797521	797545	797568	797591	797615	797638	797662	797685	797708	797732	53	3. 14
7	9. 797755	797778	797802	797825	797849	797872	797895	797919	797942	797966	797989	798012	52	4. 19
8	9. 798036	798059	798082	798106	798129	798152	798176	798199	798223	798246	798269	798293	51	1 = 5
9	9. 798316	798339	798363	798386	798410	798433	798456	798480	798503	798526	798550	798573	50	2. 9
10	9. 798596	798620	798643	798667	798690	798713	798737	798760	798783	798807	798830	798853	49	3. 14
11	9. 798877	798900	798923	798947	798970	798993	799017	799040	799064	799087	799110	799134	48	4. 19
12	9. 799157	799180	799204	799227	799250	799274	799297	799320	799344	799367	799390	799414	47	1 = 5
13	9. 799437	799460	799484	799507	799530	799554	799577	799600	799624	799647	799670	799694	46	2. 9
14	9. 799717	799740	799764	799787	799810	799834	799857	799880	799904	799927	799950	799974	45	3. 14
15	9. 799997	800020	800044	800067	800090	800114	800137	800160	800184	800207	800230	800254	44	4. 19
16	9. 800277	800300	800324	800347	800370	800394	800417	800440	800464	800487	800510	800533	43	1 = 5
17	9. 800557	800580	800603	800627	800650	800673	800697	800720	800743	800767	800790	800813	42	2. 9
18	9. 800837	800860	800883	800906	800930	800953	800976	801000	801023	801046	801070	801093	41	3. 14
19	9. 801116	801139	801163	801186	801209	801233	801256	801279	801303	801326	801349	801372	40	4. 19
20	9. 801396	801419	801442	801466	801489	801512	801536	801559	801582	801605	801629	801652	39	1 = 5
21	9. 801675	801699	801722	801745	801768	801792	801815	801838	801862	801885	801908	801931	38	2. 9
22	9. 801955	801978	802001	802025	802048	802071	802094	802118	802141	802164	802187	802211	37	3. 14
23	9. 802234	802257	802281	802304	802327	802350	802374	802397	802420	802444	802467	802490	36	4. 19
24	9. 802513	802537	802560	802583	802606	802630	802653	802676	802699	802723	802746	802769	35	1 = 5
25	9. 802793	802816	802839	802862	802886	802909	802932	802955	802979	803002	803025	803048	34	2. 9
26	9. 803072	803095	803118	803141	803165	803188	803211	803234	803258	803281	803304	803327	33	3. 14
27	9. 803351	803374	803397	803420	803444	803467	803490	803513	803537	803560	803583	803606	32	4. 19
28	9. 803630	803653	803676	803699	803723	803746	803769	803792	803816	803839	803862	803885	31	1 = 5
29	9. 803909	803932	803955	803978	804002	804025	804048	804071	804094	804118	804141	804164	30	2. 9
30	9. 804187	804211	804234	804257	804280	804304	804327	804350	804373	804396	804420	804443	29	3. 14
31	9. 804466	804489	804513	804536	804559	804582	804605	804629	804652	804675	804698	804722	28	4. 19
32	9. 804745	804768	804791	804814	804838	804861	804884	804907	804931	804954	804977	805000	27	1 = 5
33	9. 805023	805047	805070	805093	805116	805139	805163	805186	805209	805232	805255	805279	26	2. 9
34	9. 805302	805325	805348	805372	805395	805418	805441	805464	805488	805511	805534	805557	25	3. 14
35	9. 805580	805604	805627	805650	805673	805696	805720	805743	805766	805789	805812	805836	24	4. 19
36	9. 805859	805882	805905	805928	805951	805975	805998	806021	806044	806067	806091	806114	23	1 = 5
37	9. 806137	806160	806183	806207	806230	806253	806276	806299	806322	806346	806369	806392	22	2. 9
38	9. 806415	806438	806462	806485	806508	806531	806554	806577	806601	806624	806647	806670	21	3. 14
39	9. 806693	806717	806740	806763	806786	806809	806832	806856	806879	806902	806925	806948	20	4. 19
40	9. 806971	806995	807018	807041	807064	807087	807110	807134	807157	807180	807203	807226	19	1 = 5
41	9. 807249	807273	807296	807319	807342	807365	807388	807412	807435	807458	807481	807504	18	2. 9
42	9. 807527	807551	807574	807597	807620	807643	807666	807689	807713	807736	807759	807782	17	3. 14
43	9. 807805	807828	807852	807875	807898	807921	807944	807967	807990	808014	808037	808060	16	4. 19
44	9. 808083	808106	808129	808152	808176	808199	808222	808245	808268	808291	808314	808338	15	1 = 5
45	9. 808361	808384	808407	808430	808453	808476	808500	808523	808546	808569	808592	808615	14	2. 9
46	9. 808638	808661	808685	808708	808731	808754	808777	808800	808823	808846	808870	808893	13	3. 14
47	9. 808916	808939	808962	808985	809008	809031	809055	809078	809101	809124	809147	809170	12	4. 19
48	9. 809193	809216	809240	809263	809286	809309	809332	809355	809378	809401	809425	809448	11	1 = 5
49	9. 809471	809494	809517	809540	809563	809586	809609	809633	809656	809679	809702	809725	10	2. 9
50	9. 809748	809771	809794	809817	809841	809864	809887	809910	809933	809956	809979	810002	9	3. 14
51	9. 810025	810048	810072	810095	810118	810141	810164	810187	810210	810233	810256	810279	8	4. 19
52	9. 810303	810326	810349	810372	810395	810418	810441	810464	810487	810510	810533	810557	7	1 = 5
53	9. 810580	810603	810626	810649	810672	810695	810718	810741	810764	810787	810811	810834	6	2. 9
54	9. 810857	810880	810903	810926	810949	810972	810995	811018	811041	811064	811087	811111	5	3. 14
55	9. 811134	811157	811180	811203	811226	811249	811272	811295	811318	811341	811364	811387	4	4. 19
56	9. 811411	811434	811457	811480	811503	811526	811549	811572	811595	811618	811641	811664	3	1 = 5
57	9. 811687	811710	811733	811757	811780	811803	811826	811849	811872	811895	811918	811941	2	2. 9
58	9. 811964	811987	812010	812033	812056	812079	812102	812126	812149	812172	812195	812218	1	3. 14
59	9. 812241	812264	812287	812310	812333	812356	812379	812402	812425	812448	812471	812494	0	4. 19
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 57 degrees, or Tangent of 147 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 33 degrees, or Co tangent of 123 degrees.												Minutes	Propor parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.812517	812540	812564	812587	812610	812633	812656	812679	812702	812725	812748	812771	59	1″ = 5
1	9.812794	812817	812840	812863	812886	812909	812932	812955	812978	813001	813024	813047	58	2. 9
2	9.813070	813093	813116	813140	813163	813186	813209	813232	813255	813278	813301	813324	57	3. 14
3	9.813347	813370	813393	813416	813439	813462	813485	813508	813531	813554	813577	813600	56	4. 18
4	9.813623	813646	813669	813692	813715	813738	813761	813784	813807	813830	813853	813876	55	1 = 5
5	9.813899	813922	813945	813968	813991	814014	814037	814061	814084	814107	814130	814153	54	2. 9
6	9.814176	814199	814222	814245	814268	814291	814314	814337	814360	814383	814406	814429	53	3. 14
7	9.814452	814475	814498	814521	814544	814567	814590	814613	814636	814659	814682	814705	52	4. 18
8	9.814728	814751	814774	814797	814820	814843	814866	814889	814912	814935	814958	814981	51	1 = 5
9	9.815004	815027	815050	815073	815096	815119	815142	815165	815188	815211	815234	815257	50	2. 9
10	9.815280	815303	815326	815349	815372	815395	815418	815440	815463	815486	815509	815532	49	3. 14
11	9.815555	815578	815601	815624	815647	815670	815693	815716	815739	815762	815785	815808	48	4. 18
12	9.815831	815854	815877	815900	815923	815946	815969	815992	816015	816038	816061	816084	47	1 = 5
13	9.816107	816130	816153	816176	816199	816222	816245	816268	816291	816314	816337	816360	46	2. 9
14	9.816382	816405	816428	816451	816474	816497	816520	816543	816566	816589	816612	816635	45	3. 14
15	9.816658	816681	816704	816727	816750	816773	816796	816819	816842	816865	816888	816911	44	4. 18
16	9.816934	816956	816979	817002	817025	817048	817071	817094	817117	817140	817163	817186	43	1 = 5
17	9.817209	817232	817255	817278	817301	817324	817347	817370	817392	817415	817438	817461	42	2. 9
18	9.817484	817507	817530	817553	817576	817599	817622	817645	817668	817691	817714	817737	41	3. 14
19	9.817760	817782	817805	817828	817851	817874	817897	817920	817943	817966	817989	818012	40	4. 18
20	9.818035	818058	818081	818104	818126	818149	818172	818195	818218	818241	818264	818287	39	1 = 5
21	9.818310	818333	818356	818379	818402	818424	818447	818470	818493	818516	818539	818562	38	2. 9
22	9.818585	818608	818631	818654	818677	818700	818722	818745	818768	818791	818814	818837	37	3. 14
23	9.818860	818883	818906	818929	818952	818974	818997	819020	819043	819066	819089	819112	36	4. 18
24	9.819135	819158	819181	819204	819226	819249	819272	819295	819318	819341	819364	819387	35	1 = 5
25	9.819410	819433	819455	819478	819501	819524	819547	819570	819593	819616	819639	819662	34	2. 9
26	9.819684	819707	819730	819753	819776	819799	819822	819845	819868	819891	819913	819936	33	3. 14
27	9.819959	819982	820005	820028	820051	820074	820097	820119	820142	820165	820188	820211	32	4. 18
28	9.820234	820257	820280	820303	820325	820348	820371	820394	820417	820440	820463	820486	31	1 = 5
29	9.820508	820531	820554	820577	820600	820623	820646	820669	820691	820714	820737	820760	30	2. 9
30	9.820783	820806	820829	820852	820874	820897	820920	820943	820966	820989	821012	821035	29	3. 14
31	9.821057	821080	821103	821126	821149	821172	821195	821217	821240	821263	821286	821309	28	4. 18
32	9.821332	821355	821378	821400	821423	821446	821469	821492	821515	821538	821560	821583	27	1 = 5
33	9.821606	821629	821652	821675	821698	821720	821743	821766	821789	821812	821835	821857	26	2. 9
34	9.821880	821903	821926	821949	821972	821995	822017	822040	822063	822086	822109	822132	25	3. 14
35	9.822155	822177	822200	822223	822246	822269	822292	822314	822337	822360	822383	822406	24	4. 18
36	9.822429	822451	822474	822497	822520	822543	822566	822589	822611	822634	822657	822680	23	1 = 5
37	9.822703	822726	822748	822771	822794	822817	822840	822863	822885	822908	822931	822954	22	2. 9
38	9.822977	822999	823022	823045	823068	823091	823114	823136	823159	823182	823205	823228	21	3. 14
39	9.823251	823273	823296	823319	823342	823365	823387	823410	823433	823456	823479	823502	20	4. 18
40	9.823524	823547	823570	823593	823616	823638	823661	823684	823707	823730	823753	823775	19	1 = 5
41	9.823798	823821	823844	823867	823889	823912	823935	823958	823981	824003	824026	824049	18	2. 9
42	9.824072	824095	824118	824140	824163	824186	824209	824232	824254	824277	824300	824323	17	3. 14
43	9.824346	824368	824391	824414	824437	824460	824482	824505	824528	824551	824574	824596	16	4. 18
44	9.824619	824642	824665	824688	824710	824733	824756	824779	824801	824824	824847	824870	15	1 = 5
45	9.824893	824915	824938	824961	824984	825007	825029	825052	825075	825098	825121	825143	14	2. 9
46	9.825166	825189	825212	825234	825257	825280	825303	825326	825348	825371	825394	825417	13	3. 14
47	9.825439	825462	825485	825508	825531	825553	825576	825599	825622	825644	825667	825690	12	4. 18
48	9.825713	825736	825758	825781	825804	825827	825849	825872	825895	825918	825940	825963	11	1 = 5
49	9.825986	826009	826032	826054	826077	826100	826123	826145	826168	826191	826214	826236	10	2. 9
50	9.826259	826282	826305	826328	826350	826373	826396	826419	826441	826464	826487	826510	9	3. 14
51	9.826532	826555	826578	826601	826623	826646	826669	826692	826714	826737	826760	826783	8	4. 18
52	9.826805	826828	826851	826874	826896	826919	826942	826965	826987	827010	827033	827056	7	1 = 5
53	9.827078	827101	827124	827147	827169	827192	827215	827238	827260	827283	827306	827329	6	2. 9
54	9.827351	827374	827397	827420	827442	827465	827488	827510	827533	827556	827579	827601	5	3. 14
55	9.827624	827647	827670	827692	827715	827738	827761	827783	827806	827829	827851	827874	4	4. 18
56	9.827897	827920	827942	827965	827988	828011	828033	828056	828079	828102	828124	828147	3	1 = 5
57	9.828170	828192	828215	828238	828261	828283	828306	828329	828351	828374	828397	828420	2	2. 9
58	9.828442	828465	828488	828511	828533	828556	828579	828601	828624	828647	828670	828692	1	3. 14
59	9.828715	828738	828760	828783	828806	828829	828851	828874	828897	828919	828942	828965	0	4. 18
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor parts.
	Co-tangent of 56 degrees, or Tangent of 146 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 34 degrees, or Co-tangent of 124 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 828987	829010	829033	829056	829078	829101	829124	829146	829169	829192	829215	829237	59	1″ = 5
1	9. 829260	829283	829305	829328	829351	829373	829396	829419	829442	829464	829487	829510	58	2. 9
2	9. 829532	829555	829578	829600	829623	829646	829669	829691	829714	829737	829759	829782	57	3. 14
3	9. 829805	829827	829850	829873	829895	829918	829941	829964	829986	830009	830032	830054	56	4. 18
4	9. 830077	830100	830122	830145	830168	830190	830213	830236	830258	830281	830304	830327	55	1 = 5
5	9. 830349	830372	830395	830417	830440	830463	830485	830508	830531	830553	830576	830599	54	2. 9
6	9. 830621	830644	830667	830689	830712	830735	830757	830780	830803	830825	830848	830871	53	3. 14
7	9. 830893	830916	830939	830961	830984	831007	831029	831052	831075	831097	831120	831143	52	4. 18
8	9. 831165	831188	831211	831233	831256	831279	831301	831324	831347	831369	831392	831415	51	1 = 5
9	9. 831437	831460	831483	831505	831528	831551	831573	831596	831619	831641	831664	831687	50	2. 9
10	9. 831709	831732	831755	831777	831800	831823	831845	831868	831891	831913	831936	831959	49	3. 14
11	9. 831981	832004	832026	832049	832072	832094	832117	832140	832162	832185	832208	832230	48	4. 18
12	9. 832253	832276	832298	832321	832344	832366	832389	832411	832434	832457	832479	832502	47	1 = 5
13	9. 832525	832547	832570	832593	832615	832638	832661	832683	832706	832728	832751	832774	46	2. 9
14	9. 832796	832819	832842	832864	832887	832910	832932	832955	832977	833000	833023	833045	45	3. 14
15	9. 833068	833091	833113	833136	833158	833181	833204	833226	833249	833272	833294	833317	44	4. 18
16	9. 833339	833362	833385	833407	833430	833453	833475	833498	833520	833543	833566	833588	43	1 = 5
17	9. 833611	833634	833656	833679	833701	833724	833747	833769	833792	833814	833837	833860	42	2. 9
18	9. 833882	833905	833928	833950	833973	833995	834018	834041	834063	834086	834108	834131	41	3. 14
19	9. 834154	834176	834199	834221	834244	834267	834289	834312	834335	834357	834380	834402	40	4. 18
20	9. 834425	834448	834470	834493	834515	834538	834561	834583	834606	834628	834651	834674	39	1 = 5
21	9. 834696	834719	834741	834764	834787	834809	834832	834854	834877	834900	834922	834945	38	2. 9
22	9. 834967	834990	835013	835035	835058	835080	835103	835125	835148	835171	835193	835216	37	3. 14
23	9. 835238	835261	835284	835306	835329	835351	835374	835397	835419	835442	835464	835487	36	4. 18
24	9. 835509	835532	835555	835577	835600	835622	835645	835668	835690	835713	835735	835758	35	1 = 5
25	9. 835780	835803	835826	835848	835871	835893	835916	835938	835961	835984	836006	836029	34	2. 9
26	9. 836051	836074	836096	836119	836142	836164	836187	836209	836232	836254	836277	836300	33	3. 14
27	9. 836322	836345	836367	836390	836412	836435	836458	836480	836503	836525	836548	836570	32	4. 18
28	9. 836593	836616	836638	836661	836683	836706	836728	836751	836773	836796	836819	836841	31	1 = 5
29	9. 836864	836886	836909	836931	836954	836976	836999	837022	837044	837067	837089	837112	30	2. 9
30	9. 837134	837157	837179	837202	837225	837247	837270	837292	837315	837337	837360	837382	29	3. 14
31	9. 837405	837428	837450	837473	837495	837518	837540	837563	837585	837608	837630	837653	28	4. 18
32	9. 837676	837698	837721	837743	837766	837788	837811	837833	837856	837878	837901	837923	27	1 = 5
33	9. 837946	837969	837991	838014	838036	838059	838081	838104	838126	838149	838171	838194	26	2. 9
34	9. 838216	838239	838261	838284	838307	838329	838352	838374	838397	838419	838442	838464	25	3. 14
35	9. 838487	838509	838532	838554	838577	838599	838622	838644	838667	838690	838712	838735	24	4. 18
36	9. 838757	838780	838802	838825	838847	838870	838892	838915	838937	838960	838982	839005	23	1 = 5
37	9. 839027	839050	839072	839095	839117	839140	839162	839185	839207	839230	839253	839275	22	2. 9
38	9. 839298	839320	839343	839365	839388	839410	839433	839455	839478	839500	839523	839545	21	3. 14
39	9. 839568	839590	839613	839635	839658	839680	839703	839725	839748	839770	839793	839815	20	4. 18
40	9. 839838	839860	839883	839905	839928	839950	839973	839995	840018	840040	840063	840085	19	1 = 5
41	9. 840108	840130	840153	840175	840198	840220	840243	840265	840288	840310	840333	840355	18	2. 9
42	9. 840378	840400	840423	840445	840468	840490	840513	840535	840558	840580	840603	840625	17	3. 14
43	9. 840648	840670	840693	840715	840738	840760	840783	840805	840827	840850	840872	840895	16	4. 18
44	9. 840917	840940	840962	840985	841007	841030	841052	841075	841097	841120	841142	841165	15	1 = 4
45	9. 841187	841210	841232	841255	841277	841300	841322	841345	841367	841389	841412	841434	14	2. 8
46	9. 841457	841479	841502	841524	841547	841569	841592	841614	841637	841659	841682	841704	13	3. 12
47	9. 841727	841749	841772	841794	841816	841839	841861	841884	841906	841929	841951	841974	12	4. 16
48	9. 841996	842019	842041	842064	842086	842108	842131	842153	842176	842198	842221	842243	11	1 = 4
49	9. 842266	842288	842311	842333	842356	842378	842400	842423	842445	842468	842490	842513	10	2. 8
50	9. 842535	842558	842580	842603	842625	842647	842670	842692	842715	842737	842760	842782	9	3. 12
51	9. 842805	842827	842850	842872	842894	842917	842939	842962	842984	843007	843029	843052	8	4. 16
52	9. 843074	843096	843119	843141	843164	843186	843209	843231	843254	843276	843298	843321	7	1 = 4
53	9. 843343	843366	843388	843411	843433	843455	843478	843500	843523	843545	843568	843590	6	2. 8
54	9. 843613	843635	843657	843680	843702	843725	843747	843770	843792	843814	843837	843859	5	3. 12
55	9. 843882	843904	843927	843949	843971	843994	844016	844039	844061	844084	844106	844128	4	4. 16
56	9. 844151	844173	844196	844218	844241	844263	844285	844308	844330	844353	844375	844398	3	1 = 4
57	9. 844420	844442	844465	844487	844510	844532	844554	844577	844599	844622	844644	844667	2	2. 8
58	9. 844689	844711	844734	844756	844779	844801	844823	844846	844868	844891	844913	844936	1	3. 12
59	9. 844958	844980	845003	845025	845048	845070	845092	845115	845137	845160	845182	845204	0	4. 16
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-tangent of 55 degrees, or Tangent of 145 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 35 degrees, or Co-tangent of 125 degrees.												Minutes	Propor. parts.
	0′	5″	10″	15″	20″	25″	30′	35″	40′	45″	50″	55″		
0	9.845227	845249	845272	845294	845316	845339	845361	845384	845406	845428	845451	845473	59	1″ = 4
1	9.845496	845518	845540	845563	845585	845608	845630	845652	845675	845697	845720	845742	58	2. 9
2	9.845764	845787	845809	845832	845854	845876	845899	845921	845944	845966	845988	846011	57	3. 13
3	9.846033	846056	846078	846100	846123	846145	846168	846190	846212	846235	846257	846280	56	4. 18
4	9.846302	846324	846347	846369	846391	846414	846436	846459	846481	846503	846526	846548	55	1 = 4
5	9.846571	846593	846615	846638	846660	846682	846705	846727	846750	846772	846794	846817	54	2. 9
6	9.846839	846861	846884	846906	846929	846951	846973	846996	847018	847040	847063	847085	53	3. 13
7	9.847108	847130	847152	847175	847197	847219	847242	847264	847287	847309	847331	847354	52	4. 18
8	9.847376	847398	847421	847443	847466	847488	847510	847533	847555	847577	847600	847622	51	1 = 4
9	9.847644	847667	847689	847712	847734	847756	847779	847801	847823	847846	847868	847890	50	2. 9
10	9.847913	847935	847957	847980	848002	848025	848047	848069	848092	848114	848136	848159	49	3. 13
11	9.848181	848203	848226	848248	848270	848293	848315	848338	848360	848382	848405	848427	48	4. 18
12	9.848449	848472	848494	848516	848539	848561	848583	848606	848628	848650	848673	848695	47	1 = 4
13	9.848717	848740	848762	848785	848807	848829	848852	848874	848896	848919	848941	848963	46	2. 9
14	9.848986	849008	849030	849053	849075	849097	849120	849142	849164	849187	849209	849231	45	3. 13
15	9.849254	849276	849298	849321	849343	849365	849388	849410	849432	849455	849477	849499	44	4. 18
16	9.849522	849544	849566	849589	849611	849633	849656	849678	849700	849723	849745	849767	43	1 = 4
17	9.849790	849812	849834	849857	849879	849901	849924	849946	849968	849991	850013	850035	42	2. 9
18	9.850058	850080	850102	850124	850147	850169	850191	850214	850236	850258	850281	850303	41	3. 13
19	9.850325	850348	850370	850392	850415	850437	850459	850482	850504	850526	850549	850571	40	4. 18
20	9.850593	850615	850638	850660	850682	850705	850727	850749	850772	850794	850816	850839	39	1 = 4
21	9.850861	850883	850906	850928	850950	850972	850995	851017	851039	851062	851084	851106	38	2. 9
22	9.851129	851151	851173	851195	851218	851240	851262	851285	851307	851329	851352	851374	37	3. 13
23	9.851396	851418	851441	851463	851485	851508	851530	851552	851575	851597	851619	851641	36	4. 18
24	9.851664	851686	851708	851731	851753	851775	851798	851820	851842	851864	851887	851909	35	1 = 4
25	9.851931	851954	851976	851998	852020	852043	852065	852087	852110	852132	852154	852176	34	2. 9
26	9.852199	852221	852243	852266	852288	852310	852332	852355	852377	852399	852422	852444	33	3. 13
27	9.852466	852488	852511	852533	852555	852578	852600	852622	852644	852667	852689	852711	32	4. 18
28	9.852734	852756	852778	852800	852823	852845	852867	852889	852912	852934	852956	852979	31	1 = 4
29	9.853001	853023	853045	853068	853090	853112	853134	853157	853179	853201	853224	853246	30	2. 9
30	9.853268	853290	853313	853335	853357	853379	853402	853424	853446	853468	853491	853513	29	3. 13
31	9.853535	853558	853580	853602	853624	853647	853669	853691	853713	853736	853758	853780	28	4. 18
32	9.853802	853825	853847	853869	853891	853914	853936	853958	853980	854003	854025	854047	27	1 = 4
33	9.854069	854092	854114	854136	854158	854181	854203	854225	854248	854270	854292	854314	26	2. 9
34	9.854337	854359	854381	854403	854426	854448	854470	854492	854515	854537	854559	854581	25	3. 13
35	9.854603	854626	854648	854670	854692	854715	854737	854759	854781	854804	854826	854848	24	4. 18
36	9.854870	854893	854915	854937	854959	854982	855004	855026	855048	855071	855093	855115	23	1 = 4
37	9.855137	855160	855182	855204	855226	855248	855271	855293	855315	855337	855360	855382	22	2. 9
38	9.855404	855426	855449	855471	855493	855515	855538	855560	855582	855604	855626	855649	21	3. 13
39	9.855671	855693	855715	855738	855760	855782	855804	855826	855849	855871	855893	855915	20	4. 18
40	9.855938	855960	855982	856004	856026	856049	856071	856093	856115	856138	856160	856182	19	1 = 4
41	9.856204	856226	856249	856271	856293	856315	856338	856360	856382	856404	856426	856449	18	2. 9
42	9.856471	856493	856515	856538	856560	856582	856604	856626	856649	856671	856693	856715	17	3. 13
43	9.856737	856760	856782	856804	856826	856848	856871	856893	856915	856937	856960	856982	16	4. 18
44	9.857004	857026	857048	857071	857093	857115	857137	857159	857182	857204	857226	857248	15	1 = 4
45	9.857270	857293	857315	857337	857359	857381	857404	857426	857448	857470	857492	857515	14	2. 9
46	9.857537	857559	857581	857603	857626	857648	857670	857692	857714	857737	857759	857781	13	3. 13
47	9.857803	857825	857848	857870	857892	857914	857936	857959	857981	858003	858025	858047	12	4. 18
48	9.858069	858092	858114	858136	858158	858180	858203	858225	858247	858269	858291	858314	11	1 = 4
49	9.858336	858358	858380	858402	858424	858447	858469	858491	858513	858535	858558	858580	10	2. 9
50	9.858602	858624	858646	858668	858691	858713	858735	858757	858779	858802	858824	858846	9	3. 13
51	9.858868	858890	858912	858935	858957	858979	859001	859023	859045	859068	859090	859112	8	4. 18
52	9.859134	859156	859178	859201	859223	859245	859267	859289	859312	859334	859356	859378	7	1 = 4
53	9.859400	859422	859445	859467	859489	859511	859533	859555	859578	859600	859622	859644	6	2. 9
54	9.859666	859688	859711	859733	859755	859777	859799	859821	859843	859866	859888	859910	5	3. 13
55	9.859932	859954	859976	859999	860021	860043	860065	860087	860109	860132	860154	860176	4	4. 18
56	9.860198	860220	860242	860264	860287	860309	860331	860353	860375	860397	860420	860442	3	1 = 4
57	9.860464	860486	860508	860530	860552	860575	860597	860619	860641	860663	860685	860708	2	2. 9
58	9.860730	860752	860774	860796	860818	860840	860863	860885	860907	860929	860951	860973	1	3. 13
59	9.860995	861018	861040	861062	861084	861106	861128	861150	861173	861195	861217	861239	0	4. 18
Minutes	60′	55″	50″	45″	40′	35″	30′	25″	20′	15″	10′	5′	Minutes	Propor. parts.
	Co-tangent of 54 degrees, or Tangent of 144 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 36 degrees, or Co-tangent of 126 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 861261	861283	861305	861328	861350	861372	861394	861416	861438	861460	861482	861505	59	1″ = 4
1	9. 861527	861549	861571	861593	861615	861637	861660	861682	861704	861726	861748	861770	58	2. 9
2	9. 861792	861814	861837	861859	861881	861903	861925	861947	861969	861991	862014	862036	57	3. 13
3	9. 862058	862080	862102	862124	862146	862168	862191	862213	862235	862257	862279	862301	56	4. 18
4	9. 862323	862345	862368	862390	862412	862434	862456	862478	862500	862522	862545	862567	55	1 = 4
5	9. 862589	862611	862633	862655	862677	862699	862721	862744	862766	862788	862810	862832	54	2. 9
6	9. 862854	862876	862898	862921	862943	862965	862987	863009	863031	863053	863075	863097	53	3. 13
7	9. 863120	863142	863164	863186	863208	863230	863252	863274	863296	863318	863341	863363	52	4. 18
8	9. 863385	863407	863429	863451	863473	863495	863517	863540	863562	863584	863606	863628	51	1 = 4
9	9. 863650	863672	863694	863716	863738	863761	863783	863805	863827	863849	863871	863893	50	2. 9
10	9. 863915	863937	863959	863982	864004	864026	864048	864070	864092	864114	864136	864158	49	3. 13
11	9. 864180	864202	864225	864247	864269	864291	864313	864335	864357	864379	864401	864423	48	4. 18
12	9. 864445	864468	864490	864512	864534	864556	864578	864600	864622	864644	864666	864688	47	1 = 4
13	9. 864711	864733	864755	864777	864799	864821	864843	864865	864887	864909	864931	864953	46	2. 9
14	9. 864976	864998	865020	865042	865064	865086	865108	865130	865152	865174	865196	865218	45	3. 13
15	9. 865240	865263	865285	865307	865329	865351	865373	865395	865417	865439	865461	865483	44	4. 18
16	9. 865505	865527	865550	865572	865594	865616	865638	865660	865682	865704	865726	865748	43	1 = 4
17	9. 865770	865792	865814	865836	865858	865881	865903	865925	865947	865969	865991	866013	42	2. 9
18	9. 866035	866057	866079	866101	866123	866145	866167	866189	866212	866234	866256	866278	41	3. 13
19	9. 866300	866322	866344	866366	866388	866410	866432	866454	866476	866498	866520	866542	40	4. 18
20	9. 866564	866587	866609	866631	866653	866675	866697	866719	866741	866763	866785	866807	39	1 = 4
21	9. 866829	866851	866873	866895	866917	866939	866961	866984	867006	867028	867050	867072	38	2. 9
22	9. 867094	867116	867138	867160	867182	867204	867226	867248	867270	867292	867314	867336	37	3. 13
23	9. 867358	867380	867402	867424	867446	867469	867491	867513	867535	867557	867579	867601	36	4. 18
24	9. 867623	867645	867667	867689	867711	867733	867755	867777	867799	867821	867843	867865	35	1 = 4
25	9. 867887	867909	867931	867953	867975	867997	868020	868042	868064	868086	868108	868130	34	2. 9
26	9. 868152	868174	868196	868218	868240	868262	868284	868306	868328	868350	868372	868394	33	3. 13
27	9. 868416	868438	868460	868482	868504	868526	868548	868570	868592	868614	868636	868658	32	4. 18
28	9. 868680	868702	868724	868746	868769	868791	868813	868835	868857	868879	868901	868923	31	1 = 4
29	9. 868945	868967	868989	869011	869033	869055	869077	869099	869121	869143	869165	869187	30	2. 9
30	9. 869209	869231	869253	869275	869297	869319	869341	869363	869385	869407	869429	869451	29	3. 13
31	9. 869473	869495	869517	869539	869561	869583	869605	869627	869649	869671	869693	869715	28	4. 18
32	9. 869737	869759	869781	869803	869825	869847	869869	869891	869913	869935	869957	869979	27	1 = 4
33	9. 870001	870023	870045	870067	870089	870111	870133	870155	870177	870199	870221	870243	26	2. 9
34	9. 870265	870287	870309	870331	870353	870375	870397	870419	870441	870463	870485	870507	25	3. 13
35	9. 870529	870551	870573	870595	870617	870639	870661	870683	870705	870727	870749	870771	24	4. 18
36	9. 870793	870815	870837	870859	870881	870903	870925	870947	870969	870991	871013	871035	23	1 = 4
37	9. 871057	871079	871101	871123	871145	871167	871189	871211	871233	871255	871277	871299	22	2. 9
38	9. 871321	871343	871365	871387	871409	871431	871453	871475	871497	871519	871541	871563	21	3. 13
39	9. 871585	871607	871629	871651	871673	871695	871717	871739	871761	871783	871805	871827	20	4. 18
40	9. 871849	871871	871893	871915	871937	871959	871981	872003	872024	872046	872068	872090	19	1 = 4
41	9. 872112	872134	872156	872178	872200	872222	872244	872266	872288	872310	872332	872354	18	2. 9
42	9. 872376	872398	872420	872442	872464	872486	872508	872530	872552	872574	872596	872618	17	3. 13
43	9. 872640	872662	872684	872706	872728	872750	872771	872793	872815	872837	872859	872881	16	4. 18
44	9. 872903	872925	872947	872969	872991	873013	873035	873057	873079	873101	873123	873145	15	1 = 4
45	9. 873167	873189	873211	873233	873255	873277	873299	873321	873342	873364	873386	873408	14	2. 9
46	9. 873430	873452	873474	873496	873518	873540	873562	873584	873606	873628	873650	873672	13	3. 13
47	9. 873694	873716	873738	873760	873782	873803	873825	873847	873869	873891	873913	873935	12	4. 18
48	9. 873957	873979	874001	874023	874045	874067	874089	874111	874133	874155	874177	874199	11	1 = 4
49	9. 874220	874242	874264	874286	874308	874330	874352	874374	874396	874418	874440	874462	10	2. 9
50	9. 874484	874506	874528	874550	874572	874594	874615	874637	874659	874681	874703	874725	9	3. 13
51	9. 874747	874769	874791	874813	874835	874857	874879	874901	874923	874944	874966	874988	8	4. 18
52	9. 875010	875032	875054	875076	875098	875120	875142	875164	875186	875208	875230	875252	7	1 = 4
53	9. 875273	875295	875317	875339	875361	875383	875405	875427	875449	875471	875493	875515	6	2. 9
54	9. 875537	875559	875580	875602	875624	875646	875668	875690	875712	875734	875756	875778	5	3. 13
55	9. 875800	875822	875844	875865	875887	875909	875931	875953	875975	875997	876019	876041	4	4. 18
56	9. 876063	876085	876107	876128	876150	876172	876194	876216	876238	876260	876282	876304	3	1 = 4
57	9. 876326	876348	876370	876391	876413	876435	876457	876479	876501	876523	876545	876567	2	2. 9
58	9. 876589	876611	876633	876654	876676	876698	876720	876742	876764	876786	876808	876830	1	3. 13
59	9. 876852	876873	876895	876917	876939	876961	876983	877005	877027	877049	877071	877093	0	4. 18
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 53 degrees, or Tangent of 143 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 37 degrees, or Co-tangent of 127 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.877114	877136	877158	877180	877202	877224	877246	877268	877290	877312	877333	877355	59	1″ = 4
1	9.877377	877399	877421	877443	877465	877487	877509	877531	877552	877574	877596	877618	58	2. 9
2	9.877640	877662	877684	877706	877728	877750	877771	877793	877815	877837	877859	877881	57	3. 13
3	9.877903	877925	877947	877968	877990	878012	878034	878056	878078	878100	878122	878144	56	4. 18
4	9.878165	878187	878209	878231	878253	878275	878297	878319	878341	878362	878384	878406	55	1 = 4
5	9.878428	878450	878472	878494	878516	878538	878559	878581	878603	878625	878647	878669	54	2. 9
6	9.878691	878713	878735	878756	878778	878800	878822	878844	878866	878888	878910	878931	53	3. 13
7	9.878953	878975	878997	879019	879041	879063	879085	879106	879128	879150	879172	879194	52	4. 18
8	9.879216	879238	879260	879281	879303	879325	879347	879369	879391	879413	879435	879456	51	1 = 4
9	9.879478	879500	879522	879544	879566	879588	879610	879631	879653	879675	879697	879719	50	2. 9
10	9.879741	879763	879784	879806	879828	879850	879872	879894	879916	879938	879959	879981	49	3. 13
11	9.880003	880025	880047	880069	880091	880112	880134	880156	880178	880200	880222	880244	48	4. 17
12	9.880265	880287	880309	880331	880353	880375	880397	880418	880440	880462	880484	880506	47	1 = 4
13	9.880528	880550	880571	880593	880615	880637	880659	880681	880703	880724	880746	880768	46	2. 9
14	9.880790	880812	880834	880856	880877	880899	880921	880943	880965	880987	881009	881030	45	3. 13
15	9.881052	881074	881096	881118	881140	881161	881183	881205	881227	881249	881271	881293	44	4. 17
16	9.881314	881336	881358	881380	881402	881424	881446	881467	881489	881511	881533	881555	43	1 = 4
17	9.881577	881598	881620	881642	881664	881686	881708	881729	881751	881773	881795	881817	42	2. 9
18	9.881839	881860	881882	881904	881926	881948	881970	881992	882013	882035	882057	882079	41	3. 13
19	9.882101	882123	882144	882166	882188	882210	882232	882254	882275	882297	882319	882341	40	4. 17
20	9.882363	882385	882406	882428	882450	882472	882494	882516	882537	882559	882581	882603	39	1 = 4
21	9.882625	882647	882668	882690	882712	882734	882756	882777	882799	882821	882843	882865	38	2. 9
22	9.882887	882908	882930	882952	882974	882996	883018	883039	883061	883083	883105	883127	37	3. 13
23	9.883148	883170	883192	883214	883236	883258	883279	883301	883323	883345	883367	883389	36	4. 17
24	9.883410	883432	883454	883476	883498	883519	883541	883563	883585	883607	883629	883650	35	1 = 4
25	9.883672	883694	883716	883738	883759	883781	883803	883825	883847	883868	883890	883912	34	2. 9
26	9.883934	883956	883978	883999	884021	884043	884065	884087	884108	884130	884152	884174	33	3. 13
27	9.884196	884217	884239	884261	884283	884305	884326	884348	884370	884392	884414	884435	32	4. 17
28	9.884457	884479	884501	884523	884545	884566	884588	884610	884632	884654	884675	884697	31	1 = 4
29	9.884719	884741	884763	884784	884806	884828	884850	884872	884893	884915	884937	884959	30	2. 9
30	9.884981	885002	885024	885046	885068	885090	885111	885133	885155	885177	885198	885220	29	3. 13
31	9.885242	885264	885286	885307	885329	885351	885373	885395	885416	885438	885460	885482	28	4. 17
32	9.885504	885525	885547	885569	885591	885613	885634	885656	885678	885700	885721	885743	27	1 = 4
33	9.885765	885787	885809	885830	885852	885874	885896	885918	885939	885961	885983	886005	26	2. 9
34	9.886026	886048	886070	886092	886114	886135	886157	886179	886201	886223	886244	886266	25	3. 13
35	9.886288	886310	886331	886353	886375	886397	886419	886440	886462	886484	886506	886527	24	4. 17
36	9.886549	886571	886593	886615	886636	886658	886680	886702	886723	886745	886767	886789	23	1 = 4
37	9.886811	886832	886854	886876	886898	886919	886941	886963	886985	887007	887028	887050	22	2. 9
38	9.887072	887094	887115	887137	887159	887181	887202	887224	887246	887268	887290	887311	21	3. 13
39	9.887333	887355	887377	887398	887420	887442	887464	887485	887507	887529	887551	887572	20	4. 17
40	9.887594	887616	887638	887660	887681	887703	887725	887747	887768	887790	887812	887834	19	1 = 4
41	9.887855	887877	887899	887921	887942	887964	887986	888008	888029	888051	888073	888095	18	2. 9
42	9.888117	888138	888160	888182	888204	888225	888247	888269	888291	888312	888334	888356	17	3. 13
43	9.888378	888399	888421	888443	888465	888486	888508	888530	888552	888573	888595	888617	16	4. 17
44	9.888639	888660	888682	888704	888726	888747	888769	888791	888813	888834	888856	888878	15	1 = 4
45	9.888900	888921	888943	888965	888987	889008	889030	889052	889074	889095	889117	889139	14	2. 9
46	9.889161	889182	889204	889226	889248	889269	889291	889313	889335	889356	889378	889400	13	3. 13
47	9.889421	889443	889465	889487	889508	889530	889552	889574	889595	889617	889639	889661	12	4. 17
48	9.889682	889704	889726	889748	889769	889791	889813	889835	889856	889878	889900	889921	11	1 = 4
49	9.889943	889965	889987	890008	890030	890052	890074	890095	890117	890139	890161	890182	10	2. 9
50	9.890204	890226	890247	890269	890291	890313	890334	890356	890378	890400	890421	890443	9	3. 13
51	9.890465	890486	890508	890530	890552	890573	890595	890617	890639	890660	890682	890704	8	4. 17
52	9.890725	890747	890769	890791	890812	890834	890856	890878	890899	890921	890943	890964	7	1 = 4
53	9.890986	891008	891030	891051	891073	891095	891117	891138	891160	891182	891203	891225	6	2. 9
54	9.891247	891269	891290	891312	891334	891355	891377	891399	891421	891442	891464	891486	5	3. 13
55	9.891507	891529	891551	891573	891594	891616	891638	891659	891681	891703	891725	891746	4	4. 17
56	9.891768	891790	891811	891833	891855	891877	891898	891920	891942	891963	891985	892007	3	1 = 4
57	9.892029	892050	892072	892094	892115	892137	892159	892180	892202	892224	892246	892267	2	2. 9
58	9.892289	892311	892332	892354	892376	892398	892419	892441	892463	892484	892506	892528	1	3. 13
59	9.892549	892571	892593	892615	892636	892658	892680	892701	892723	892745	892766	892788	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 52 degrees, or Tangent of 142 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 38 degrees, or Co-tangent of 128 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9. 892810	892832	892853	892875	892897	892918	892940	892962	892983	893005	893027	893049	59	1″ = 4
1	9. 893070	893092	893114	893135	893157	893179	893200	893222	893244	893266	893287	893309	58	2. 9
2	9. 893331	893352	893374	893396	893417	893439	893461	893482	893504	893526	893548	893569	57	3. 13
3	9. 893591	893613	893634	893656	893678	893699	893721	893743	893764	893786	893808	893829	56	4. 17
4	9. 893851	893873	893895	893916	893938	893960	893981	894003	894025	894046	894068	894090	55	1 = 4
5	9. 894111	894133	894155	894176	894198	894220	894242	894263	894285	894307	894328	894350	54	2. 9
6	9. 894372	894393	894415	894437	894458	894480	894502	894523	894545	894567	894588	894610	53	3. 13
7	9. 894632	894653	894675	894697	894718	894740	894762	894783	894805	894827	894849	894870	52	4. 17
8	9. 894892	894914	894935	894957	894979	895000	895022	895044	895065	895087	895109	895130	51	1 = 4
9	9. 895152	895174	895195	895217	895239	895260	895282	895304	895325	895347	895369	895390	50	2. 9
10	9. 895412	895434	895455	895477	895499	895520	895542	895564	895585	895607	895629	895650	49	3. 13
11	9. 895672	895694	895715	895737	895759	895780	895802	895824	895845	895867	895889	895910	48	4. 17
12	9. 895932	895954	895975	895997	896019	896040	896062	896084	896105	896127	896149	896170	47	1 = 4
13	9. 896192	896214	896235	896257	896279	896300	896322	896344	896365	896387	896408	896430	46	2. 9
14	9. 896452	896473	896495	896517	896538	896560	896582	896603	896625	896647	896668	896690	45	3. 13
15	9. 896712	896733	896755	896777	896798	896820	896842	896863	896885	896907	896928	896950	44	4. 17
16	9. 896971	896993	897015	897036	897058	897080	897101	897123	897145	897166	897188	897210	43	1 = 4
17	9. 897231	897253	897275	897296	897318	897339	897361	897383	897404	897426	897448	897469	42	2. 9
18	9. 897491	897513	897534	897556	897578	897599	897621	897643	897664	897686	897707	897729	41	3. 13
19	9. 897751	897772	897794	897816	897837	897859	897881	897902	897924	897945	897967	897989	40	4. 17
20	9. 898010	898032	898054	898075	898097	898119	898140	898162	898184	898205	898227	898248	39	1 = 4
21	9. 898270	898292	898313	898335	898357	898378	898400	898421	898443	898465	898486	898508	38	2. 9
22	9. 898530	898551	898573	898595	898616	898638	898659	898681	898703	898724	898746	898768	37	3. 13
23	9. 898789	898811	898832	898854	898876	898897	898919	898941	898962	898984	899006	899027	36	4. 17
24	9. 899049	899070	899092	899114	899135	899157	899179	899200	899222	899243	899265	899287	35	1 = 4
25	9. 899308	899330	899352	899373	899395	899416	899438	899460	899481	899503	899524	899546	34	2. 9
26	9. 899568	899589	899611	899633	899654	899676	899697	899719	899741	899762	899784	899806	33	3. 13
27	9. 899827	899849	899870	899892	899914	899935	899957	899978	900000	900022	900043	900065	32	4. 17
28	9. 900087	900108	900130	900151	900173	900195	900216	900238	900259	900281	900303	900324	31	1 = 4
29	9. 900346	900368	900389	900411	900432	900454	900476	900497	900519	900540	900562	900584	30	2. 9
30	9. 900605	900627	900648	900670	900692	900713	900735	900757	900778	900800	900821	900843	29	3. 13
31	9. 900865	900886	900908	900929	900951	900973	900994	901016	901037	901059	901081	901102	28	4. 17
32	9. 901124	901145	901167	901189	901210	901232	901253	901275	901297	901318	901340	901361	27	1 = 4
33	9. 901383	901405	901426	901448	901469	901491	901513	901534	901556	901577	901599	901621	26	2. 9
34	9. 901642	901664	901685	901707	901729	901750	901772	901793	901815	901837	901858	901880	25	3. 13
35	9. 901901	901923	901945	901966	901988	902009	902031	902053	902074	902096	902117	902139	24	4. 17
36	9. 902160	902182	902204	902225	902247	902268	902290	902312	902333	902355	902376	902398	23	1 = 4
37	9. 902420	902441	902463	902484	902506	902527	902549	902571	902592	902614	902635	902657	22	2. 9
38	9. 902679	902700	902722	902743	902765	902787	902808	902830	902851	902873	902894	902916	21	3. 13
39	9. 902938	902959	902981	903002	903024	903046	903067	903089	903110	903132	903153	903175	20	4. 17
40	9. 903197	903218	903240	903261	903283	903305	903326	903348	903369	903391	903412	903434	19	1 = 4
41	9. 903456	903477	903499	903520	903542	903563	903585	903607	903628	903650	903671	903693	18	2. 9
42	9. 903714	903736	903758	903779	903801	903822	903844	903865	903887	903909	903930	903952	17	3. 13
43	9. 903973	903995	904016	904038	904060	904081	904103	904124	904146	904167	904189	904211	16	4. 17
44	9. 904232	904254	904275	904297	904318	904340	904362	904383	904405	904426	904448	904469	15	1 = 4
45	9. 904491	904513	904534	904556	904577	904599	904620	904642	904664	904685	904707	904728	14	2. 9
46	9. 904750	904771	904793	904814	904836	904858	904879	904901	904922	904944	904965	904987	13	3. 13
47	9. 905009	905030	905052	905073	905095	905116	905138	905159	905181	905203	905224	905246	12	4. 17
48	9. 905267	905289	905310	905332	905353	905375	905397	905418	905440	905461	905483	905504	11	1 = 4
49	9. 905526	905547	905569	905591	905612	905634	905655	905677	905698	905720	905741	905763	10	2. 9
50	9. 905785	905806	905828	905849	905871	905892	905914	905935	905957	905979	906000	906022	9	3. 13
51	9. 906043	906065	906086	906108	906129	906151	906172	906194	906216	906237	906259	906280	8	4. 17
52	9. 906302	906323	906345	906366	906388	906410	906431	906453	906474	906496	906517	906539	7	1 = 4
53	9. 906560	906582	906603	906625	906646	906668	906690	906711	906733	906754	906776	906797	6	2. 9
54	9. 906819	906840	906862	906883	906905	906927	906948	906970	906991	907013	907034	907056	5	3. 13
55	9. 907077	907099	907120	907142	907163	907185	907207	907228	907250	907271	907293	907314	4	4. 17
56	9. 907336	907357	907379	907400	907422	907443	907465	907487	907508	907530	907551	907573	3	1 = 4
57	9. 907594	907616	907637	907659	907680	907702	907723	907745	907766	907788	907810	907831	2	2. 9
58	9. 907853	907874	907896	907917	907939	907960	907982	908003	908025	908046	908068	908089	1	3. 13
59	9. 908111	908132	908154	908176	908197	908219	908240	908262	908283	908305	908326	908348	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 51 degrees, or Tangent of 141 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 39 degrees, or Co-tangent of 129 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.908369	908391	908412	908434	908455	908477	908498	908520	908541	908563	908585	908606	59	1″ = 4
1	9.908628	908649	908671	908692	908714	908735	908757	908778	908800	908821	908843	908864	58	2. 9
2	9.908886	908907	908929	908950	908972	908993	909015	909036	909058	909079	909101	909123	57	3. 13
3	9.909144	909166	909187	909209	909230	909252	909273	909295	909316	909338	909359	909381	56	4. 17
4	9.909402	909424	909445	909467	909488	909510	909531	909553	909574	909596	909617	909639	55	1 = 4
5	9.909660	909682	909703	909725	909746	909768	909789	909811	909832	909854	909876	909897	54	2. 9
6	9.909919	909940	909962	909983	910005	910026	910048	910069	910091	910112	910134	910155	53	3. 13
7	9.910177	910198	910220	910241	910263	910284	910306	910327	910349	910370	910392	910413	52	4. 17
8	9.910435	910456	910478	910499	910521	910542	910564	910585	910607	910628	910650	910671	51	1 = 4
9	9.910693	910714	910736	910757	910779	910800	910822	910843	910865	910886	910908	910929	50	2. 9
10	9.910951	910972	910994	911015	911037	911058	911080	911101	911123	911144	911166	911187	49	3. 13
11	9.911209	911230	911252	911273	911295	911316	911338	911359	911381	911402	911424	911445	48	4. 17
12	9.911467	911488	911510	911531	911553	911574	911596	911617	911639	911660	911682	911703	47	1 = 4
13	9.911725	911746	911768	911789	911811	911832	911854	911875	911897	911918	911939	911961	46	2. 9
14	9.911982	912004	912025	912047	912068	912090	912111	912133	912154	912176	912197	912219	45	3. 13
15	9.912240	912262	912283	912305	912326	912348	912369	912391	912412	912434	912455	912477	44	4. 17
16	9.912498	912520	912541	912563	912584	912606	912627	912649	912670	912691	912713	912734	43	1 = 4
17	9.912756	912777	912799	912820	912842	912863	912885	912906	912928	912949	912971	912992	42	2. 9
18	9.913014	913035	913057	913078	913100	913121	913143	913164	913186	913207	913228	913250	41	3. 13
19	9.913271	913293	913314	913336	913357	913379	913400	913422	913443	913465	913486	913508	40	4. 17
20	9.913529	913551	913572	913594	913615	913637	913658	913679	913701	913722	913744	913765	39	1 = 4
21	9.913787	913808	913830	913851	913873	913894	913916	913937	913959	913980	914002	914023	38	2. 9
22	9.914044	914066	914087	914109	914130	914152	914173	914195	914216	914238	914259	914281	37	3. 13
23	9.914302	914324	914345	914366	914388	914409	914431	914452	914474	914495	914517	914538	36	4. 17
24	9.914560	914581	914603	914624	914645	914667	914688	914710	914731	914753	914774	914796	35	1 = 4
25	9.914817	914839	914860	914882	914903	914925	914946	914967	914989	915010	915032	915053	34	2. 9
26	9.915075	915096	915118	915139	915161	915182	915203	915225	915246	915268	915289	915311	33	3. 13
27	9.915332	915354	915375	915397	915418	915439	915461	915482	915504	915525	915547	915568	32	4. 17
28	9.915590	915611	915633	915654	915675	915697	915718	915740	915761	915783	915804	915826	31	1 = 4
29	9.915847	915869	915890	915911	915933	915954	915976	915997	916019	916040	916062	916083	30	2. 9
30	9.916105	916126	916147	916169	916190	916212	916233	916255	916276	916298	916319	916340	29	3. 13
31	9.916362	916383	916405	916426	916448	916469	916491	916512	916533	916555	916576	916598	28	4. 17
32	9.916619	916641	916662	916684	916705	916726	916748	916769	916791	916812	916834	916855	27	1 = 4
33	9.916877	916898	916919	916941	916962	916984	917005	917027	917048	917070	917091	917112	26	2. 9
34	9.917134	917155	917177	917198	917220	917241	917262	917284	917305	917327	917348	917370	25	3. 13
35	9.917391	917413	917434	917455	917477	917498	917520	917541	917563	917584	917605	917627	24	4. 17
36	9.917648	917670	917691	917713	917734	917756	917777	917798	917820	917841	917863	917884	23	1 = 4
37	9.917906	917927	917948	917970	917991	918013	918034	918056	918077	918098	918120	918141	22	2. 9
38	9.918163	918184	918206	918227	918248	918270	918291	918313	918334	918356	918377	918398	21	3. 13
39	9.918420	918441	918463	918484	918506	918527	918548	918570	918591	918613	918634	918656	20	4. 17
40	9.918677	918698	918720	918741	918763	918784	918806	918827	918848	918870	918891	918913	19	1 = 4
41	9.918934	918956	918977	918998	919020	919041	919063	919084	919105	919127	919148	919170	18	2. 9
42	9.919191	919213	919234	919255	919277	919298	919320	919341	919363	919384	919405	919427	17	3. 13
43	9.919448	919470	919491	919512	919534	919555	919577	919598	919620	919641	919662	919684	16	4. 17
44	9.919705	919727	919748	919769	919791	919812	919834	919855	919877	919898	919919	919941	15	1 = 4
45	9.919962	919984	920005	920026	920048	920069	920091	920112	920133	920155	920176	920198	14	2. 9
46	9.920219	920241	920262	920283	920305	920326	920348	920369	920390	920412	920433	920455	13	3. 13
47	9.920476	920497	920519	920540	920562	920583	920604	920626	920647	920669	920690	920712	12	4. 17
48	9.920733	920754	920776	920797	920819	920840	920861	920883	920904	920926	920947	920968	11	1 = 4
49	9.920990	921011	921033	921054	921075	921097	921118	921140	921161	921182	921204	921225	10	2. 9
50	9.921247	921268	921289	921311	921332	921354	921375	921396	921418	921439	921461	921482	9	3. 13
51	9.921503	921525	921546	921568	921589	921610	921632	921653	921675	921696	921717	921739	8	4. 17
52	9.921760	921782	921803	921824	921846	921867	921889	921910	921931	921953	921974	921996	7	1 = 4
53	9.922017	922038	922060	922081	922103	922124	922145	922167	922188	922210	922231	922252	6	2. 9
54	9.922274	922295	922317	922338	922359	922381	922402	922423	922445	922466	922488	922509	5	3. 13
55	9.922530	922552	922573	922595	922616	922637	922659	922680	922702	922723	922744	922766	4	4. 17
56	9.922787	922809	922830	922851	922873	922894	922915	922937	922958	922980	923001	923022	3	1 = 4
57	9.923044	923065	923087	923108	923129	923151	923172	923193	923215	923236	923258	923279	2	2. 9
58	9.923300	923322	923343	923365	923386	923407	923429	923450	923471	923493	923514	923536	1	3. 13
59	9.923557	923578	923600	923621	923643	923664	923685	923707	923728	923749	923771	923792	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 50 degrees, or Tangent of 140 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 40 degrees, or Co-tangent of 130 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.923814	923835	923856	923878	923899	923920	923942	923963	923985	924006	924027	924049	59	1″ = 4
1	9.924070	924092	924113	924134	924156	924177	924198	924220	924241	924263	924284	924305	58	2. 9
2	9.924327	924348	924369	924391	924412	924434	924455	924476	924498	924519	924540	924562	57	3. 13
3	9.924583	924605	924626	924647	924669	924690	924711	924733	924754	924775	924797	924818	56	4. 17
4	9.924840	924861	924882	924904	924925	924946	924968	924989	925011	925032	925053	925075	55	1″ = 4
5	9.925096	925117	925139	925160	925182	925203	925224	925246	925267	925288	925310	925331	54	2. 9
6	9.925352	925374	925395	925417	925438	925459	925481	925502	925523	925545	925566	925587	53	3. 13
7	9.925609	925630	925652	925673	925694	925716	925737	925758	925780	925801	925823	925844	52	4. 17
8	9.925865	925887	925908	925929	925951	925972	925993	926015	926036	926057	926079	926100	51	1″ = 4
9	9.926122	926143	926164	926186	926207	926228	926250	926271	926292	926314	926335	926357	50	2. 9
10	9.926378	926399	926421	926442	926463	926485	926506	926527	926549	926570	926591	926613	49	3. 13
11	9.926634	926656	926677	926698	926720	926741	926762	926784	926805	926826	926848	926869	48	4. 17
12	9.926890	926912	926933	926954	926976	926997	927019	927040	927061	927083	927104	927125	47	1″ = 4
13	9.927147	927168	927189	927211	927232	927253	927275	927296	927317	927339	927360	927382	46	2. 9
14	9.927403	927424	927446	927467	927488	927510	927531	927552	927574	927595	927616	927638	45	3. 13
15	9.927659	927680	927702	927723	927744	927766	927787	927809	927830	927851	927873	927894	44	4. 17
16	9.927915	927937	927958	927979	928001	928022	928043	928065	928086	928107	928129	928150	43	1″ = 4
17	9.928171	928193	928214	928235	928257	928278	928299	928321	928342	928363	928385	928406	42	2. 9
18	9.928427	928449	928470	928492	928513	928534	928556	928577	928598	928620	928641	928662	41	3. 13
19	9.928684	928705	928726	928748	928769	928790	928812	928833	928854	928876	928897	928918	40	4. 17
20	9.928940	928961	928982	929004	929025	929046	929068	929089	929110	929132	929153	929174	39	1″ = 4
21	9.929196	929217	929238	929260	929281	929302	929324	929345	929366	929388	929409	929430	38	2. 9
22	9.929452	929473	929494	929516	929537	929558	929580	929601	929622	929644	929665	929686	37	3. 13
23	9.929708	929729	929750	929772	929793	929814	929836	929857	929878	929900	929921	929942	36	4. 17
24	9.929964	929985	930006	930028	930049	930070	930092	930113	930134	930156	930177	930198	35	1″ = 4
25	9.930220	930241	930262	930284	930305	930326	930348	930369	930390	930412	930433	930454	34	2. 9
26	9.930476	930497	930518	930539	930561	930582	930603	930625	930646	930667	930689	930710	33	3. 13
27	9.930731	930753	930774	930795	930817	930838	930859	930881	930902	930923	930945	930966	32	4. 17
28	9.930987	931009	931030	931051	931073	931094	931115	931137	931158	931179	931200	931222	31	1″ = 4
29	9.931243	931264	931286	931307	931328	931350	931371	931392	931414	931435	931456	931478	30	2. 9
30	9.931499	931520	931542	931563	931584	931606	931627	931648	931669	931691	931712	931733	29	3. 13
31	9.931755	931776	931797	931819	931840	931861	931883	931904	931925	931947	931968	934989	28	4. 17
32	9.932011	932032	932053	932074	932096	932117	932138	932160	932181	932202	932224	932245	27	1″ = 4
33	9.932266	932288	932309	932330	932352	932373	932394	932415	932437	932458	932479	932501	26	2. 9
34	9.932522	932543	932565	932586	932607	932629	932650	932671	932692	932714	932735	932756	25	3. 13
35	9.932778	932799	932820	932842	932863	932884	932906	932927	932948	932969	932991	933012	24	4. 17
36	9.933033	933055	933076	933097	933119	933140	933161	933183	933204	933225	933246	933268	23	1″ = 4
37	9.933289	933310	933332	933353	933374	933396	933417	933438	933459	933481	933502	933523	22	2. 9
38	9.933545	933566	933587	933609	933630	933651	933673	933694	933715	933736	933758	933779	21	3. 13
39	9.933800	933822	933843	933864	933886	933907	933928	933949	933971	933992	934013	934035	20	4. 17
40	9.934056	934077	934099	934120	934141	934162	934184	934205	934226	934248	934269	934290	19	1″ = 4
41	9.934311	934333	934354	934375	934397	934418	934439	934461	934482	934503	934524	934546	18	2. 9
42	9.934567	934588	934610	934631	934652	934673	934695	934716	934737	934759	934780	934801	17	3. 13
43	9.934823	934844	934865	934886	934908	934929	934950	934972	934993	935014	935035	935057	16	4. 17
44	9.935078	935099	935121	935142	935163	935184	935206	935227	935248	935270	935291	935312	15	1″ = 4
45	9.935334	935355	935376	935397	935419	935440	935461	935483	935504	935525	935546	935568	14	2. 9
46	9.935589	935610	935632	935653	935674	935695	935717	935738	935759	935781	935802	935823	13	3. 13
47	9.935844	935866	935887	935908	935930	935951	935972	935993	936015	936036	936057	936079	12	4. 17
48	9.936100	936121	936142	936164	936185	936206	936228	936249	936270	936291	936313	936334	11	1″ = 4
49	9.936355	936377	936398	936419	936440	936462	936483	936504	936525	936547	936568	936589	10	2. 9
50	9.936611	936632	936653	936674	936696	936717	936738	936760	936781	936802	936823	936845	9	3. 13
51	9.936866	936887	936908	936930	936951	936972	936994	937015	937036	937057	937079	937100	8	4. 17
52	9.937121	937143	937164	937185	937206	937228	937249	937270	937291	937313	937334	937355	7	1″ = 4
53	9.937377	937398	937419	937440	937462	937483	937504	937525	937547	937568	937589	937611	6	2. 9
54	9.937632	937653	937674	937696	937717	937738	937759	937781	937802	937823	937845	937866	5	3. 13
55	9.937887	937908	937930	937951	937972	937993	938015	938036	938057	938079	938100	938121	4	4. 17
56	9.938142	938164	938185	938206	938227	938249	938270	938291	938313	938334	938355	938376	3	1″ = 4
57	9.938398	938419	938440	938461	938483	938504	938525	938546	938568	938589	938610	938632	2	2. 9
58	9.938653	938674	938695	938717	938738	938759	938780	938802	938823	938844	938865	938887	1	3. 13
59	9.938908	938929	938950	938972	938993	939014	939036	939057	939078	939099	939121	939142	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 49 degrees, or Tangent of 139 degrees.

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LOGARITHMIC TANGENTS.

Tangent of 41 degrees, or Co-tangent of 131 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	9.939163	939184	939206	939227	939248	939269	939291	939312	939333	939354	939376	939397	59	1″ = 4
1	9.939418	939439	939461	939482	939503	939525	939546	939567	939588	939610	939631	939652	58	2. 9
2	9.939673	939695	939716	939737	939758	939780	939801	939822	939843	939865	939886	939907	57	3. 13
3	9.939928	939950	939971	939992	940013	940035	940056	940077	940098	940120	940141	940162	56	4. 17
4	9.940184	940205	940226	940247	940269	940290	940311	940332	940354	940375	940396	940417	55	1 = 4
5	9.940439	940460	940481	940502	940524	940545	940566	940587	940609	940630	940651	940672	54	2. 9
6	9.940694	940715	940736	940757	940779	940800	940821	940842	940864	940885	940906	940927	53	3. 13
7	9.940949	940970	940991	941012	941034	941055	941076	941097	941119	941140	941161	941182	52	4. 17
8	9.941204	941225	941246	941267	941289	941310	941331	941352	941374	941395	941416	941437	51	1 = 4
9	9.941459	941480	941501	941522	941544	941565	941586	941607	941629	941650	941671	941692	50	2. 9
10	9.941714	941735	941756	941777	941799	941820	941841	941862	941883	941905	941926	941947	49	3. 13
11	9.941968	941990	942011	942032	942053	942075	942096	942117	942138	942160	942181	942202	48	4. 17
12	9.942223	942245	942266	942287	942308	942330	942351	942372	942393	942415	942436	942457	47	1 = 4
13	9.942478	942500	942521	942542	942563	942584	942606	942627	942648	942669	942691	942712	46	2. 9
14	9.942733	942754	942776	942797	942818	942839	942861	942882	942903	942924	942946	942967	45	3. 13
15	9.942988	943009	943030	943052	943073	943094	943115	943137	943158	943179	943200	943222	44	4. 17
16	9.943243	943264	943285	943307	943328	943349	943370	943391	943413	943434	943455	943476	43	1 = 4
17	9.943498	943519	943540	943561	943583	943604	943625	943646	943667	943689	943710	943731	42	2. 8
18	9.943752	943774	943795	943816	943837	943859	943880	943901	943922	943944	943965	943986	41	3. 13
19	9.944007	944028	944050	944071	944092	944113	944135	944156	944177	944198	944219	944241	40	4. 17
20	9.944262	944283	944304	944326	944347	944368	944389	944411	944432	944453	944474	944495	39	1 = 4
21	9.944517	944538	944559	944580	944602	944623	944644	944665	944687	944708	944729	944750	38	2. 8
22	9.944771	944793	944814	944835	944856	944878	944899	944920	944941	944962	944984	945005	37	3. 13
23	9.945026	945047	945069	945090	945111	945132	945153	945175	945196	945217	945238	945260	36	4. 17
24	9.945281	945302	945323	945344	945366	945387	945408	945429	945451	945472	945493	945514	35	1 = 4
25	9.945535	945557	945578	945599	945620	945642	945663	945684	945705	945726	945748	945769	34	2. 8
26	9.945790	945811	945833	945854	945875	945896	945917	945939	945960	945981	946002	946024	33	3. 13
27	9.946045	946066	946087	946108	946130	946151	946172	946193	946214	946236	946257	946278	32	4. 17
28	9.946299	946321	946342	946363	946384	946405	946427	946448	946469	946490	946511	946533	31	1 = 4
29	9.946554	946575	946596	946618	946639	946660	946681	946702	946724	946745	946766	946787	30	2. 8
30	9.946808	946830	946851	946872	946893	946915	946936	946957	946978	946999	947021	947042	29	3. 13
31	9.947063	947084	947105	947127	947148	947169	947190	947212	947233	947254	947275	947296	28	4. 17
32	9.947318	947339	947360	947381	947402	947424	947445	947466	947487	947508	947530	947551	27	1 = 4
33	9.947572	947593	947614	947636	947657	947678	947699	947721	947742	947763	947784	947805	26	2. 8
34	9.947827	947848	947869	947890	947911	947933	947954	947975	947996	948017	948039	948060	25	3. 13
35	9.948081	948102	948123	948145	948166	948187	948208	948229	948251	948272	948293	948314	24	4. 17
36	9.948336	948357	948378	948399	948420	948442	948463	948484	948505	948526	948548	948569	23	1 = 4
37	9.948590	948611	948632	948654	948675	948696	948717	948738	948760	948781	948802	948823	22	2. 8
38	9.948844	948866	948887	948908	948929	948950	948972	948993	949014	949035	949056	949078	21	3. 13
39	9.949099	949120	949141	949162	949184	949205	949226	949247	949268	949290	949311	949332	20	4. 17
40	9.949353	949374	949396	949417	949438	949459	949480	949502	949523	949544	949565	949586	19	1 = 4
41	9.949608	949629	949650	949671	949692	949714	949735	949756	949777	949798	949820	949841	18	2. 8
42	9.949862	949883	949904	949925	949947	949968	949989	950010	950031	950053	950074	950095	17	3. 13
43	9.950116	950137	950159	950180	950201	950222	950243	950265	950286	950307	950328	950349	16	4. 17
44	9.950371	950392	950413	950434	950455	950477	950498	950519	950540	950561	950582	950604	15	1 = 4
45	9.950625	950646	950667	950688	950710	950731	950752	950773	950794	950816	950837	950858	14	2. 8
46	9.950879	950900	950922	950943	950964	950985	951006	951027	951049	951070	951091	951112	13	3. 13
47	9.951133	951155	951176	951197	951218	951239	951261	951282	951303	951324	951345	951367	12	4. 17
48	9.951388	951409	951430	951451	951472	951494	951515	951536	951557	951578	951600	951621	11	1 = 4
49	9.951642	951663	951684	951705	951727	951748	951769	951790	951811	951833	951854	951875	10	2. 8
50	9.951896	951917	951939	951960	951981	952002	952023	952044	952066	952087	952108	952129	9	3. 13
51	9.952150	952172	952193	952214	952235	952256	952277	952299	952320	952341	952362	952383	8	4. 17
52	9.952405	952426	952447	952468	952489	952510	952532	952553	952574	952595	952616	952638	7	1 = 4
53	9.952659	952680	952701	952722	952743	952765	952786	952807	952828	952849	952871	952892	6	2. 8
54	9.952913	952934	952955	952976	952998	953019	953040	953061	953082	953103	953125	953146	5	3. 13
55	9.953167	953188	953200	953231	953252	953273	953294	953315	953336	953358	953379	953400	4	4. 17
56	9.953421	953442	953463	953485	953506	953527	953548	953569	953591	953612	953633	953654	3	1 = 4
57	9.953675	953696	953718	953739	953760	953781	953802	953823	953845	953866	953887	953908	2	2. 8
58	9.953929	953951	953972	953993	954014	954035	954056	954078	954099	954120	954141	954162	1	3. 13
59	9.954183	954205	954226	954247	954268	954289	954310	954332	954353	954374	954395	954416	0	4. 17
	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Propor. parts.

Co-tangent of 48 degrees, or Tangent of 138 degrees.

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LOGARITHMIC TANGENTS.

Tangent of 42 degrees, or Co-tangent of 132 degrees.

Minutes	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	Minutes	Proportionals
0	9.954437	954459	954480	954501	954522	954543	954565	954586	954607	954628	954649	954670	59	1″= 4
1	9.954692	954713	954734	954755	954776	954797	954819	954840	954861	954882	954903	954924	58	2. 8
2	9.954946	954967	954988	955009	955030	955051	955073	955094	955115	955136	955157	955178	57	3. 12
3	9.955200	955221	955242	955263	955284	955305	955327	955348	955369	955390	955411	955432	56	4. 17
4	9.955454	955475	955496	955517	955538	955559	955581	955602	955623	955644	955665	955686	55	1 = 4
5	9.955708	955729	955750	955771	955792	955813	955835	955856	955877	955898	955919	955940	54	2. 8
6	9.955962	955983	956004	956025	956046	956067	956089	956110	956131	956152	956173	956194	53	3. 12
7	9.956215	956237	956258	956279	956300	956321	956342	956364	956385	956406	956427	956448	52	4. 17
8	9.956469	956491	956512	956533	956554	956575	956596	956618	956639	956660	956681	956702	51	1 = 4
9	9.956723	956745	956766	956787	956808	956829	956850	956871	956893	956914	956935	956956	50	2. 8
10	9.956977	956998	957020	957041	957062	957083	957104	957125	957147	957168	957189	957210	49	3. 12
11	9.957231	957252	957273	957295	957316	957337	957358	957379	957400	957422	957443	957464	48	4. 17
12	9.957485	957506	957527	957549	957570	957591	957612	957633	957654	957675	957697	957718	47	1 = 4
13	9.957739	957760	957781	957802	957824	957845	957866	957887	957908	957929	957950	957972	46	2. 8
14	9.957993	958014	958035	958056	958077	958099	958120	958141	958162	958183	958204	958225	45	3. 12
15	9.958247	958268	958289	958310	958331	958352	958374	958395	958416	958437	958458	958479	44	4. 17
16	9.958500	958522	958543	958564	958585	958606	958627	958648	958670	958691	958712	958733	43	1 = 4
17	9.958754	958775	958797	958818	958839	958860	958881	958902	958923	958945	958966	958987	42	2. 8
18	9.959008	959029	959050	959071	959093	959114	959135	959156	959177	959198	959220	959241	41	3. 12
19	9.959262	959283	959304	959325	959346	959368	959389	959410	959431	959452	959473	959494	40	4. 17
20	9.959516	959537	959558	959579	959600	959621	959642	959664	959685	959706	959727	959748	39	1 = 4
21	9.959769	959790	959812	959833	959854	959875	959896	959917	959938	959960	959981	960002	38	2. 8
22	9.960023	960044	960065	960087	960108	960129	960150	960171	960192	960213	960235	960256	37	3. 12
23	9.960277	960298	960319	960340	960361	960383	960404	960425	960446	960467	960488	960509	36	4. 17
24	9.960531	960552	960573	960594	960615	960636	960657	960679	960700	960721	960742	960763	35	1 = 4
25	9.960784	960805	960826	960848	960869	960890	960911	960932	960953	960974	960996	961017	34	2. 8
26	9.961038	961059	961080	961101	961122	961144	961165	961186	961207	961228	961249	961270	33	3. 12
27	9.961292	961313	961334	961355	961376	961397	961418	961440	961461	961482	961503	961524	32	4. 17
28	9.961545	961566	961588	961609	961630	961651	961672	961693	961714	961735	961757	961778	31	1 = 4
29	9.961799	961820	961841	961862	961883	961905	961926	961947	961968	961989	962010	962031	30	2. 8
30	9.962053	962074	962095	962116	962137	962158	962179	962200	962222	962243	962264	962285	29	3. 12
31	9.962306	962327	962348	962370	962391	962412	962433	962454	962475	962496	962517	962539	28	4. 17
32	9.962560	962581	962602	962623	962644	962665	962687	962708	962729	962750	962771	962792	27	1 = 4
33	9.962813	962834	962856	962877	962898	962919	962940	962961	962982	963004	963025	963046	26	2. 8
34	9.963067	963088	963109	963130	963151	963173	963194	963215	963236	963257	963278	963299	25	3. 12
35	9.963320	963342	963363	963384	963405	963426	963447	963468	963490	963511	963532	963553	24	4. 17
36	9.963574	963595	963616	963637	963659	963680	963701	963722	963743	963764	963785	963806	23	1 = 4
37	9.963828	963849	963870	963891	963912	963933	963954	963975	963997	964018	964039	964060	22	2. 8
38	9.964081	964102	964123	964145	964166	964187	964208	964229	964250	964271	964292	964314	21	3. 12
39	9.964335	964356	964377	964398	964419	964440	964461	964483	964504	964525	964546	964567	20	4. 17
40	9.964588	964609	964630	964652	964673	964694	964715	964736	964757	964778	964799	964821	19	1 = 4
41	9.964842	964863	964884	964905	964926	964947	964968	964990	965011	965032	965053	965074	18	2. 8
42	9.965095	965116	965137	965159	965180	965201	965222	965243	965264	965285	965306	965327	17	3. 12
43	9.965349	965370	965391	965412	965433	965454	965475	965496	965518	965539	965560	965581	16	4. 17
44	9.965602	965623	965644	965665	965687	965708	965729	965750	965771	965792	965813	965834	15	1 = 4
45	9.965856	965877	965898	965919	965940	965961	965982	966003	966024	966046	966067	966088	14	2. 8
46	9.966109	966130	966151	966172	966193	966215	966236	966257	966278	966299	966320	966341	13	3. 12
47	9.966362	966384	966405	966426	966447	966468	966489	966510	966531	966552	966574	966595	12	4. 17
48	9.966616	966637	966658	966679	966700	966721	966743	966764	966785	966806	966827	966848	11	1 = 4
49	9.966869	966890	966911	966933	966954	966975	966996	967017	967038	967059	967080	967101	10	2. 8
50	9.967123	967144	967165	967186	967207	967228	967249	967270	967292	967313	967334	967355	9	3. 12
51	9.967376	967397	967418	967439	967460	967482	967503	967524	967545	967566	967587	967608	8	4. 17
52	9.967629	967650	967672	967693	967714	967735	967756	967777	967798	967819	967840	967862	7	1 = 4
53	9.967883	967904	967925	967946	967967	967988	968009	968030	968052	968073	968094	968115	6	2. 8
54	9.968136	968157	968178	968199	968220	968242	968263	968284	968305	968326	968347	968368	5	3. 12
55	9.968389	968411	968432	968453	968474	968495	968516	968537	968558	968579	968600	968622	4	4. 17
56	9.968643	968664	968685	968706	968727	968748	968769	968790	968812	968833	968854	968875	3	1 = 4
57	9.968896	968917	968938	968959	968980	969002	969023	969044	969065	969086	969107	969128	2	2. 8
58	9.969149	969170	969192	969213	969234	969255	969276	969297	969318	969339	969360	969382	1	3. 12
59	9.969403	969424	969445	969466	969487	969508	969529	969550	969571	969593	969614	969635	0	4. 17
Minutes	60′	55″	50′	45″	40′	35″	30′	25′	20′	15′	10′	5′	Minutes	Proportionals

Co-tangent of 47 degrees, or Tangent of 137 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 43 degrees, or Co-tangent of 133 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	9.969656	969677	969698	969719	969740	969761	969783	969804	969825	969846	969867	969888	59	1″ = 4
1	9.969909	969930	969951	969973	969994	970015	970036	970057	970078	970099	970120	970141	58	2. 8
2	9.970162	970184	970205	970226	970247	970268	970289	970310	970331	970352	970374	970395	57	3. 13
3	9.970416	970437	970458	970479	970500	970521	970542	970563	970585	970606	970627	970648	56	4. 17
4	9.970669	970690	970711	970732	970753	970774	970796	970817	970838	970859	970880	970901	55	1 = 4
5	9.970922	970943	970964	970985	971007	971028	971049	971070	971091	971112	971133	971154	54	2. 8
6	9.971175	971197	971218	971239	971260	971281	971302	971323	971344	971365	971386	971408	53	3. 13
7	9.971429	971450	971471	971492	971513	971534	971555	971576	971597	971619	971640	971661	52	4. 17
8	9.971682	971703	971724	971745	971766	971787	971808	971830	971851	971872	971893	971914	51	1 = 4
9	9.971935	971956	971977	971998	972019	972041	972062	972083	972104	972125	972146	972167	50	2. 8
10	9.972188	972209	972230	972252	972273	972294	972315	972336	972357	972378	972399	972420	49	3. 13
11	9.972441	972462	972484	972505	972526	972547	972568	972589	972610	972631	972652	972673	48	4. 17
12	9.972695	972716	972737	972758	972779	972800	972821	972842	972863	972884	972906	972927	47	1 = 4
13	9.972948	972969	972990	973011	973032	973053	973074	973095	973116	973138	973159	973180	46	2. 8
14	9.973201	973222	973243	973264	973285	973306	973327	973349	973370	973391	973412	973433	45	3. 13
15	9.973454	973475	973496	973517	973538	973559	973581	973602	973623	973644	973665	973686	44	4. 17
16	9.973707	973728	973749	973770	973791	973813	973834	973855	973876	973897	973918	973939	43	1 = 4
17	9.973960	973981	974002	974024	974045	974066	974087	974108	974129	974150	974171	974192	42	2. 8
18	9.974213	974234	974256	974277	974298	974319	974340	974361	974382	974403	974424	974445	41	3. 13
19	9.974466	974488	974509	974530	974551	974572	974593	974614	974635	974656	974677	974698	40	4. 17
20	9.974720	974741	974762	974783	974804	974825	974846	974867	974888	974909	974930	974952	39	1 = 4
21	9.974973	974994	975015	975036	975057	975078	975099	975120	975141	975162	975184	975205	38	2. 8
22	9.975226	975247	975268	975289	975310	975331	975352	975373	975394	975416	975437	975458	37	3. 13
23	9.975479	975500	975521	975542	975563	975584	975605	975626	975647	975669	975690	975711	36	4. 17
24	9.975732	975753	975774	975795	975816	975837	975858	975879	975901	975922	975943	975964	35	1 = 4
25	9.975985	976006	976027	976048	976069	976090	976111	976133	976154	976175	976196	976217	34	2. 8
26	9.976238	976259	976280	976301	976322	976343	976364	976386	976407	976428	976449	976470	33	3. 13
27	9.976491	976512	976533	976554	976575	976596	976617	976639	976660	976681	976702	976723	32	4. 17
28	9.976744	976765	976786	976807	976828	976849	976871	976892	976913	976934	976955	976976	31	1 = 4
29	9.976997	977018	977039	977060	977081	977102	977124	977145	977166	977187	977208	977229	30	2. 8
30	9.977250	977271	977292	977313	977334	977355	977377	977398	977419	977440	977461	977482	29	3. 13
31	9.977503	977524	977545	977566	977587	977608	977630	977651	977672	977693	977714	977735	28	4. 17
32	9.977756	977777	977798	977819	977840	977861	977883	977904	977925	977946	977967	977988	27	1 = 4
33	9.978009	978030	978051	978072	978093	978114	978136	978157	978178	978199	978220	978241	26	2. 8
34	9.978262	978283	978304	978325	978346	978367	978389	978410	978431	978452	978473	978494	25	3. 13
35	9.978515	978536	978557	978578	978599	978620	978641	978663	978684	978705	978726	978747	24	4. 17
36	9.978768	978789	978810	978831	978852	978873	978894	978916	978937	978958	978979	979000	23	1 = 4
37	9.979021	979042	979063	979084	979105	979126	979147	979168	979190	979211	979232	979253	22	2. 8
38	9.979274	979295	979316	979337	979358	979379	979400	979421	979443	979464	979485	979506	21	3. 13
39	9.979527	979548	979569	979590	979611	979632	979653	979674	979695	979717	979738	979759	20	4. 17
40	9.979780	979801	979822	979843	979864	979885	979906	979927	979948	979969	979991	980012	19	1 = 4
41	9.980033	980054	980075	980096	980117	980138	980159	980180	980201	980222	980243	980265	18	2. 8
42	9.980286	980307	980328	980349	980370	980391	980412	980433	980454	980475	980496	980517	17	3. 13
43	9.980539	980560	980581	980602	980623	980644	980665	980686	980707	980728	980749	980770	16	4. 17
44	9.980791	980813	980834	980855	980876	980897	980918	980939	980960	980981	981002	981023	15	1 = 4
45	9.981044	981065	981087	981108	981129	981150	981171	981192	981213	981234	981255	981276	14	2. 8
46	9.981297	981318	981339	981360	981382	981403	981424	981445	981466	981487	981508	981529	13	3. 13
47	9.981550	981571	981592	981613	981634	981656	981677	981698	981719	981740	981761	981782	12	4. 17
48	9.981803	981824	981845	981866	981887	981908	981929	981951	981972	981993	982014	982035	11	1 = 4
49	9.982056	982077	982098	982119	982140	982161	982182	982203	982225	982246	982267	982288	10	2. 8
50	9.982309	982330	982351	982372	982393	982414	982435	982456	982477	982498	982520	982541	9	3. 13
51	9.982562	982583	982604	982625	982646	982667	982688	982709	982730	982751	982772	982793	8	4. 17
52	9.982815	982836	982857	982878	982899	982920	982941	982962	982983	983004	983025	983046	7	1 = 4
53	9.983067	983088	983110	983131	983152	983173	983194	983215	983236	983257	983278	983299	6	2. 8
54	9.983320	983341	983362	983383	983405	983426	983447	983468	983489	983510	983531	983552	5	3. 13
55	9.983573	983594	983615	983636	983657	983678	983700	983721	983742	983763	983784	983805	4	4. 17
56	9.983826	983847	983868	983889	983910	983931	983952	983973	983994	984016	984037	984058	3	1 = 4
57	9.984079	984100	984121	984142	984163	984184	984205	984226	984247	984268	984289	984311	2	2. 8
58	9.984332	984353	984374	984395	984416	984437	984458	984479	984500	984521	984542	984563	1	3. 13
59	9.984584	984605	984627	984648	984669	984690	984711	984732	984753	984774	984795	984816	0	4. 17
	60″	55″	50″	45″	40	35″	30	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 46 degrees, or Tangent of 136 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 44 degrees, or Co-tangent of 134 degrees.												Minutes	Proper. parts.
	0′	5″	10′	15″	20′	25′	30′	35′	40′	45′	50′	55′		
0	9. 984837	984858	984879	984900	984922	984943	984964	984985	985006	985027	985048	985069	59	1″ = 4
1	9. 985090	985111	985132	985153	985174	985195	985216	985238	985259	985280	985301	985322	58	2. 8
2	9. 985343	985364	985385	985406	985427	985448	985469	985490	985511	985532	985554	985575	57	3. 13
3	9. 985596	985617	985638	985659	985680	985701	985722	985743	985764	985785	985806	985827	56	4. 17
4	9. 985848	985870	985891	985912	985933	985954	985975	985996	986017	986038	986059	986080	55	1 = 4
5	9. 986101	986122	986143	986164	986186	986207	986228	986249	986270	986291	986312	986333	54	2. 8
6	9. 986354	986375	986396	986417	986438	986459	986480	986501	986523	986544	986565	986586	53	3. 13
7	9. 986607	986628	986649	986670	986691	986712	986733	986754	986775	986796	986817	986839	52	4. 17
8	9. 986860	986881	986902	986923	986944	986965	986986	987007	987028	987049	987070	987091	51	1 = 4
9	9. 987112	987133	987155	987176	987197	987218	987239	987260	987281	987302	987323	987344	50	2. 8
10	9. 987365	987386	987407	987428	987449	987470	987492	987513	987534	987555	987576	987597	49	3. 13
11	9. 987618	987639	987660	987681	987702	987723	987744	987765	987786	987807	987829	987850	48	4. 17
12	9. 987871	987892	987913	987934	987955	987976	987997	988018	988039	988060	988081	988102	47	1 = 4
13	9. 988123	988145	988166	988187	988208	988229	988250	988271	988292	988313	988334	988355	46	2. 8
14	9. 988376	988397	988418	988439	988460	988482	988503	988524	988545	988566	988587	988608	45	3. 13
15	9. 988629	988650	988671	988692	988713	988734	988755	988776	988797	988819	988840	988861	44	4. 17
16	9. 988882	988903	988924	988945	988966	988987	989008	989029	989050	989071	989092	989113	43	1 = 4
17	9. 989134	989156	989177	989198	989219	989240	989261	989282	989303	989324	989345	989366	42	2. 8
18	9. 989387	989408	989429	989450	989471	989492	989514	989535	989556	989577	989598	989619	41	3. 13
19	9. 989640	989661	989682	989703	989724	989745	989766	989787	989808	989829	989851	989872	40	4. 17
20	9. 989893	989914	989935	989956	989977	989998	990019	990040	990061	990082	990103	990124	39	1 = 4
21	9. 990145	990166	990187	990209	990230	990251	990272	990293	990314	990335	990356	990377	38	2. 8
22	9. 990398	990419	990440	990461	990482	990503	990524	990546	990567	990588	990609	990630	37	3. 13
23	9. 990651	990672	990693	990714	990735	990756	990777	990798	990819	990840	990861	990882	36	4. 17
24	9. 990904	990925	990946	990967	990988	991009	991030	991051	991072	991093	991114	991135	35	1 = 4
25	9. 991156	991177	991198	991219	991240	991262	991283	991304	991325	991346	991367	991388	34	2. 8
26	9. 991409	991430	991451	991472	991493	991514	991535	991556	991577	991599	991620	991641	33	3. 13
27	9. 991662	991683	991704	991725	991746	991767	991788	991809	991830	991851	991872	991893	32	4. 17
28	9. 991914	991935	991957	991978	991999	992020	992041	992062	992083	992104	992125	992146	31	1 = 4
29	9. 992167	992188	992209	992230	992251	992272	992293	992315	992336	992357	992378	992399	30	2. 8
30	9. 992420	992441	992462	992483	992504	992525	992546	992567	992588	992609	992630	992651	29	3. 13
31	9. 992672	992694	992715	992736	992757	992778	992799	992820	992841	992862	992883	992904	28	4. 17
32	9. 992925	992946	992967	992988	993009	993030	993052	993073	993094	993115	993136	993157	27	1 = 4
33	9. 993178	993199	993220	993241	993262	993283	993304	993325	993346	993367	993388	993410	26	2. 8
34	9. 993431	993452	993473	993494	993515	993536	993557	993578	993599	993620	993641	993662	25	3. 13
35	9. 993683	993704	993725	993746	993767	993789	993810	993831	993852	993873	993894	993915	24	4. 17
36	9. 993936	993957	993978	993999	994020	994041	994062	994083	994104	994125	994147	994168	23	1 = 4
37	9. 994189	994210	994231	994252	994273	994294	994315	994336	994357	994378	994399	994420	22	2. 8
38	9. 994441	994462	994483	994504	994526	994547	994568	994589	994610	994631	994652	994673	21	3. 13
39	9. 994694	994715	994736	994757	994778	994799	994820	994841	994862	994884	994905	994926	20	4. 17
40	9. 994947	994968	994989	995010	995031	995052	995073	995094	995115	995136	995157	995178	19	1 = 4
41	9. 995199	995220	995241	995263	995284	995305	995326	995347	995368	995389	995410	995431	18	2. 8
42	9. 995452	995473	995494	995515	995536	995557	995578	995599	995620	995642	995663	995684	17	3. 13
43	9. 995705	995726	995747	995768	995789	995810	995831	995852	995873	995894	995915	995936	16	4. 17
44	9. 995957	995978	996000	996021	996042	996063	996084	996105	996126	996147	996168	996189	15	1 = 4
45	9. 996210	996231	996252	996273	996294	996315	996336	996357	996379	996400	996421	996442	14	2. 8
46	9. 996463	996484	996505	996526	996547	996568	996589	996610	996631	996652	996673	996694	13	3. 13
47	9. 996715	996736	996758	996779	996800	996821	996842	996863	996884	996905	996926	996947	12	4. 17
48	9. 996968	996989	997010	997031	997052	997073	997094	997115	997137	997158	997179	997200	11	1 = 4
49	9. 997221	997242	997263	997284	997305	997326	997347	997368	997389	997410	997431	997452	10	2. 8
50	9. 997473	997494	997516	997537	997558	997579	997600	997621	997642	997663	997684	997705	9	3. 13
51	9. 997726	997747	997768	997789	997810	997831	997852	997873	997895	997916	997937	997958	8	4. 17
52	9. 997979	998000	998021	998042	998063	998084	998105	998126	998147	998168	998189	998210	7	1 = 4
53	9. 998231	998252	998274	998295	998316	998337	998358	998379	998400	998421	998442	998463	6	2. 8
54	9. 998484	998505	998526	998547	998568	998589	998610	998631	998653	998674	998695	998716	5	3. 13
55	9. 998737	998758	998779	998800	998821	998842	998863	998884	998905	998926	998947	998968	4	4. 17
56	9. 998989	999010	999032	999053	999074	999095	999116	999137	999158	999179	999200	999221	3	1 = 4
57	9. 999242	999263	999284	999305	999326	999347	999368	999389	999411	999432	999453	999474	2	2. 8
58	9. 999495	999516	999537	999558	999579	999600	999621	999642	999663	999684	999705	999726	1	3. 13
59	9. 999747	999768	999789	999811	999832	999853	999874	999895	999916	999937	999958	999979	0	4. 17
Minutes	60′	55″	50′	45″	40′	35′	30′	25′	20′	15″	10′	5″	Minutes	Proper. parts.
	Co-tangent of 45 degrees, or Tangent of 135 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 45 degrees, or Co-tangent of 135 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.000000	000021	000042	000063	000084	000105	000126	000147	000168	000189	000211	000232	59	1″ = 4
1	10.000253	000274	000295	000316	000337	000358	000379	000400	000421	000442	000463	000484	58	2. 8
2	10.000505	000526	000547	000568	000589	000611	000632	000653	000674	000695	000716	000737	57	3. 13
3	10.000758	000779	000800	000821	000842	000863	000884	000905	000926	000947	000968	000990	56	4. 17
4	10.001011	001032	001053	001074	001095	001116	001137	001158	001179	001200	001221	001242	55	1 = 4
5	10.001263	001284	001305	001326	001347	001369	001390	001411	001432	001453	001474	001495	54	2. 8
6	10.001516	001537	001558	001579	001600	001621	001642	001663	001684	001705	001726	001748	53	3. 13
7	10.001769	001790	001811	001832	001853	001874	001895	001916	001937	001958	001979	002000	52	4. 17
8	10.002021	002042	002063	002084	002105	002127	002148	002169	002190	002211	002232	002253	51	1 = 4
9	10.002274	002295	002316	002337	002358	002379	002400	002421	002442	002463	002484	002506	50	2. 8
10	10.002527	002548	002569	002590	002611	002632	002653	002674	002695	002716	002737	002758	49	3. 13
11	10.002779	002800	002821	002842	002863	002885	002906	002927	002948	002969	002990	003011	48	4. 17
12	10.003032	003053	003074	003095	003116	003137	003158	003179	003200	003221	003242	003264	47	1 = 4
13	10.003285	003306	003327	003348	003369	003390	003411	003432	003453	003474	003495	003516	46	2. 8
14	10.003537	003558	003579	003600	003621	003643	003664	003685	003706	003727	003748	003769	45	3. 13
15	10.003790	003811	003832	003853	003874	003895	003916	003937	003958	003979	004000	004022	44	4. 17
16	10.004043	004064	004085	004106	004127	004148	004169	004190	004211	004232	004253	004274	43	1 = 4
17	10.004295	004316	004337	004358	004380	004401	004422	004443	004464	004485	004506	004527	42	2. 8
18	10.004548	004569	004590	004611	004632	004653	004674	004695	004716	004737	004759	004780	41	3. 13
19	10.004801	004822	004843	004864	004885	004906	004927	004948	004969	004990	005011	005032	40	4. 17
20	10.005053	005074	005095	005116	005138	005159	005180	005201	005222	005243	005264	005285	39	1 = 4
21	10.005306	005327	005348	005369	005390	005411	005432	005453	005474	005496	005517	005538	38	2. 8
22	10.005559	005580	005601	005622	005643	005664	005685	005706	005727	005748	005769	005790	37	3. 13
23	10.005811	005832	005853	005875	005896	005917	005938	005959	005980	006001	006022	006043	36	4. 17
24	10.006064	006085	006106	006127	006148	006169	006190	006211	006233	006254	006275	006296	35	1 = 4
25	10.006317	006338	006359	006380	006401	006422	006443	006464	006485	006506	006527	006548	34	2. 8
26	10.006569	006590	006612	006633	006654	006675	006696	006717	006738	006759	006780	006801	33	3. 13
27	10.006822	006843	006864	006885	006906	006927	006948	006970	006991	007012	007033	007054	32	4. 17
28	10.007075	007096	007117	007138	007159	007180	007201	007222	007243	007264	007285	007306	31	1 = 4
29	10.007328	007349	007370	007391	007412	007433	007454	007475	007496	007517	007538	007559	30	2. 8
30	10.007580	007601	007622	007643	007664	007685	007707	007728	007749	007770	007791	007812	29	3. 13
31	10.007833	007854	007875	007896	007917	007938	007959	007980	008001	008022	008043	008065	28	4. 17
32	10.008086	008107	008128	008149	008170	008191	008212	008233	008254	008275	008296	008317	27	1 = 4
33	10.008338	008359	008380	008401	008423	008444	008465	008486	008507	008528	008549	008570	26	2. 8
34	10.008591	008612	008633	008654	008675	008696	008717	008738	008760	008781	008802	008823	25	3. 13
35	10.008844	008865	008886	008907	008928	008949	008970	008991	009012	009033	009054	009075	24	4. 17
36	10.009096	009118	009139	009160	009181	009202	009223	009244	009265	009286	009307	009328	23	1 = 4
37	10.009349	009370	009391	009412	009433	009454	009476	009497	009518	009539	009560	009581	22	2. 8
38	10.009602	009623	009644	009665	009686	009707	009728	009749	009770	009791	009813	009834	21	3. 13
39	10.009855	009876	009897	009918	009939	009960	009981	010002	010023	010044	010065	010086	20	4. 17
40	10.010107	010128	010149	010171	010192	010213	010234	010255	010276	010297	010318	010339	19	1 = 4
41	10.010360	010381	010402	010423	010444	010465	010486	010508	010529	010550	010571	010592	18	2. 8
42	10.010613	010634	010655	010676	010697	010718	010739	010760	010781	010802	010823	010844	17	3. 13
43	10.010866	010887	010908	010929	010950	010971	010992	011013	011034	011055	011076	011097	16	4. 17
44	10.011118	011139	011160	011181	011203	011224	011245	011266	011287	011308	011329	011350	15	1 = 4
45	10.011371	011392	011413	011434	011455	011476	011497	011518	011540	011561	011582	011603	14	2. 8
46	10.011624	011645	011666	011687	011708	011729	011750	011771	011792	011813	011834	011855	13	3. 13
47	10.011877	011898	011919	011940	011961	011982	012003	012024	012045	012066	012087	012108	12	4. 17
48	10.012129	012150	012171	012193	012214	012235	012256	012277	012298	012319	012340	012361	11	1 = 4
49	10.012382	012403	012424	012445	012466	012487	012508	012530	012551	012572	012593	012614	10	2. 8
50	10.012635	012656	012677	012698	012719	012740	012761	012782	012803	012824	012845	012867	9	3. 13
51	10.012888	012909	012930	012951	012972	012993	013014	013035	013056	013077	013098	013119	8	4. 17
52	10.013140	013161	013183	013204	013225	013246	013267	013288	013309	013330	013351	013372	7	1 = 4
53	10.013393	013414	013435	013456	013477	013499	013520	013541	013562	013583	013604	013625	6	2. 8
54	10.013646	013667	013688	013709	013730	013751	013772	013793	013814	013836	013857	013878	5	3. 13
55	10.013899	013920	013941	013962	013983	014004	014025	014046	014067	014088	014109	014130	4	4. 17
56	10.014152	014173	014194	014215	014236	014257	014278	014299	014320	014341	014362	014383	3	1 = 4
57	10.014404	014425	014446	014468	014489	014510	014531	014552	014573	014594	014615	014636	2	2. 8
58	10.014657	014678	014699	014720	014741	014762	014784	014805	014826	014847	014868	014889	1	3. 13
59	10.014910	014931	014952	014973	014994	015015	015036	015057	015078	015100	015121	015142	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 44 degrees, or Tangent of 134 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 46 degrees, or Co-tangent of 136 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.015163	015184	015205	015226	015247	015268	015289	015310	015331	015352	015373	015395	59	1″ = 4
1	10.015416	015437	015458	015479	015500	015521	015542	015563	015584	015605	015626	015647	58	2. 8
2	10.015668	015689	015711	015732	015753	015774	015795	015816	015837	015858	015879	015900	57	3. 13
3	10.015921	015942	015963	015984	016006	016027	016048	016069	016090	016111	016132	016153	56	4. 17
4	10.016174	016195	016216	016237	016258	016279	016300	016322	016343	016364	016385	016406	55	1 = 4
5	10.016427	016448	016469	016490	016511	016532	016553	016574	016595	016617	016638	016659	54	2. 8
6	10.016680	016701	016722	016743	016764	016785	016806	016827	016848	016869	016890	016912	53	3. 13
7	10.016933	016954	016975	016996	017017	017038	017059	017080	017101	017122	017143	017164	52	4. 17
8	10.017185	017207	017228	017249	017270	017291	017312	017333	017354	017375	017396	017417	51	1 = 4
9	10.017438	017459	017480	017502	017523	017544	017565	017586	017607	017628	017649	017670	50	2. 8
10	10.017691	017712	017733	017754	017775	017797	017818	017839	017860	017881	017902	017923	49	3. 13
11	10.017944	017965	017986	018007	018028	018049	018071	018092	018113	018134	018155	018176	48	4. 17
12	10.018197	018218	018239	018260	018281	018302	018323	018344	018366	018387	018408	018429	47	1 = 4
13	10.018450	018471	018492	018513	018534	018555	018576	018597	018618	018640	018661	018682	46	2. 8
14	10.018703	018724	018745	018766	018787	018808	018829	018850	018871	018892	018913	018935	45	3. 13
15	10.018956	018977	018998	019019	019040	019061	019082	019103	019124	019145	019166	019187	44	4. 17
16	10.019209	019230	019251	019272	019293	019314	019335	019356	019377	019398	019419	019440	43	1 = 4
17	10.019461	019483	019504	019525	019546	019567	019588	019609	019630	019651	019672	019693	42	2. 8
18	10.019714	019735	019757	019778	019799	019820	019841	019862	019883	019904	019925	019946	41	3. 13
19	10.019967	019988	020009	020031	020052	020073	020094	020115	020136	020157	020178	020199	40	4. 17
20	10.020220	020241	020262	020283	020305	020326	020347	020368	020389	020410	020431	020452	39	1 = 4
21	10.020473	020494	020515	020536	020557	020579	020600	020621	020642	020663	020684	020705	38	2. 8
22	10.020726	020747	020768	020789	020810	020832	020853	020874	020895	020916	020937	020958	37	3. 13
23	10.020979	021000	021021	021042	021063	021084	021106	021127	021148	021169	021190	021211	36	4. 17
24	10.021232	021253	021274	021295	021316	021337	021359	021380	021401	021422	021443	021464	35	1 = 4
25	10.021485	021506	021527	021548	021569	021590	021611	021633	021654	021675	021696	021717	34	2. 8
26	10.021738	021759	021780	021801	021822	021843	021864	021886	021907	021928	021949	021970	33	3. 13
27	10.021991	022012	022033	022054	022075	022096	022117	022139	022160	022181	022202	022223	32	4. 17
28	10.022244	022265	022286	022307	022328	022349	022370	022392	022413	022434	022455	022476	31	1 = 4
29	10.022497	022518	022539	022560	022581	022602	022623	022645	022666	022687	022708	022729	30	2. 8
30	10.022750	022771	022792	022813	022834	022855	022876	022898	022919	022940	022961	022982	29	3. 13
31	10.023003	023024	023045	023066	023087	023108	023129	023151	023172	023193	023214	023235	28	4. 17
32	10.023256	023277	023298	023319	023340	023361	023383	023404	023425	023446	023467	023488	27	1 = 4
33	10.023509	023530	023551	023572	023593	023614	023636	023657	023678	023699	023720	023741	26	2. 8
34	10.023762	023783	023804	023825	023846	023867	023889	023910	023931	023952	023973	023994	25	3. 13
35	10.024015	024036	024057	024078	024099	024121	024142	024163	024184	024205	024226	024247	24	4. 17
36	10.024268	024289	024310	024331	024353	024374	024395	024416	024437	024458	024479	024500	23	1 = 4
37	10.024521	024542	024563	024584	024606	024627	024648	024669	024690	024711	024732	024753	22	2. 8
38	10.024774	024795	024816	024838	024859	024880	024901	024922	024943	024964	024985	025006	21	3. 13
39	10.025027	025048	025070	025091	025112	025133	025154	025175	025196	025217	025238	025259	20	4. 17
40	10.025280	025302	025323	025344	025365	025386	025407	025428	025449	025470	025491	025512	19	1 = 4
41	10.025534	025555	025576	025597	025618	025639	025660	025681	025702	025723	025744	025766	18	2. 8
42	10.025787	025808	025829	025850	025871	025892	025913	025934	025955	025976	025998	026019	17	3. 13
43	10.026040	026061	026082	026103	026124	026145	026166	026187	026209	026230	026251	026272	16	4. 17
44	10.026293	026314	026335	026356	026377	026398	026419	026441	026462	026483	026504	026525	15	1 = 4
45	10.026546	026567	026588	026609	026630	026651	026673	026694	026715	026736	026757	026778	14	2. 8
46	10.026799	026820	026841	026862	026884	026905	026926	026947	026968	026989	027010	027031	13	3. 13
47	10.027052	027073	027094	027116	027137	027158	027179	027200	027221	027242	027263	027284	12	4. 17
48	10.027305	027327	027348	027369	027390	027411	027432	027453	027474	027495	027516	027538	11	1 = 4
49	10.027559	027580	027601	027622	027643	027664	027685	027706	027727	027748	027770	027791	10	2. 8
50	10.027812	027833	027854	027875	027896	027917	027938	027959	027981	028002	028023	028044	9	3. 13
51	10.028065	028086	028107	028128	028149	028170	028192	028213	028234	028255	028276	028297	8	4. 17
52	10.028318	028339	028360	028381	028403	028424	028445	028466	028487	028508	028529	028550	7	1 = 4
53	10.028571	028592	028614	028635	028656	028677	028698	028719	028740	028761	028782	028803	6	2. 8
54	10.028825	028846	028867	028888	028909	028930	028951	028972	028993	029015	029036	029057	5	3. 13
55	10.029078	029099	029120	029141	029162	029183	029204	029226	029247	029268	029289	029310	4	4. 17
56	10.029331	029352	029373	029394	029415	029437	029458	029479	029500	029521	029542	029563	3	1 = 4
57	10.029584	029605	029626	029648	029669	029690	029711	029732	029753	029774	029795	029816	2	2. 8
58	10.029838	029859	029880	029901	029922	029943	029964	029985	030006	030027	030049	030070	1	3. 13
59	10.030091	030112	030133	030154	030175	030196	030217	030239	030260	030281	030302	030323	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-tangent of 43 degrees, or Tangent of 133 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 47 degrees, or Co-tangent of 137 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.030344	030365	030386	030407	030429	030450	030471	030492	030513	030534	030555	030576	59	1″ = 4
1	10.030597	030618	030640	030661	030682	030703	030724	030745	030766	030787	030808	030830	58	2. 8
2	10.030851	030872	030893	030914	030935	030956	030977	030998	031020	031041	031062	031083	57	3. 13
3	10.031104	031125	031146	031167	031188	031210	031231	031252	031273	031294	031315	031336	56	4. 17
4	10.031357	031378	031400	031421	031442	031463	031484	031505	031526	031547	031568	031589	55	1 = 4
5	10.031611	031632	031653	031674	031695	031716	031737	031758	031780	031801	031822	031843	54	2. 8
6	10.031864	031885	031906	031927	031948	031970	031991	032012	032033	032054	032075	032096	53	3. 13
7	10.032117	032138	032160	032181	032202	032223	032244	032265	032286	032307	032328	032350	52	4. 17
8	10.032371	032392	032413	032434	032455	032476	032497	032518	032540	032561	032582	032603	51	1 = 4
9	10.032624	032645	032666	032687	032708	032730	032751	032772	032793	032814	032835	032856	50	2. 8
10	10.032877	032899	032920	032941	032962	032983	033004	033025	033046	033067	033089	033110	49	3. 13
11	10.033131	033152	033173	033194	033215	033236	033257	033279	033300	033321	033342	033363	48	4. 17
12	10.033384	033405	033426	033448	033469	033490	033511	033532	033553	033574	033595	033616	47	1 = 4
13	10.033638	033659	033680	033701	033722	033743	033764	033785	033807	033828	033849	033870	46	2. 8
14	10.033891	033912	033933	033954	033976	033997	034018	034039	034060	034081	034102	034123	45	3. 13
15	10.034144	034166	034187	034208	034229	034250	034271	034292	034313	034335	034356	034377	44	4. 17
16	10.034398	034419	034440	034461	034482	034504	034525	034546	034567	034588	034609	034630	43	1 = 4
17	10.034651	034673	034694	034715	034736	034757	034778	034799	034820	034841	034863	034884	42	2. 8
18	10.034905	034926	034947	034968	034989	035010	035032	035053	035074	035095	035116	035137	41	3. 13
19	10.035158	035179	035201	035222	035243	035264	035285	035306	035327	035348	035370	035391	40	4. 17
20	10.035412	035433	035454	035475	035496	035517	035539	035560	035581	035602	035623	035644	39	1 = 4
21	10.035665	035686	035708	035729	035750	035771	035792	035813	035834	035855	035877	035898	38	2. 8
22	10.035919	035940	035961	035982	036003	036025	036046	036067	036088	036109	036130	036151	37	3. 13
23	10.036172	036194	036215	036236	036257	036278	036299	036320	036341	036363	036384	036405	36	4. 17
24	10.036426	036447	036468	036489	036510	036532	036553	036574	036595	036616	036637	036658	35	1 = 4
25	10.036680	036701	036722	036743	036764	036785	036806	036827	036849	036870	036891	036912	34	2. 8
26	10.036933	036954	036975	036996	037018	037039	037060	037081	037102	037123	037144	037166	33	3. 13
27	10.037187	037208	037229	037250	037271	037292	037313	037335	037356	037377	037398	037419	32	4. 17
28	10.037440	037461	037483	037504	037525	037546	037567	037588	037609	037630	037652	037673	31	1 = 4
29	10.037694	037715	037736	037757	037778	037800	037821	037842	037863	037884	037905	037926	30	2. 8
30	10.037947	037969	037990	038011	038032	038053	038074	038095	038117	038138	038159	038180	29	3. 13
31	10.038201	038222	038243	038265	038286	038307	038328	038349	038370	038391	038412	038434	28	4. 17
32	10.038455	038476	038497	038518	038539	038560	038582	038603	038624	038645	038666	038687	27	1 = 4
33	10.038708	038730	038751	038772	038793	038814	038835	038856	038878	038899	038920	038941	26	2. 8
34	10.038962	038983	039004	039026	039047	039068	039089	039110	039131	039152	039174	039195	25	3. 13
35	10.039216	039237	039258	039279	039300	039321	039343	039364	039385	039406	039427	039448	24	4. 17
36	10.039469	039491	039512	039533	039554	039575	039596	039617	039639	039660	039681	039702	23	1 = 4
37	10.039723	039744	039765	039787	039808	039829	039850	039871	039892	039913	039935	039956	22	2. 8
38	10.039977	039998	040019	040040	040062	040083	040104	040125	040146	040167	040188	040210	21	3. 13
39	10.040231	040252	040273	040294	040315	040336	040358	040379	040400	040421	040442	040463	20	4. 17
40	10.040484	040506	040527	040548	040569	040590	040611	040632	040654	040675	040696	040717	19	1 = 4
41	10.040738	040759	040780	040802	040823	040844	040865	040886	040907	040929	040950	040971	18	2. 8
42	10.040992	041013	041034	041055	041077	041098	041119	041140	041161	041182	041203	041225	17	3. 13
43	10.041246	041267	041288	041309	041330	041352	041373	041394	041415	041436	041457	041478	16	4. 17
44	10.041500	041521	041542	041563	041584	041605	041626	041648	041669	041690	041711	041732	15	1 = 4
45	10.041753	041775	041796	041817	041838	041859	041880	041901	041923	041944	041965	041986	14	2. 8
46	10.042007	042028	042050	042071	042092	042113	042134	042155	042176	042198	042219	042240	13	3. 13
47	10.042261	042282	042303	042325	042346	042367	042388	042409	042430	042451	042473	042494	12	4. 17
48	10.042515	042536	042557	042578	042600	042621	042642	042663	042684	042705	042727	042748	11	1 = 4
49	10.042769	042790	042811	042832	042853	042875	042896	042917	042938	042959	042980	043002	10	2. 8
50	10.043023	043044	043065	043086	043107	043129	043150	043171	043192	043213	043234	043255	9	3. 13
51	10.043277	043298	043319	043340	043361	043382	043404	043425	043446	043467	043488	043509	8	4. 17
52	10.043531	043552	043573	043594	043615	043636	043658	043679	043700	043721	043742	043763	7	1 = 4
53	10.043785	043806	043827	043848	043869	043890	043911	043933	043954	043975	043996	044017	6	2. 8
54	10.044038	044060	044081	044102	044123	044144	044165	044187	044208	044229	044250	044271	5	3. 13
55	10.044292	044314	044335	044356	044377	044398	044419	044441	044462	044483	044504	044525	4	4. 17
56	10.044546	044568	044589	044610	044631	044652	044673	044695	044716	044737	044758	044779	3	1 = 4
57	10.044800	044822	044843	044864	044885	044906	044927	044949	044970	044991	045012	045033	2	2. 8
58	10.045054	045076	045097	045118	045139	045160	045181	045203	045224	045245	045266	045287	1	3. 13
59	10.045308	045330	045351	045372	045393	045414	045435	045457	045478	045499	045520	045541	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 42 degrees, or Tangent of 132 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 48 degrees, or Co-tangent of 138 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 045563	045584	045605	045626	045647	045668	045690	045711	045732	045753	045774	045795	59	1″ =
1	10. 045817	045838	045859	045880	045901	045922	045944	045965	045986	046007	046028	046049	58	2.
2	10. 046071	046092	046113	046134	046155	046177	046198	046219	046240	046261	046282	046304	57	3.
3	10. 046325	046346	046367	046388	046409	046431	046452	046473	046494	046515	046537	046558	56	4.
4	10. 046579	046600	046621	046642	046664	046685	046706	046727	046748	046769	046791	046812	55	1 =
5	10. 046833	046854	046875	046897	046918	046939	046960	046981	047002	047024	047045	047066	54	2.
6	10. 047087	047108	047129	047151	047172	047193	047214	047235	047257	047278	047299	047320	53	3.
7	10. 047341	047362	047384	047405	047426	047447	047468	047490	047511	047532	047553	047574	52	4.
8	10. 047595	047617	047638	047659	047680	047701	047723	047744	047765	047786	047807	047828	51	1 =
9	10. 047850	047871	047892	047913	047934	047956	047977	047998	048019	048040	048061	048083	50	2.
10	10. 048104	048125	048146	048167	048189	048210	048231	048252	048273	048295	048316	048337	49	3.
11	10. 048358	048379	048400	048422	048443	048464	048485	048506	048528	048549	048570	048591	48	4.
12	10. 048612	048633	048655	048676	048697	048718	048739	048761	048782	048803	048824	048845	47	1 =
13	10. 048867	048888	048909	048930	048951	048973	048994	049015	049036	049057	049078	049100	46	2.
14	10. 049121	049142	049163	049184	049206	049227	049248	049269	049290	049312	049333	049354	45	3.
15	10. 049375	049396	049418	049439	049460	049481	049502	049523	049545	049566	049587	049608	44	4.
16	10. 049629	049651	049672	049693	049714	049735	049757	049778	049799	049820	049841	049863	43	1 =
17	10. 049884	049905	049926	049947	049969	049990	050011	050032	050053	050075	050096	050117	42	2.
18	10. 050138	050159	050180	050202	050223	050244	050265	050286	050308	050329	050350	050371	41	3.
19	10. 050392	050414	050435	050456	050477	050498	050520	050541	050562	050583	050604	050626	40	4.
20	10. 050647	050668	050689	050710	050732	050753	050774	050795	050816	050838	050859	050880	39	1 =
21	10. 050901	050922	050944	050965	050986	051007	051028	051050	051071	051092	051113	051134	38	2.
22	10. 051156	051177	051198	051219	051240	051262	051283	051304	051325	051346	051368	051389	37	3.
23	10. 051410	051431	051452	051474	051495	051516	051537	051558	051580	051601	051622	051643	36	4.
24	10. 051664	051686	051707	051728	051749	051771	051792	051813	051834	051855	051877	051898	35	1 =
25	10. 051919	051940	051961	051983	052004	052025	052046	052067	052089	052110	052131	052152	34	2.
26	10. 052173	052195	052216	052237	052258	052279	052301	052322	052343	052364	052386	052407	33	3.
27	10. 052428	052449	052470	052492	052513	052534	052555	052576	052598	052619	052640	052661	32	4.
28	10. 052682	052704	052725	052746	052767	052788	052810	052831	052852	052873	052895	052916	31	1 =
29	10. 052937	052958	052979	053001	053022	053043	053064	053085	053107	053128	053149	053170	30	2.
30	10. 053192	053213	053234	053255	053276	053298	053319	053340	053361	053382	053404	053425	29	3.
31	10. 053446	053467	053489	053510	053531	053552	053573	053595	053616	053637	053658	053679	28	4.
32	10. 053701	053722	053743	053764	053786	053807	053828	053849	053870	053892	053913	053934	27	1 =
33	10. 053955	053976	053998	054019	054040	054061	054083	054104	054125	054146	054167	054189	26	2.
34	10. 054210	054231	054252	054274	054295	054316	054337	054358	054380	054401	054422	054443	25	3.
35	10. 054465	054486	054507	054528	054549	054571	054592	054613	054634	054656	054677	054698	24	4.
36	10. 054719	054740	054762	054783	054804	054825	054847	054868	054889	054910	054931	054953	23	1 =
37	10. 054974	054995	055016	055038	055059	055080	055101	055122	055144	055165	055186	055207	22	2.
38	10. 055229	055250	055271	055292	055313	055335	055356	055377	055398	055420	055441	055462	21	3.
39	10. 055483	055505	055526	055547	055568	055589	055611	055632	055653	055674	055696	055717	20	4.
40	10. 055738	055759	055781	055802	055823	055844	055865	055887	055908	055929	055950	055972	19	1 =
41	10. 055993	056014	056035	056056	056078	056099	056120	056141	056163	056184	056205	056226	18	2.
42	10. 056248	056269	056290	056311	056333	056354	056375	056396	056417	056439	056460	056481	17	3.
43	10. 056502	056524	056545	056566	056587	056609	056630	056651	056672	056693	056715	056736	16	4.
44	10. 056757	056778	056800	056821	056842	056863	056885	056906	056927	056948	056970	056991	15	1 =
45	10. 057012	057033	057054	057076	057097	057118	057139	057161	057182	057203	057224	057246	14	2.
46	10. 057267	057288	057309	057331	057352	057373	057394	057416	057437	057458	057479	057500	13	3.
47	10. 057522	057543	057564	057585	057607	057628	057649	057670	057692	057713	057734	057755	12	4.
48	10. 057777	057798	057819	057840	057862	057883	057904	057925	057947	057968	057989	058010	11	1 =
49	10. 058032	058053	058074	058095	058117	058138	058159	058180	058201	058223	058244	058265	10	2.
50	10. 058286	058308	058329	058350	058371	058393	058414	058435	058456	058478	058499	058520	9	3.
51	10. 058541	058563	058584	058605	058626	058648	058669	058690	058711	058733	058754	058775	8	4.
52	10. 058796	058818	058839	058860	058881	058903	058924	058945	058966	058988	059009	059030	7	1 =
53	10. 059051	059073	059094	059115	059136	059158	059179	059200	059221	059243	059264	059285	6	2.
54	10. 059306	059328	059349	059370	059391	059413	059434	059455	059476	059498	059519	059540	5	3.
55	10. 059561	059583	059604	059625	059646	059668	059689	059710	059731	059753	059774	059795	4	4.
56	10. 059816	059838	059859	059880	059902	059923	059944	059965	059987	060008	060029	060050	3	1 =
57	10. 060072	060093	060114	060135	060157	060178	060199	060220	060242	060263	060284	060305	2	2.
58	10. 060327	060348	060369	060390	060412	060433	060454	060475	060497	060518	060539	060561	1	3.
59	10. 060582	060603	060624	060646	060667	060688	060709	060731	060752	060773	060794	060816	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 41 degrees, or Tangent of 131 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 49 degrees, or Co-tangent of 139 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 060837	060858	060879	060901	060922	060943	060964	060986	061007	061028	061050	061071	59	1″ = 4
1	10. 061092	061113	061135	061156	061177	061198	061220	061241	061262	061283	061305	061326	58	2. 9
2	10. 061347	061368	061390	061411	061432	061454	061475	061496	061517	061539	061560	061581	57	3. 13
3	10. 061602	061624	061645	061666	061687	061709	061730	061751	061773	061794	061815	061836	56	4. 17
4	10. 061858	061879	061900	061921	061943	061964	061985	062007	062028	062049	062070	062092	55	1 = 4
5	10. 062113	062134	062155	062177	062198	062219	062241	062262	062283	062304	062326	062347	54	2. 9
6	10. 062368	062389	062411	062432	062453	062475	062496	062517	062538	062560	062581	062602	53	3. 13
7	10. 062623	062645	062666	062687	062709	062730	062751	062772	062794	062815	062836	062857	52	4. 17
8	10. 062879	062900	062921	062943	062964	062985	063006	063028	063049	063070	063092	063113	51	1 = 4
9	10. 063134	063155	063177	063198	063219	063240	063262	063283	063304	063326	063347	063368	50	2. 9
10	10. 063389	063411	063432	063453	063475	063496	063517	063538	063560	063581	063602	063623	49	3. 13
11	10. 063645	063666	063687	063709	063730	063751	063772	063794	063815	063836	063858	063879	48	4. 17
12	10. 063900	063921	063943	063964	063985	064007	064028	064049	064070	064092	064113	064134	47	1 = 4
13	10. 064156	064177	064198	064219	064241	064262	064283	064305	064326	064347	064368	064390	46	2. 9
14	10. 064411	064432	064454	064475	064496	064517	064539	064560	064581	064603	064624	064645	45	3. 13
15	10. 064666	064688	064709	064730	064752	064773	064794	064816	064837	064858	064879	064901	44	4. 17
16	10. 064922	064943	064965	064986	065007	065028	065050	065071	065092	065114	065135	065156	43	1 = 4
17	10. 065177	065199	065220	065241	065263	065284	065305	065327	065348	065369	065390	065412	42	2. 9
18	10. 065433	065454	065476	065497	065518	065539	065561	065582	065603	065625	065646	065667	41	3. 13
19	10. 065689	065710	065731	065752	065774	065795	065816	065838	065859	065880	065901	065923	40	4. 17
20	10. 065944	065965	065987	066008	066029	066051	066072	066093	066114	066136	066157	066178	39	1 = 4
21	10. 066200	066221	066242	066264	066285	066306	066327	066349	066370	066391	066413	066434	38	2. 9
22	10. 066455	066477	066498	066519	066541	066562	066583	066604	066626	066647	066668	066690	37	3. 13
23	10. 066711	066732	066754	066775	066796	066817	066839	066860	066881	066903	066924	066945	36	4. 17
24	10. 066967	066988	067009	067031	067052	067073	067094	067116	067137	067158	067180	067201	35	1 = 4
25	10. 067222	067244	067265	067286	067308	067329	067350	067371	067393	067414	067435	067457	34	2. 9
26	10. 067478	067499	067521	067542	067563	067585	067606	067627	067648	067670	067691	067712	33	3. 13
27	10. 067734	067755	067776	067798	067819	067840	067862	067883	067904	067926	067947	067968	32	4. 17
28	10. 067989	068011	068032	068053	068075	068096	068117	068139	068160	068181	068203	068224	31	1 = 4
29	10. 068245	068267	068288	068309	068331	068352	068373	068394	068416	068437	068458	068480	30	2. 9
30	10. 068501	068522	068544	068565	068586	068608	068629	068650	068672	068693	068714	068736	29	3. 13
31	10. 068757	068778	068800	068821	068842	068863	068885	068906	068927	068949	068970	068991	28	4. 17
32	10. 069013	069034	069055	069077	069098	069119	069141	069162	069183	069205	069226	069247	27	1 = 4
33	10. 069269	069290	069311	069333	069354	069375	069397	069418	069439	069461	069482	069503	26	2. 9
34	10. 069524	069546	069567	069588	069610	069631	069652	069674	069695	069716	069738	069759	25	3. 13
35	10. 069780	069802	069823	069844	069866	069887	069908	069930	069951	069972	069994	070015	24	4. 17
36	10. 070036	070058	070079	070100	070122	070143	070164	070186	070207	070228	070250	070271	23	1 = 4
37	10. 070292	070314	070335	070356	070378	070399	070420	070442	070463	070484	070506	070527	22	2. 9
38	10. 070548	070570	070591	070612	070634	070655	070676	070698	070719	070740	070762	070783	21	3. 13
39	10. 070804	070826	070847	070868	070890	070911	070932	070954	070975	070996	071018	071039	20	4. 17
40	10. 071060	071082	071103	071124	071146	071167	071188	071210	071231	071252	071274	071295	19	1 = 4
41	10. 071316	071338	071359	071380	071402	071423	071444	071466	071487	071508	071530	071551	18	2. 9
42	10. 071573	071594	071615	071637	071658	071679	071701	071722	071743	071765	071786	071807	17	3. 13
43	10. 071829	071850	071871	071893	071914	071935	071957	071978	071999	072021	072042	072063	16	4. 17
44	10. 072085	072106	072127	072149	072170	072191	072213	072234	072256	072277	072298	072320	15	1 = 4
45	10. 072341	072362	072384	072405	072426	072448	072469	072490	072512	072533	072554	072576	14	2. 9
46	10. 072597	072618	072640	072661	072683	072704	072725	072747	072768	072789	072811	072832	13	3. 13
47	10. 072853	072875	072896	072917	072939	072960	072981	073003	073024	073046	073067	073088	12	4. 17
48	10. 073110	073131	073152	073174	073195	073216	073238	073259	073280	073302	073323	073344	11	1 = 4
49	10. 073366	073387	073409	073430	073451	073473	073494	073515	073537	073558	073579	073601	10	2. 9
50	10. 073622	073643	073665	073686	073708	073729	073750	073772	073793	073814	073836	073857	9	3. 13
51	10. 073878	073900	073921	073943	073964	073985	074007	074028	074049	074071	074092	074113	8	4. 17
52	10. 074135	074156	074177	074199	074220	074242	074263	074284	074306	074327	074348	074370	7	1 = 4
53	10. 074391	074413	074434	074455	074477	074498	074519	074541	074562	074583	074605	074626	6	2. 9
54	10. 074648	074669	074690	074712	074733	074754	074776	074797	074818	074840	074861	074883	5	3. 13
55	10. 074904	074925	074947	074968	074989	075011	075032	075054	075075	075096	075118	075139	4	4. 17
56	10. 075160	075182	075203	075225	075246	075267	075289	075310	075331	075353	075374	075395	3	1 = 4
57	10. 075417	075438	075460	075481	075502	075524	075545	075566	075588	075609	075631	075652	2	2. 9
58	10. 075673	075695	075716	075737	075759	075780	075802	075823	075844	075866	075887	075908	1	3. 13
59	10. 075930	075951	075973	075994	076015	076037	076058	076080	076101	076122	076144	076165	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 40 degrees, or Tangent of 130 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 50 degrees, or Co-tangent of 140 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 076186	076208	076229	076251	076272	076293	076315	076336	076357	076379	076400	076422	59	1″ = 4
1	10. 076443	076464	076486	076507	076529	076550	076571	076593	076614	076635	076657	076678	58	2. 9
2	10. 076700	076721	076742	076764	076785	076807	076828	076849	076871	076892	076913	076935	57	3. 13
3	10. 076956	076978	076999	077020	077042	077063	077085	077106	077127	077149	077170	077191	56	4. 17
4	10. 077213	077234	077256	077277	077298	077320	077341	077363	077384	077405	077427	077448	55	1 = 4
5	10. 077470	077491	077512	077534	077555	077577	077598	077619	077641	077662	077683	077705	54	2. 9
6	10. 077726	077748	077769	077790	077812	077833	077855	077876	077897	077919	077940	077962	53	3. 13
7	10. 077983	078004	078026	078047	078069	078090	078111	078133	078154	078176	078197	078218	52	4. 17
8	10. 078240	078261	078283	078304	078325	078347	078368	078390	078411	078432	078454	078475	51	1 = 4
9	10. 078497	078518	078539	078561	078582	078604	078625	078646	078668	078689	078711	078732	50	2. 9
10	10. 078753	078775	078796	078818	078839	078860	078882	078903	078925	078946	078967	078989	49	3. 13
11	10. 079010	079032	079053	079074	079096	079117	079139	079160	079181	079203	079224	079246	48	4. 17
12	10. 079267	079288	079310	079331	079353	079374	079396	079417	079438	079460	079481	079503	47	1 = 4
13	10. 079524	079545	079567	079588	079610	079631	079652	079674	079695	079717	079738	079759	46	2. 9
14	10. 079781	079802	079824	079845	079867	079888	079909	079931	079952	079974	079995	080016	45	3. 13
15	10. 080038	080059	080081	080102	080123	080145	080166	080188	080209	080231	080252	080273	44	4. 17
16	10. 080295	080316	080338	080359	080380	080402	080423	080445	080466	080488	080509	080530	43	1 = 4
17	10. 080552	080573	080595	080616	080637	080659	080680	080702	080723	080745	080766	080787	42	2. 9
18	10. 080809	080830	080852	080873	080895	080916	080937	080959	080980	081002	081023	081044	41	3. 13
19	10. 081066	081087	081109	081130	081152	081173	081194	081216	081237	081259	081280	081302	40	4. 17
20	10. 081323	081344	081366	081387	081409	081430	081452	081473	081494	081516	081537	081559	39	1 = 4
21	10. 081580	081602	081623	081644	081666	081687	081709	081730	081752	081773	081794	081816	38	2. 9
22	10. 081837	081859	081880	081902	081923	081944	081966	081987	082009	082030	082052	082073	37	3. 13
23	10. 082094	082116	082137	082159	082180	082202	082223	082244	082266	082287	082309	082330	36	4. 17
24	10. 082352	082373	082395	082416	082437	082459	082480	082502	082523	082545	082566	082587	35	1 = 4
25	10. 082609	082630	082652	082673	082695	082716	082738	082759	082780	082802	082823	082845	34	2. 9
26	10. 082866	082888	082909	082930	082952	082973	082995	083016	083038	083059	083081	083102	33	3. 13
27	10. 083123	083145	083166	083188	083209	083231	083252	083274	083295	083316	083338	083359	32	4. 17
28	10. 083381	083402	083424	083445	083467	083488	083509	083531	083552	083574	083595	083617	31	1 = 4
29	10. 083638	083660	083681	083702	083724	083745	083767	083788	083810	083831	083853	083874	30	2. 9
30	10. 083895	083917	083938	083960	083981	084003	084024	084046	084067	084089	084110	084131	29	3. 13
31	10. 084153	084174	084196	084217	084239	084260	084282	084303	084325	084346	084367	084389	28	4. 17
32	10. 084410	084432	084453	084475	084496	084518	084539	084561	084582	084603	084625	084646	27	1 = 4
33	10. 084668	084689	084711	084732	084754	084775	084797	084818	084839	084861	084882	084904	26	2. 9
34	10. 084925	084947	084968	084990	085011	085033	085054	085075	085097	085118	085140	085161	25	3. 13
35	10. 085183	085204	085226	085247	085269	085290	085312	085333	085355	085376	085397	085419	24	4. 17
36	10. 085440	085462	085483	085505	085526	085548	085569	085591	085612	085634	085655	085676	23	1 = 4
37	10. 085698	085719	085741	085762	085784	085805	085827	085848	085870	085891	085913	085934	22	2. 9
38	10. 085956	085977	085998	086020	086041	086063	086084	086106	086127	086149	086170	086192	21	3. 13
39	10. 086213	086235	086256	086278	086299	086321	086342	086364	086385	086406	086428	086449	20	4. 17
40	10. 086471	086492	086514	086535	086557	086578	086600	086621	086643	086664	086686	086707	19	1 = 4
41	10. 086729	086750	086772	086793	086814	086836	086857	086879	086900	086922	086943	086965	18	2. 9
42	10. 086986	087008	087029	087051	087072	087094	087115	087137	087158	087180	087201	087223	17	3. 13
43	10. 087244	087266	087287	087309	087330	087351	087373	087394	087416	087437	087459	087480	16	4. 17
44	10. 087502	087523	087545	087566	087588	087609	087631	087652	087674	087695	087717	087738	15	1 = 4
45	10. 087760	087781	087803	087824	087846	087867	087889	087910	087932	087953	087975	087996	14	2. 9
46	10. 088018	088039	088061	088082	088103	088125	088146	088168	088189	088211	088232	088254	13	3. 13
47	10. 088275	088297	088318	088340	088361	088383	088404	088426	088447	088469	088490	088512	12	4. 17
48	10. 088533	088555	088576	088598	088619	088641	088662	088684	088705	088727	088748	088770	11	1 = 4
49	10. 088791	088813	088834	088856	088877	088899	088920	088942	088963	088985	089006	089028	10	2. 9
50	10. 089049	089071	089092	089114	089135	089157	089178	089200	089221	089243	089264	089286	9	3. 13
51	10. 089307	089329	089350	089372	089393	089415	089436	089458	089479	089501	089522	089544	8	4. 17
52	10. 089565	089587	089608	089630	089651	089673	089694	089716	089737	089759	089780	089802	7	1 = 4
53	10. 089823	089845	089866	089888	089909	089931	089952	089974	089995	090017	090038	090060	6	2. 9
54	10. 090081	090103	090124	090146	090168	090189	090211	090232	090254	090275	090297	090318	5	3. 13
55	10. 090340	090361	090383	090404	090426	090447	090469	090490	090512	090533	090555	090576	4	4. 17
56	10. 090598	090619	090641	090662	090684	090705	090727	090748	090770	090791	090813	090834	3	1 = 4
57	10. 090856	090877	090899	090921	090942	090964	090985	091007	091028	091050	091071	091093	2	2. 9
58	10. 091114	091136	091157	091179	091200	091222	091243	091265	091286	091308	091329	091351	1	3. 13
59	10. 091372	091394	091415	091437	091459	091480	091502	091523	091545	091566	091588	091609	0	4. 17
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-tangent of 39 degrees, or Tangent of 129 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 51 degrees, or Co-tangent of 141 degrees.													
0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
10.091631	091652	091674	091695	091717	091738	091760	091781	091803	091824	091846	091868	59	1″ = 4
10.091889	091911	091932	091954	091975	091997	092018	092040	092061	092083	092104	092126	58	2. 9
10.092147	092169	092190	092212	092234	092255	092277	092298	092320	092341	092363	092384	57	3. 13
10.092406	092427	092449	092470	092492	092513	092535	092557	092578	092600	092621	092643	56	4. 17
10.092664	092686	092707	092729	092750	092772	092793	092815	092837	092858	092880	092901	55	1 = 4
10.092923	092944	092966	092987	093009	093030	093052	093073	093095	093117	093138	093160	54	2. 9
10.093181	093203	093224	093246	093267	093289	093310	093332	093354	093375	093397	093418	53	3. 13
10.093440	093461	093483	093504	093526	093547	093569	093590	093612	093634	093655	093677	52	4. 17
10.093698	093720	093741	093763	093784	093806	093828	093849	093871	093892	093914	093935	51	1 = 4
10.093957	093978	094000	094021	094043	094065	094086	094108	094129	094151	094172	094194	50	2. 9
10.094215	094237	094259	094280	094302	094323	094345	094366	094388	094409	094431	094453	49	3. 13
10.094474	094496	094517	094539	094560	094582	094603	094625	094647	094668	094690	094711	48	4. 17
10.094733	094754	094776	094797	094819	094841	094862	094884	094905	094927	094948	094970	47	1 = 4
10.094991	095013	095035	095056	095078	095099	095121	095142	095164	095186	095207	095229	46	2. 9
10.095250	095272	095293	095315	095336	095358	095380	095401	095423	095444	095466	095487	45	3. 13
10.095509	095531	095552	095574	095595	095617	095638	095660	095682	095703	095725	095746	44	4. 17
10.095768	095789	095811	095833	095854	095876	095897	095919	095940	095962	095984	096005	43	1 = 4
10.096027	096048	096070	096091	096113	096135	096156	096178	096199	096221	096242	096264	42	2. 9
10.096286	096307	096329	096350	096372	096393	096415	096437	096458	096480	096501	096523	41	3. 13
10.096544	096566	096588	096609	096631	096652	096674	096695	096717	096739	096760	096782	40	4. 17
10.096803	096825	096847	096868	096890	096911	096933	096954	096976	096998	097019	097041	39	1 = 4
10.097062	097084	097106	097127	097149	097170	097192	097213	097235	097257	097278	097300	38	2. 9
10.097321	097343	097365	097386	097408	097429	097451	097473	097494	097516	097537	097559	37	3. 13
10.097580	097602	097624	097645	097667	097688	097710	097732	097753	097775	097796	097818	36	4. 17
10.097840	097861	097883	097904	097926	097947	097969	097991	098012	098034	098055	098077	35	1 = 4
10.098099	098120	098142	098163	098185	098207	098228	098250	098271	098293	098315	098336	34	2. 9
10.098358	098379	098401	098423	098444	098466	098487	098509	098531	098552	098574	098595	33	3. 13
10.098617	098639	098660	098682	098703	098725	098747	098768	098790	098811	098833	098855	32	4. 17
10.098876	098898	098919	098941	098963	098984	099006	099027	099049	099071	099092	099114	31	1 = 4
10.099135	099157	099179	099200	099222	099243	099265	099287	099308	099330	099352	099373	30	2. 9
10.099395	099416	099438	099460	099481	099503	099524	099546	099568	099589	099611	099632	29	3. 13
10.099654	099676	099697	099719	099741	099762	099784	099805	099827	099849	099870	099892	28	4. 17
10.099913	099935	099957	099978	100000	100022	100043	100065	100086	100108	100130	100151	27	1 = 4
10.100173	100194	100216	100238	100259	100281	100303	100324	100346	100367	100389	100411	26	2. 9
10.100432	100454	100476	100497	100519	100540	100562	100584	100605	100627	100648	100670	25	3. 13
10.100692	100713	100735	100757	100778	100800	100821	100843	100865	100886	100908	100930	24	4. 17
10.100951	100973	100994	101016	101038	101059	101081	101103	101124	101146	101168	101189	23	1 = 4
10.101211	101232	101254	101276	101297	101319	101341	101362	101384	101405	101427	101449	22	2. 9
10.101470	101492	101514	101535	101557	101579	101600	101622	101643	101665	101687	101708	21	3. 13
10.101730	101752	101773	101795	101816	101838	101860	101881	101903	101925	101946	101968	20	4. 17
10.101990	102011	102033	102055	102076	102098	102119	102141	102163	102184	102206	102228	19	1 = 4
10.102249	102271	102293	102314	102336	102357	102379	102401	102422	102444	102466	102487	18	2. 9
10.102509	102531	102552	102574	102596	102617	102639	102661	102682	102704	102725	102747	17	3. 13
10.102769	102790	102812	102834	102855	102877	102899	102920	102942	102964	102985	103007	16	4. 17
10.103029	103050	103072	103093	103115	103137	103158	103180	103202	103223	103245	103267	15	1 = 4
10.103288	103310	103332	103353	103375	103397	103418	103440	103462	103483	103505	103527	14	2. 9
10.103548	103570	103592	103613	103635	103656	103678	103700	103721	103743	103765	103786	13	3. 13
10.103808	103830	103851	103873	103895	103916	103938	103960	103981	104003	104025	104046	12	4. 17
10.104068	104090	104111	104133	104155	104176	104198	104220	104241	104263	104285	104306	11	1 = 4
10.104328	104350	104371	104393	104415	104436	104458	104480	104501	104523	104545	104566	10	2. 9
10.104588	104610	104631	104653	104675	104696	104718	104740	104761	104783	104805	104826	9	3. 13
10.104848	104870	104891	104913	104935	104956	104978	105000	105021	105043	105065	105086	8	4. 17
10.105108	105130	105151	105173	105195	105217	105238	105260	105282	105303	105325	105347	7	1 = 4
10.105368	105390	105412	105433	105455	105477	105498	105520	105542	105563	105585	105607	6	2. 9
10.105628	105650	105672	105693	105715	105737	105758	105780	105802	105824	105845	105867	5	3. 13
10.105889	105910	105932	105954	105975	105997	106019	106040	106062	106084	106105	106127	4	4. 17
10.106149	106171	106192	106214	106236	106257	106279	106301	106322	106344	106366	106387	3	1 = 4
10.106409	106431	106452	106474	106496	106518	106539	106561	106583	106604	106626	106648	2	2. 9
10.106669	106691	106713	106734	106756	106778	106800	106821	106843	106865	106886	106908	1	3. 13
10.106930	106951	106973	106995	107017	107038	107060	107082	107103	107125	107147	107168	0	4. 17
60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
Co-tangent of 38 degrees, or Tangent of 128 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 52 degrees, or Co-tangent of 142 degrees.												Minutes	Proportional Parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 107190	107212	107234	107255	107277	107299	107320	107342	107364	107385	107407	107429	59	1
1	10. 107451	107472	107494	107516	107537	107559	107581	107602	107624	107646	107668	107689	58	2.
2	10. 107711	107733	107754	107776	107798	107820	107841	107863	107885	107906	107928	107950	57	3.
3	10. 107971	107993	108015	108037	108058	108080	108102	108123	108145	108167	108189	108210	56	4.
4	10. 108232	108254	108275	108297	108319	108341	108362	108384	108406	108427	108449	108471	55	1
5	10. 108493	108514	108536	108558	108579	108601	108623	108645	108666	108688	108710	108731	54	2.
6	10. 108753	108775	108797	108818	108840	108862	108883	108905	108927	108949	108970	108992	53	3.
7	10. 109014	109036	109057	109079	109101	109122	109144	109166	109188	109209	109231	109253	52	4.
8	10. 109275	109296	109318	109340	109361	109383	109405	109427	109448	109470	109492	109514	51	1
9	10. 109535	109557	109579	109600	109622	109644	109666	109687	109709	109731	109753	109774	50	2.
10	10. 109796	109818	109839	109861	109883	109905	109926	109948	109970	109992	110013	110035	49	3.
11	10. 110057	110079	110100	110122	110144	110165	110187	110209	110231	110252	110274	110296	48	4.
12	10. 110318	110339	110361	110383	110405	110426	110448	110470	110492	110513	110535	110557	47	1
13	10. 110579	110600	110622	110644	110665	110687	110709	110731	110752	110774	110796	110818	46	2.
14	10. 110839	110861	110883	110905	110926	110948	110970	110992	111013	111035	111057	111079	45	3.
15	10. 111100	111122	111144	111166	111187	111209	111231	111253	111274	111296	111318	111340	44	4.
16	10. 111361	111383	111405	111427	111448	111470	111492	111514	111535	111557	111579	111601	43	1
17	10. 111622	111644	111666	111688	111709	111731	111753	111775	111796	111818	111840	111862	42	2.
18	10. 111883	111905	111927	111949	111971	111992	112014	112036	112058	112079	112101	112123	41	3.
19	10. 112145	112166	112188	112210	112232	112253	112275	112297	112319	112340	112362	112384	40	4.
20	10. 112406	112428	112449	112471	112493	112515	112536	112558	112580	112602	112623	112645	39	1
21	10. 112667	112689	112710	112732	112754	112776	112798	112819	112841	112863	112885	112906	38	2.
22	10. 112928	112950	112972	112993	113015	113037	113059	113081	113102	113124	113146	113168	37	3.
23	10. 113189	113211	113233	113255	113277	113298	113320	113342	113364	113385	113407	113429	36	4.
24	10. 113451	113473	113494	113516	113538	113560	113581	113603	113625	113647	113669	113690	35	1
25	10. 113712	113734	113756	113777	113799	113821	113843	113865	113886	113908	113930	113952	34	2.
26	10. 113974	113995	114017	114039	114061	114082	114104	114126	114148	114170	114191	114213	33	3.
27	10. 114235	114257	114279	114300	114322	114344	114366	114387	114409	114431	114453	114475	32	4.
28	10. 114496	114518	114540	114562	114584	114605	114627	114649	114671	114693	114714	114736	31	1
29	10. 114758	114780	114802	114823	114845	114867	114889	114910	114932	114954	114976	114998	30	2.
30	10. 115019	115041	115063	115085	115107	115128	115150	115172	115194	115216	115237	115259	29	3.
31	10. 115281	115303	115325	115346	115368	115390	115412	115434	115455	115477	115499	115521	28	4.
32	10. 115543	115565	115586	115608	115630	115652	115674	115695	115717	115739	115761	115783	27	1
33	10. 115804	115826	115848	115870	115892	115913	115935	115957	115979	116001	116022	116044	26	2.
34	10. 116066	116088	116110	116132	116153	116175	116197	116219	116241	116262	116284	116306	25	3.
35	10. 116328	116350	116371	116393	116415	116437	116459	116481	116502	116524	116546	116568	24	4.
36	10. 116590	116611	116633	116655	116677	116699	116721	116742	116764	116786	116808	116830	23	1
37	10. 116852	116873	116895	116917	116939	116961	116982	117004	117026	117048	117070	117092	22	2.
38	10. 117113	117135	117157	117179	117201	117223	117244	117266	117288	117310	117332	117353	21	3.
39	10. 117375	117397	117419	117441	117463	117484	117506	117528	117550	117572	117594	117615	20	4.
40	10. 117637	117659	117681	117703	117725	117746	117768	117790	117812	117834	117856	117877	19	1
41	10. 117899	117921	117943	117965	117987	118008	118030	118052	118074	118096	118118	118140	18	2.
42	10. 118161	118183	118205	118227	118249	118271	118292	118314	118336	118358	118380	118402	17	3.
43	10. 118423	118445	118467	118489	118511	118533	118554	118576	118598	118620	118642	118664	16	4.
44	10. 118686	118707	118729	118751	118773	118795	118817	118839	118860	118882	118904	118926	15	1
45	10. 118948	118970	118991	119013	119035	119057	119079	119101	119123	119144	119166	119188	14	2.
46	10. 119210	119232	119254	119276	119297	119319	119341	119363	119385	119407	119429	119450	13	3.
47	10. 119472	119494	119516	119538	119560	119582	119603	119625	119647	119669	119691	119713	12	4.
48	10. 119735	119756	119778	119800	119822	119844	119866	119888	119909	119931	119953	119975	11	1
49	10. 119997	120019	120041	120062	120084	120106	120128	120150	120172	120194	120216	120237	10	2.
50	10. 120259	120281	120303	120325	120347	120369	120390	120412	120434	120456	120478	120500	9	3.
51	10. 120522	120544	120565	120587	120609	120631	120653	120675	120697	120719	120740	120762	8	4.
52	10. 120784	120806	120828	120850	120872	120894	120915	120937	120959	120981	121003	121025	7	1
53	10. 121047	121069	121090	121112	121134	121156	121178	121200	121222	121244	121265	121287	6	2.
54	10. 121309	121331	121353	121375	121397	121419	121441	121462	121484	121506	121528	121550	5	3.
55	10. 121572	121594	121616	121638	121659	121681	121703	121725	121747	121769	121791	121813	4	4.
56	10. 121835	121856	121878	121900	121922	121944	121966	121988	122010	122032	122053	122075	3	1
57	10. 122097	122119	122141	122163	122185	122207	122229	122250	122272	122294	122316	122338	2	2.
58	10. 122360	122382	122404	122426	122448	122469	122491	122513	122535	122557	122579	122601	1	3.
59	10. 122623	122645	122667	122688	122710	122732	122754	122776	122798	122820	122842	122864	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proportional Parts
	Co-tangent of 37 degrees, or Tangent of 127 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 53 degrees, or Co-tangent of 143 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 122886	122907	122929	122951	122973	122995	123017	123039	123061	123083	123105	123127	59	1″ = 4
1	10. 123148	123170	123192	123214	123236	123258	123280	123302	123324	123346	123367	123389	58	2. 9
2	10. 123411	123433	123455	123477	123499	123521	123543	123565	123587	123609	123630	123652	57	3. 13
3	10. 123674	123696	123718	123740	123762	123784	123806	123828	123850	123872	123893	123915	56	4. 18
4	10. 123937	123959	123981	124003	124025	124047	124069	124091	124113	124135	124156	124178	55	1 = 4
5	10. 124200	124222	124244	124266	124288	124310	124332	124354	124376	124398	124420	124441	54	2. 9
6	10. 124463	124485	124507	124529	124551	124573	124595	124617	124639	124661	124683	124705	53	3. 13
7	10. 124727	124748	124770	124792	124814	124836	124858	124880	124902	124924	124946	124968	52	4. 18
8	10. 124990	125012	125034	125056	125077	125099	125121	125143	125165	125187	125209	125231	51	1 = 4
9	10. 125253	125275	125297	125319	125341	125363	125385	125406	125428	125450	125472	125494	50	2. 9
10	10. 125516	125538	125560	125582	125604	125626	125648	125670	125692	125714	125736	125758	49	3. 13
11	10. 125780	125801	125823	125845	125867	125889	125911	125933	125955	125977	125999	126021	48	4. 18
12	10. 126043	126065	126087	126109	126131	126153	126175	126197	126218	126240	126262	126284	47	1 = 4
13	10. 126306	126328	126350	126372	126394	126416	126438	126460	126482	126504	126526	126548	46	2. 9
14	10. 126570	126592	126614	126636	126658	126679	126701	126723	126745	126767	126789	126811	45	3. 13
15	10. 126833	126855	126877	126899	126921	126943	126965	126987	127009	127031	127053	127075	44	4. 18
16	10. 127097	127119	127141	127163	127185	127207	127229	127250	127272	127294	127316	127338	43	1 = 4
17	10. 127360	127382	127404	127426	127448	127470	127492	127514	127536	127558	127580	127602	42	2. 9
18	10. 127624	127646	127668	127690	127712	127734	127756	127778	127800	127822	127844	127866	41	3. 13
19	10. 127888	127910	127932	127954	127976	127997	128019	128041	128063	128085	128107	128129	40	4. 18
20	10. 128151	128173	128195	128217	128239	128261	128283	128305	128327	128349	128371	128393	39	1 = 4
21	10. 128415	128437	128459	128481	128503	128525	128547	128569	128591	128613	128635	128657	38	2. 9
22	10. 128679	128701	128723	128745	128767	128789	128811	128833	128855	128877	128899	128921	37	3. 13
23	10. 128943	128965	128987	129009	129031	129053	129075	129097	129119	129141	129163	129185	36	4. 18
24	10. 129207	129229	129251	129273	129295	129317	129339	129361	129383	129405	129427	129449	35	1 = 4
25	10. 129471	129493	129515	129537	129559	129581	129603	129625	129647	129669	129691	129713	34	2. 9
26	10. 129735	129757	129779	129801	129823	129845	129867	129889	129911	129933	129955	129977	33	3. 13
27	10. 129999	130021	130043	130065	130087	130109	130131	130153	130175	130197	130219	130241	32	4. 18
28	10. 130263	130285	130307	130329	130351	130373	130395	130417	130439	130461	130483	130505	31	1 = 4
29	10. 130527	130549	130571	130593	130615	130637	130659	130681	130703	130725	130747	130769	30	2. 9
30	10. 130791	130813	130835	130857	130879	130901	130923	130945	130967	130989	131011	131033	29	3. 13
31	10. 131055	131077	131099	131121	131143	131165	131187	131209	131231	131254	131276	131298	28	4. 18
32	10. 131320	131342	131364	131386	131408	131430	131452	131474	131496	131518	131540	131562	27	1 = 4
33	10. 131584	131606	131628	131650	131672	131694	131716	131738	131760	131782	131804	131826	26	2. 9
34	10. 131848	131870	131892	131914	131936	131958	131980	132003	132025	132047	132069	32091	25	3. 13
35	10. 132113	132135	132157	132179	132201	132223	132245	132267	132289	132311	132333	32355	24	4. 18
36	10. 132377	132399	132421	132443	132465	132487	132509	132531	132554	132576	132598	132620	23	1 = 4
37	10. 132642	132664	132686	132708	132730	132752	132774	132796	132818	132840	132862	132884	22	2. 9
38	10. 132906	132928	132950	132972	132994	133016	133039	133061	133083	133105	133127	133149	21	3. 13
39	10. 133171	133193	133215	133237	133259	133281	133303	133325	133347	133369	133391	133413	20	4. 18
40	10. 133436	133458	133480	133502	133524	133546	133568	133590	133612	133634	133656	133678	19	1 = 4
41	10. 133700	133722	133744	133766	133788	133811	133833	133855	133877	133899	133921	133943	18	2. 9
42	10. 133965	133987	134009	134031	134053	134075	134097	134119	134142	134164	134186	134208	17	3. 13
43	10. 134230	134252	134274	134296	134318	134340	134362	134384	134406	134428	134450	134473	16	4. 18
44	10. 134495	134517	134539	134561	134583	134605	134627	134649	134671	134693	134715	134737	15	1 = 4
45	10. 134760	134782	134804	134826	134848	134870	134892	134914	134936	134958	134980	135002	14	2. 9
46	10. 135024	135047	135069	135091	135113	135135	135157	135179	135201	135223	135245	135267	13	3. 13
47	10. 135289	135312	135334	135356	135378	135400	135422	135444	135466	135488	135510	135532	12	4. 18
48	10. 135555	135577	135599	135621	135643	135665	135687	135709	135731	135753	135775	135798	11	1 = 4
49	10. 135820	135842	135864	135886	135908	135930	135952	135974	135996	136018	136041	136063	10	2. 9
50	10. 136085	136107	136129	136151	136173	136195	136217	136239	136262	136284	136306	136328	9	3. 13
51	10. 136350	136372	136394	136416	136438	136460	136483	136505	136527	136549	136571	136593	8	4. 18
52	10. 136615	136637	136659	136682	136704	136726	136748	136770	136792	136814	136836	136858	7	1 = 4
53	10. 136880	136903	136925	136947	136969	136991	137013	137035	137057	137079	137102	137124	6	2. 9
54	10. 137146	137168	137190	137212	137234	137256	137279	137301	137323	137345	137367	137389	5	3. 13
55	10. 137411	137433	137455	137478	137500	137522	137544	137566	137588	137610	137632	137655	4	4. 18
56	10. 137677	137699	137721	137743	137765	137787	137809	137832	137854	137876	137898	137920	3	1 = 4
57	10. 137942	137964	137986	138009	138031	138053	138075	138097	138119	138141	138163	138186	2	2. 9
58	10. 138208	138230	138252	138274	138296	138318	138340	138363	138385	138407	138429	138451	1	3. 13
59	10. 138473	138495	138518	138540	138562	138584	138606	138628	138650	138672	138695	138717	0	4. 18
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 36 degrees, or Tangent of 126 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 54 degrees, or Co-tangent of 144 degrees.												Minutes	Proper parts.
	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55		
0	10. 138739	138761	138783	138805	138827	138850	138872	138894	138916	138938	138960	138982	59	1″ = 4
1	10. 139005	139027	139049	139071	139093	139115	139137	139160	139182	139204	139226	139248	58	2. 9
2	10. 139270	139292	139315	139337	139359	139381	139403	139425	139448	139470	139492	139514	57	3. 13
3	10. 139536	139558	139580	139603	139625	139647	139669	139691	139713	139736	139758	139780	56	4. 18
4	10. 139802	139824	139846	139868	139891	139913	139935	139957	139979	140001	140024	140046	55	1 = 4
5	10. 140068	140090	140112	140134	140157	140179	140201	140223	140245	140267	140289	140312	54	2. 9
6	10. 140334	140356	140378	140400	140422	140445	140467	140489	140511	140533	140555	140578	53	3. 13
7	10. 140600	140622	140644	140666	140688	140711	140733	140755	140777	140799	140822	140844	52	4. 18
8	10. 140866	140888	140910	140932	140955	140977	140999	141021	141043	141065	141088	141110	51	1 = 4
9	10. 141132	141154	141176	141198	141221	141243	141265	141287	141309	141332	141354	141376	50	2. 9
10	10. 141398	141420	141442	141465	141487	141509	141531	141553	141576	141598	141620	141642	49	3. 13
11	10. 141664	141686	141709	141731	141753	141775	141797	141820	141842	141864	141886	141908	48	4. 18
12	10. 141931	141953	141975	141997	142019	142041	142064	142086	142108	142130	142152	142175	47	1 = 4
13	10. 142197	142219	142241	142263	142286	142308	142330	142352	142374	142397	142419	142441	46	2. 9
14	10. 142463	142485	142508	142530	142552	142574	142596	142619	142641	142663	142685	142707	45	3. 13
15	10. 142730	142752	142774	142796	142818	142841	142863	142885	142907	142929	142952	142974	44	4. 18
16	10. 142996	143018	143040	143063	143085	143107	143129	143152	143174	143196	143218	143240	43	1 = 4
17	10. 143263	143285	143307	143329	143351	143374	143396	143418	143440	143462	143485	143507	42	2. 9
18	10. 143529	143551	143574	143596	143618	143640	143662	143685	143707	143729	143751	143774	41	3. 13
19	10. 143796	143818	143840	143862	143885	143907	143929	143951	143974	143996	144018	144040	40	4. 18
20	10. 144062	144085	144107	144129	144151	144174	144196	144218	144240	144262	144285	144307	39	1 = 4
21	10. 144329	144351	144374	144396	144418	144440	144462	144485	144507	144529	144551	144574	38	2. 9
22	10. 144596	144618	144640	144663	144685	144707	144729	144752	144774	144796	144818	144840	37	3. 13
23	10. 144863	144885	144907	144929	144952	144974	144996	145018	145041	145063	145085	145107	36	4. 18
24	10. 145130	145152	145174	145196	145219	145241	145263	145285	145308	145330	145352	145374	35	1 = 4
25	10. 145397	145419	145441	145463	145485	145508	145530	145552	145574	145597	145619	145641	34	2. 9
26	10. 145663	145686	145708	145730	145752	145775	145797	145819	145842	145864	145886	145908	33	3. 13
27	10. 145931	145953	145975	145997	146020	146042	146064	146086	146109	146131	146153	146175	32	4. 18
28	10. 146198	146220	146242	146264	146287	146309	146331	146353	146376	146398	146420	146442	31	1 = 4
29	10. 146465	146487	146509	146532	146554	146576	146598	146621	146643	146665	146687	146710	30	2. 9
30	10. 146732	146754	146776	146799	146821	146843	146866	146888	146910	146932	146955	146977	29	3. 13
31	10. 146999	147021	147044	147066	147088	147111	147133	147155	147177	147200	147222	147244	28	4. 18
32	10. 147266	147289	147311	147333	147356	147378	147400	147422	147445	147467	147489	147512	27	1 = 4
33	10. 147534	147556	147578	147601	147623	147645	147668	147690	147712	147734	147757	147779	26	2. 9
34	10. 147801	147824	147846	147868	147890	147913	147935	147957	147980	148002	148024	148046	25	3. 13
35	10. 148069	148091	148113	148136	148158	148180	148202	148225	148247	148269	148292	148314	24	4. 18
36	10. 148336	148359	148381	148403	148425	148448	148470	148492	148515	148537	148559	148582	23	1 = 4
37	10. 148604	148626	148648	148671	148693	148715	148738	148760	148782	148805	148827	148849	22	2. 9
38	10. 148871	148894	148916	148938	148961	148983	149005	149028	149050	149072	149094	149117	21	3. 13
39	10. 149139	149161	149184	149206	149228	149251	149273	149295	149318	149340	149362	149385	20	4. 18
40	10. 149407	149429	149451	149474	149496	149518	149541	149563	149585	149608	149630	149652	19	1 = 4
41	10. 149675	149697	149719	149742	149764	149786	149809	149831	149853	149876	149898	149920	18	2. 9
42	10. 149942	149965	149987	150009	150032	150054	150076	150099	150121	150143	150166	150188	17	3. 13
43	10. 150210	150233	150255	150277	150300	150322	150344	150367	150389	150411	150434	150456	16	4. 18
44	10. 150478	150501	150523	150545	150568	150590	150612	150635	150657	150679	150702	150724	15	1 = 4
45	10. 150746	150769	150791	150813	150836	150858	150880	150903	150925	150947	150970	150992	14	2. 9
46	10. 151014	151037	151059	151081	151104	151126	151148	151171	151193	151215	151238	151260	13	3. 13
47	10. 151283	151305	151327	151350	151372	151394	151417	151439	151461	151484	151506	151528	12	4. 18
48	10. 151551	151573	151595	151618	151640	151662	151685	151707	151730	151752	151774	151797	11	1 = 4
49	10. 151819	151841	151864	151886	151908	151931	151953	151975	151998	152020	152043	152065	10	2. 9
50	10. 152087	152110	152132	152154	152177	152199	152221	152244	152266	152288	152311	152333	9	3. 13
51	10. 152356	152378	152400	152423	152445	152467	152490	152512	152534	152557	152579	152602	8	4. 18
52	10. 152624	152646	152669	152691	152713	152736	152758	152781	152803	152825	152848	152870	7	1 = 4
53	10. 152892	152915	152937	152960	152982	153004	153027	153049	153071	153094	153116	153139	6	2. 9
54	10. 153161	153183	153206	153228	153250	153273	153295	153318	153340	153362	153385	153407	5	3. 13
55	10. 153429	153452	153474	153497	153519	153541	153564	153586	153609	153631	153653	153676	4	4. 18
56	10. 153698	153720	153743	153765	153788	153810	153832	153855	153877	153900	153922	153944	3	1 = 4
57	10. 153967	153989	154012	154034	154056	154079	154101	154124	154146	154168	154191	154213	2	2. 9
58	10. 154236	154258	154280	154303	154325	154348	154370	154392	154415	154437	154460	154482	1	3. 13
59	10. 154504	154527	154549	154572	154594	154616	154639	154661	154684	154706	154728	154751	0	4. 18
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proper parts.
	Co-tangent of 35 degrees, or Tangent of 125 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 55 degrees, or Co-tangent of 145 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 154773	154796	154818	154840	154863	154885	154908	154930	154952	154975	154997	155020	59	1″ = 4
1	10. 155042	155064	155087	155109	155132	155154	155177	155199	155221	155244	155266	155289	58	2. 9
2	10. 155311	155333	155356	155378	155401	155423	155446	155468	155490	155513	155535	155558	57	3. 13
3	10. 155580	155602	155625	155647	155670	155692	155715	155737	155759	155782	155804	155827	56	4. 18
4	10. 155849	155872	155894	155916	155939	155961	155984	156006	156029	156051	156073	156096	55	1 = 4
5	10. 156118	156141	156163	156186	156208	156230	156253	156275	156298	156320	156343	156365	54	2. 9
6	10. 156387	156410	156432	156455	156477	156500	156522	156545	156567	156589	156612	156634	53	3. 13
7	10. 156657	156679	156702	156724	156746	156769	156791	156814	156836	156859	156881	156904	52	4. 18
8	10. 156926	156948	156971	156993	157016	157038	157061	157083	157106	157128	157150	157173	51	1 = 4
9	10. 157195	157218	157240	157263	157285	157308	157330	157353	157375	157397	157420	157442	50	2. 9
10	10. 157465	157487	157510	157532	157555	157577	157600	157622	157644	157667	157689	157712	49	3. 13
11	10. 157734	157757	157779	157802	157824	157847	157869	157892	157914	157936	157959	157981	48	4. 18
12	10. 158004	158026	158049	158071	158094	158116	158139	158161	158184	158206	158228	158251	47	1 = 4
13	10. 158273	158296	158318	158341	158363	158386	158408	158431	158453	158476	158498	158521	46	2. 9
14	10. 158543	158566	158588	158611	158633	158655	158678	158700	158723	158745	158768	158790	45	3. 13
15	10. 158813	158835	158858	158880	158903	158925	158948	158970	158993	159015	159038	159060	44	4. 18
16	10. 159083	159105	159128	159150	159173	159195	159217	159240	159262	159285	159307	159330	43	1 = 5
17	10. 159352	159375	159397	159420	159442	159465	159487	159510	159532	159555	159577	159600	42	2. 9
18	10. 159622	159645	159667	159690	159712	159735	159757	159780	159802	159825	159847	159870	41	3. 14
19	10. 159892	159915	159937	159960	159982	160005	160027	160050	160072	160095	160117	160140	40	4. 18
20	10. 160162	160185	160207	160230	160252	160275	160297	160320	160342	160365	160387	160410	39	1 = 5
21	10. 160432	160455	160477	160500	160522	160545	160567	160590	160612	160635	160657	160680	38	2. 9
22	10. 160702	160725	160747	160770	160793	160815	160838	160860	160883	160905	160928	160950	37	3. 14
23	10. 160973	160995	161018	161040	161063	161085	161108	161130	161153	161175	161198	161220	36	4. 18
24	10. 161243	161265	161288	161310	161333	161356	161378	161401	161423	161446	161468	161491	35	1 = 5
25	10. 161513	161536	161558	161581	161603	161626	161648	161671	161693	161716	161739	161761	34	2. 9
26	10. 161784	161806	161829	161851	161874	161896	161919	161941	161964	161986	162009	162031	33	3. 14
27	10. 162054	162077	162099	162122	162144	162167	162189	162212	162234	162257	162279	162302	32	4. 18
28	10. 162324	162347	162370	162392	162415	162437	162460	162482	162505	162527	162550	162572	31	1 = 5
29	10. 162595	162618	162640	162663	162685	162708	162730	162753	162775	162798	162821	162843	30	2. 9
30	10. 162866	162888	162911	162933	162956	162978	163001	163024	163046	163069	163091	163114	29	3. 14
31	10. 163136	163159	163181	163204	163227	163249	163272	163294	163317	163339	163362	163384	28	4. 18
32	10. 163407	163430	163452	163475	163497	163520	163542	163565	163588	163610	163633	163655	27	1 = 5
33	10. 163678	163700	163723	163746	163768	163791	163813	163836	163858	163881	163904	163926	26	2. 9
34	10. 163949	163971	163994	164016	164039	164062	164084	164107	164129	164152	164174	164197	25	3. 14
35	10. 164220	164242	164265	164287	164310	164332	164355	164378	164400	164423	164445	164468	24	4. 18
36	10. 164491	164513	164536	164558	164581	164603	164626	164649	164671	164694	164716	164739	23	1 = 5
37	10. 164762	164784	164807	164829	164852	164875	164897	164920	164942	164965	164987	165010	22	2. 9
38	10. 165033	165055	165078	165100	165123	165146	165168	165191	165213	165236	165259	165281	21	3. 14
39	10. 165304	165326	165349	165372	165394	165417	165439	165462	165485	165507	165530	165552	20	4. 18
40	10. 165575	165598	165620	165643	165665	165688	165711	165733	165756	165779	165801	165824	19	1 = 5
41	10. 165846	165869	165892	165914	165937	165959	165982	166005	166027	166050	166072	166095	18	2. 9
42	10. 166118	166140	166163	166186	166208	166231	166253	166276	166299	166321	166344	166366	17	3. 14
43	10. 166389	166412	166434	166457	166480	166502	166525	166547	166570	166593	166615	166638	16	4. 18
44	10. 166661	166683	166706	166728	166751	166774	166796	166819	166842	166864	166887	166909	15	1 = 5
45	10. 166932	166955	166977	167000	167023	167045	167068	167090	167113	167136	167158	167181	14	2. 9
46	10. 167204	167226	167249	167272	167294	167317	167339	167362	167385	167407	167430	167452	13	3. 14
47	10. 167475	167498	167521	167543	167566	167589	167611	167634	167656	167679	167702	167724	12	4. 18
48	10. 167747	167770	167792	167815	167838	167860	167883	167906	167928	167951	167974	167996	11	1 = 5
49	10. 168019	168041	168064	168087	168109	168132	168155	168177	168200	168223	168245	168268	10	2. 9
50	10. 168291	168313	168336	168359	168381	168404	168427	168449	168472	168495	168517	168540	9	3. 14
51	10. 168563	168585	168608	168631	168653	168676	168699	168721	168744	168767	168789	168812	8	4. 18
52	10. 168835	168857	168880	168903	168925	168948	168971	168993	169016	169039	169061	169084	7	1 = 5
53	10. 169107	169129	169152	169175	169197	169220	169243	169265	169288	169311	169333	169356	6	2. 9
54	10. 169379	169401	169424	169447	169469	169492	169515	169537	169560	169583	169605	169628	5	3. 14
55	10. 169651	169673	169696	169719	169742	169764	169787	169810	169832	169855	169878	169900	4	4. 18
56	10. 169923	169946	169968	169991	170014	170036	170059	170082	170105	170127	170150	170173	3	1 = 5
57	10. 170195	170218	170241	170263	170286	170309	170331	170354	170377	170400	170422	170445	2	2. 9
58	10. 170468	170490	170513	170536	170558	170581	170604	170627	170649	170672	170695	170717	1	3. 14
59	10. 170740	170763	170785	170808	170831	170854	170876	170899	170922	170944	170967	170990	0	4. 18
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 34 degrees, or Tangent of 124 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 56 degrees, or Co-tangent of 146 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 171013	171035	171058	171081	171103	171126	171149	171171	171194	171217	171240	171262	59	1″ =
1	10. 171285	171308	171330	171353	171376	171399	171421	171444	171467	171489	171512	171535	58	2.
2	10. 171558	171580	171603	171626	171649	171671	171694	171717	171739	171762	171785	171808	57	3.
3	10. 171830	171853	171876	171898	171921	171944	171967	171989	172012	172035	172058	172080	56	4.
4	10. 172103	172126	172149	172171	172194	172217	172239	172262	172285	172308	172330	172353	55	1 =
5	10. 172376	172399	172421	172444	172467	172490	172512	172535	172558	172580	172603	172626	54	2.
6	10. 172649	172671	172694	172717	172740	172762	172785	172808	172831	172853	172876	172899	53	3.
7	10. 172922	172944	172967	172990	173013	173035	173058	173081	173104	173126	173149	173172	52	4.
8	10. 173195	173217	173240	173263	173286	173308	173331	173354	173377	173399	173422	173445	51	1 =
9	10. 173468	173490	173513	173536	173559	173581	173604	173627	173650	173672	173695	173718	50	2.
10	10. 173741	173764	173786	173809	173832	173855	173877	173900	173923	173946	173968	173991	49	3.
11	10. 174014	174037	174060	174082	174105	174128	174151	174173	174196	174219	174242	174264	48	4.
12	10. 174287	174310	174333	174356	174378	174401	174424	174447	174469	174492	174515	174538	47	1 =
13	10. 174561	174583	174606	174629	174652	174674	174697	174720	174743	174766	174788	174811	46	2.
14	10. 174834	174857	174879	174902	174925	174948	174971	174993	175016	175039	175062	175085	45	3.
15	10. 175107	175130	175153	175176	175199	175221	175244	175267	175290	175312	175335	175358	44	4.
16	10. 175381	175404	175426	175449	175472	175495	175518	175540	175563	175586	175609	175632	43	1 =
17	10. 175654	175677	175700	175723	175746	175768	175791	175814	175837	175860	175882	175905	42	2.
18	10. 175928	175951	175974	175997	176019	176042	176065	176088	176111	176133	176156	176179	41	3.
19	10. 176202	176225	176247	176270	176293	176316	176339	176362	176384	176407	176430	176453	40	4.
20	10. 176476	176498	176521	176544	176567	176590	176613	176635	176658	176681	176704	176727	39	1 =
21	10. 176749	176772	176795	176818	176841	176864	176886	176909	176932	176955	176978	177001	38	2.
22	10. 177023	177046	177069	177092	177115	177137	177160	177183	177206	177229	177252	177274	37	3.
23	10 177297	177320	177343	177366	177389	177411	177434	177457	177480	177503	177526	177549	36	4.
24	10. 177571	177594	177617	177640	177663	177686	177708	177731	177754	177777	177800	177823	35	1 =
25	10. 177845	177868	177891	177914	177937	177960	177983	178005	178028	178051	178074	178097	34	2.
26	10. 178120	178143	178165	178188	178211	178234	178257	178280	178302	178325	178348	178371	33	3.
27	10. 178394	178417	178440	178462	178485	178508	178531	178554	178577	178600	178622	178645	32	4.
28	10. 178668	178691	178714	178737	178760	178783	178805	178828	178851	178874	178897	178920	31	1 =
29	10. 178943	178965	178988	179011	179034	179057	179080	179103	179126	179148	179171	179194	30	2
30	10. 179217	179240	179263	179286	179309	179331	179354	179377	179400	179423	179446	179469	29	3.
31	10. 179492	179514	179537	179560	179583	179606	179629	179652	179675	179697	179720	179743	28	4.
32	10. 179766	179789	179812	179835	179858	179881	179903	179926	179949	179972	179995	180018	27	1 =
33	10. 180041	180064	180087	180109	180132	180155	180178	180201	180224	180247	180270	180293	26	2.
34	10. 180316	180338	180361	180384	180407	180430	180453	180476	180499	180522	180545	180567	25	3.
35	10. 180590	180613	180636	180659	180682	180705	180728	180751	180774	180796	180819	180842	24	4.
36	10. 180865	180888	180911	180934	180957	180980	181003	181026	181048	181071	181094	181117	23	1 =
37	10. 181140	181163	181186	181209	181232	181255	181278	181300	181323	181346	181369	181392	22	2.
38	10. 181415	181438	181461	181484	181507	181530	181553	181576	181598	181621	181644	181667	21	3.
39	10. 181690	181713	181736	181759	181782	181805	181828	181851	181874	181896	181919	181942	20	4.
40	10. 181965	181988	182011	182034	182057	182080	182103	182126	182149	182172	182195	182218	19	1 =
41	10. 182240	182263	182286	182309	182332	182355	182378	182401	182424	182447	182470	182493	18	2.
42	10. 182516	182539	182562	182585	182608	182630	182653	182676	182699	182722	182745	182768	17	3.
43	10. 182791	182814	182837	182860	182883	182906	182929	182952	182975	182998	183021	183044	16	4.
44	10. 183066	183089	183112	183135	183158	183181	183204	183227	183250	183273	183296	183319	15	1 =
45	10. 183342	183365	183388	183411	183434	183457	183480	183503	183526	183549	183572	183595	14	2.
46	10. 183618	183640	183663	183686	183709	183732	183755	183778	183801	183824	183847	183870	13	3.
47	10. 183893	183916	183939	183962	183985	184008	184031	184054	184077	184100	184123	184146	12	4.
48	10. 184169	184192	184215	184238	184261	184284	184307	184330	184353	184376	184399	184422	11	1 =
49	10. 184445	184468	184491	184514	184537	184560	184582	184605	184628	184651	184674	184697	10	2.
50	10. 184720	184743	184766	184789	184812	184835	184858	184881	184904	184927	184950	184973	9	3.
51	10. 184996	185019	185042	185065	185088	185111	185134	185157	185180	185203	185226	185249	8	4.
52	10. 185272	185295	185318	185341	185364	185387	185410	185433	185456	185479	185502	185525	7	1 =
53	10. 185548	185571	185594	185617	185640	185663	185686	185709	185732	185755	185778	185801	6	2.
54	10. 185824	185847	185870	185893	185916	185939	185963	185986	186009	186032	186055	186078	5	3.
55	10. 186101	186124	186147	186170	186193	186216	186239	186262	186285	186308	186331	186354	4	4.
56	10. 186377	186400	186423	186446	186469	186492	186515	186538	186561	186584	186607	186630	3	1 =
57	10. 186653	186676	186699	186722	186745	186768	186791	186814	186837	186860	186884	186907	2	2.
58	10. 186930	186953	186976	186999	187022	187045	187068	187091	187114	187137	187160	187183	1	3.
59	10. 187206	187229	187252	187275	187298	187321	187344	187367	187390	187413	187436	187460	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 33 degrees, or Tangent of 123 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 57 degrees, or Co-tangent of 147 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 187483	187506	187529	187552	187575	187598	187621	187644	187667	187690	187713	187736	59	1″ =
1	10. 187759	187782	187805	187828	187851	187874	187898	187921	187944	187967	187990	188013	58	2.
2	10. 188036	188059	188082	188105	188128	188151	188174	188197	188220	188243	188267	188290	57	3.
3	10. 188313	188336	188359	188382	188405	188428	188451	188474	188497	188520	188543	188566	56	4.
4	10. 188589	188613	188636	188659	188682	188705	188728	188751	188774	188797	188820	188843	55	1 =
5	10. 188866	188889	188913	188936	188959	188982	189005	189028	189051	189074	189097	189120	54	2.
6	10. 189143	189166	189189	189213	189236	189259	189282	189305	189328	189351	189374	189397	53	3.
7	10. 189420	189443	189467	189490	189513	189536	189559	189582	189605	189628	189651	189674	52	4.
8	10. 189697	189721	189744	189767	189790	189813	189836	189859	189882	189905	189928	189952	51	1 =
9	10. 189975	189998	190021	190044	190067	190090	190113	190136	190159	190183	190206	190229	50	2.
10	10. 190252	190275	190298	190321	190344	190367	190391	190414	190437	190460	190483	190506	49	3.
11	10. 190529	190552	190575	190599	190622	190645	190668	190691	190714	190737	190760	190784	48	4.
12	10. 190807	190830	190853	190876	190899	190922	190945	190969	190992	191015	191038	191061	47	1 =
13	10. 191084	191107	191130	191154	191177	191200	191223	191246	191269	191292	191315	191339	46	2.
14	10. 191362	191385	191408	191431	191454	191477	191500	191524	191547	191570	191593	191616	45	3.
15	10. 191639	191662	191686	191709	191732	191755	191778	191801	191824	191848	191871	191894	44	4.
16	10. 191917	191940	191963	191986	192010	192033	192056	192079	192102	192125	192148	192172	43	1 =
17	10. 192195	192218	192241	192264	192287	192311	192334	192357	192380	192403	192426	192449	42	2.
18	10. 192473	192496	192519	192542	192565	192588	192612	192635	192658	192681	192704	192727	41	3.
19	10. 192751	192774	192797	192820	192843	192866	192890	192913	192936	192959	192982	193005	40	4.
20	10. 193029	193052	193075	193098	193121	193144	193168	193191	193214	193237	193260	193283	39	1 =
21	10. 193307	193330	193353	193376	193399	193423	193446	193469	193492	193515	193538	193562	38	2.
22	10. 193585	193608	193631	193654	193678	193701	193724	193747	193770	193793	193817	193840	37	3.
23	10. 193863	193886	193909	193933	193956	193979	194002	194025	194049	194072	194095	194118	36	4.
24	10. 194141	194164	194188	194211	194234	194257	194280	194304	194327	194350	194373	194396	35	1 =
25	10. 194420	194443	194466	194489	194512	194536	194559	194582	194605	194628	194652	194675	34	2.
26	10. 194698	194721	194745	194768	194791	194814	194837	194861	194884	194907	194930	194953	33	3.
27	10. 194977	195000	195023	195046	195069	195093	195116	195139	195162	195186	195209	195232	32	4.
28	10. 195255	195278	195302	195325	195348	195371	195395	195418	195441	195464	195487	195511	31	1 =
29	10. 195534	195557	195580	195604	195627	195650	195673	195696	195720	195743	195766	195789	30	2.
30	10. 195813	195836	195859	195882	195906	195929	195952	195975	195998	196022	196045	196068	29	3.
31	10. 196091	196115	196138	196161	196184	196208	196231	196254	196277	196301	196324	196347	28	4.
32	10. 196370	196394	196417	196440	196463	196487	196510	196533	196556	196580	196603	196626	27	1 =
33	10. 196649	196673	196696	196719	196742	196766	196789	196812	196835	196859	196882	196905	26	2.
34	10. 196928	196952	196975	196998	197021	197045	197068	197091	197114	197138	197161	197184	25	3.
35	10. 197207	197231	197254	197277	197301	197324	197347	197370	197394	197417	197440	197463	24	4.
36	10. 197487	197510	197533	197556	197580	197603	197626	197650	197673	197696	197719	197743	23	1 =
37	10. 197766	197789	197813	197836	197859	197882	197906	197929	197952	197975	197999	198022	22	2.
38	10. 198045	198069	198092	198115	198138	198162	198185	198208	198232	198255	198278	198301	21	3.
39	10. 198325	198348	198371	198395	198418	198441	198464	198488	198511	198534	198558	198581	20	4.
40	10. 198604	198628	198651	198674	198697	198721	198744	198767	198791	198814	198837	198861	19	1 =
41	10. 198884	198907	198930	198954	198977	199000	199024	199047	199070	199094	199117	199140	18	2.
42	10. 199163	199187	199210	199233	199257	199280	199303	199327	199350	199373	199397	199420	17	3.
43	10. 199443	199467	199490	199513	199536	199560	199583	199606	199630	199653	199676	199700	16	4.
44	10. 199723	199746	199770	199793	199816	199840	199863	199886	199910	199933	199956	199980	15	1 =
45	10. 200003	200026	200050	200073	200096	200120	200143	200166	200190	200213	200236	200260	14	2.
46	10. 200283	200306	200330	200353	200376	200400	200423	200446	200470	200493	200516	200540	13	3.
47	10. 200563	200586	200610	200633	200656	200680	200703	200726	200750	200773	200796	200820	12	4.
48	10. 200843	200866	200890	200913	200936	200960	200983	201007	201030	201053	201077	201100	11	1 =
49	10. 201123	201147	201170	201193	201217	201240	201263	201287	201310	201333	201357	201380	10	2.
50	10. 201404	201427	201450	201474	201497	201520	201544	201567	201590	201614	201637	201661	9	3.
51	10. 201684	201707	201731	201754	201777	201801	201824	201848	201871	201894	201918	201941	8	4.
52	10. 201964	201988	202011	202034	202058	202081	202105	202128	202151	202175	202198	202222	7	1 =
53	10. 202245	202268	202292	202315	202338	202362	202385	202409	202432	202455	202479	202502	6	2.
54	10. 202525	202549	202572	202596	202619	202642	202666	202689	202713	202736	202759	202783	5	3.
55	10. 202806	202830	202853	202876	202900	202923	202947	202970	202993	203017	203040	203064	4	4.
56	10. 203087	203110	203134	203157	203181	203204	203227	203251	203274	203298	203321	203344	3	1 =
57	10. 203368	203391	203415	203438	203461	203485	203508	203532	203555	203578	203602	203625	2	2.
58	10. 203649	203672	203695	203719	203742	203766	203789	203813	203836	203859	203883	203906	1	3.
59	10. 203930	203953	203976	204000	204023	204047	204070	204094	204117	204140	204164	204187	0	4.
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 32 degrees, or Tangent of 122 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 58 degrees, or Co-tangent of 148 degrees.

Minutes	0	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proportional parts
0	10. 204211	204234	204258	204281	204304	204328	204351	204375	204398	204422	204445	204468	59	1″ =
1	10. 204492	204515	204539	204562	204586	204609	204632	204656	204679	204703	204726	204750	58	2.
2	10. 204773	204797	204820	204843	204867	204890	204914	204937	204961	204984	205008	205031	57	3.
3	10. 205054	205078	205101	205125	205148	205172	205195	205219	205242	205265	205289	205312	56	4.
4	10. 205336	205359	205383	205406	205430	205453	205477	205500	205523	205547	205570	205594	55	1 =
5	10. 205617	205641	205664	205688	205711	205735	205758	205782	205805	205828	205852	205875	54	2.
6	10. 205899	205922	205946	205969	205993	206016	206040	206063	206087	206110	206134	206157	53	3.
7	10. 206180	206204	206227	206251	206274	206298	206321	206345	206368	206392	206415	206439	52	4.
8	10. 206462	206486	206509	206533	206556	206580	206603	206627	206650	206674	206697	206721	51	1 =
9	10. 206744	206767	206791	206814	206838	206861	206885	206908	206932	206955	206979	207002	50	2.
10	10. 207026	207049	207073	207096	207120	207143	207167	207190	207214	207237	207261	207284	49	3.
11	10. 207308	207331	207355	207378	207402	207425	207449	207472	207496	207519	207543	207566	48	4.
12	10. 207590	207613	207637	207660	207684	207707	207731	207754	207778	207801	207825	207848	47	1 =
13	10. 207872	207895	207919	207943	207966	207990	208013	208037	208060	208084	208107	208131	46	2.
14	10. 208154	208178	208201	208225	208248	208272	208295	208319	208342	208366	208389	208413	45	3.
15	10. 208436	208460	208484	208507	208531	208554	208578	208601	208625	208648	208672	208695	44	4.
16	10. 208719	208742	208766	208789	208813	208837	208860	208884	208907	208931	208954	208978	43	1 =
17	10. 209001	209025	209048	209072	209095	209119	209143	209166	209190	209213	209237	209260	42	2.
18	10. 209284	209307	209331	209354	209378	209402	209425	209449	209472	209496	209519	209543	41	3.
19	10. 209566	209590	209614	209637	209661	209684	209708	209731	209755	209778	209802	209826	40	4.
20	10. 209849	209873	209896	209920	209943	209967	209990	210014	210038	210061	210085	210108	39	1 =
21	10. 210132	210155	210179	210203	210226	210250	210273	210297	210320	210344	210368	210391	38	2.
22	10. 210415	210438	210462	210485	210509	210533	210556	210580	210603	210627	210651	210674	37	3.
23	10. 210698	210721	210745	210768	210792	210816	210839	210863	210886	210910	210934	210957	36	4.
24	10. 210981	211004	211028	211051	211075	211099	211122	211146	211169	211193	211217	211240	35	1 =
25	10. 211264	211287	211311	211335	211358	211382	211405	211429	211453	211476	211500	211523	34	2.
26	10. 211547	211571	211594	211618	211641	211665	211689	211712	211736	211759	211783	211807	33	3.
27	10. 211830	211854	211878	211901	211925	211948	211972	211996	212019	212043	212066	212090	32	4.
28	10. 212114	212137	212161	212185	212208	212232	212255	212279	212303	212326	212350	212373	31	1 =
29	10. 212397	212421	212444	212468	212492	212515	212539	212562	212586	212610	212633	212657	30	2.
30	10. 212681	212704	212728	212752	212775	212799	212822	212846	212870	212893	212917	212941	29	3.
31	10. 212964	212988	213012	213035	213059	213082	213106	213130	213153	213177	213201	213224	28	4.
32	10. 213248	213272	213295	213319	213343	213366	213390	213413	213437	213461	213484	213508	27	1 =
33	10. 213532	213555	213579	213603	213626	213650	213674	213697	213721	213745	213768	213792	26	2.
34	10. 213816	213839	213863	213887	213910	213934	213958	213981	214005	214029	214052	214076	25	3.
35	10. 214100	214123	214147	214171	214194	214218	214242	214265	214289	214313	214336	214360	24	4.
36	10. 214384	214407	214431	214455	214478	214502	214526	214549	214573	214597	214620	214644	23	1 =
37	10. 214668	214691	214715	214739	214762	214786	214810	214833	214857	214881	214905	214928	22	2.
38	10. 214952	214976	214999	215023	215047	215070	215094	215118	215141	215165	215189	215212	21	3.
39	10. 215236	215260	215284	215307	215331	215355	215378	215402	215426	215449	215473	215497	20	4.
40	10. 215521	215544	215568	215592	215615	215639	215663	215686	215710	215734	215758	215781	19	1 =
41	10. 215805	215829	215852	215876	215900	215924	215947	215971	215995	216018	216042	216066	18	2.
42	10. 216090	216113	216137	216161	216184	216208	216232	216256	216279	216303	216327	216350	17	3.
43	10. 216374	216398	216422	216445	216469	216493	216517	216540	216564	216588	216611	216635	16	4.
44	10. 216659	216683	216706	216730	216754	216778	216801	216825	216849	216873	216896	216920	15	1 =
45	10. 216944	216967	216991	217015	217039	217062	217086	217110	217134	217157	217181	217205	14	2.
46	10. 217229	217252	217276	217300	217324	217347	217371	217395	217419	217442	217466	217490	13	3.
47	10. 217514	217537	217561	217585	217609	217632	217656	217680	217704	217727	217751	217775	12	4.
48	10. 217799	217822	217846	217870	217894	217917	217941	217965	217989	218013	218036	218060	11	1 =
49	10. 218084	218108	218131	218155	218179	218203	218226	218250	218274	218298	218321	218345	10	2.
50	10. 218369	218393	218417	218440	218464	218488	218512	218535	218559	218583	218607	218631	9	3.
51	10. 218654	218678	218702	218726	218749	218773	218797	218821	218845	218868	218892	218916	8	4.
52	10. 218940	218964	218987	219011	219035	219059	219083	219106	219130	219154	219178	219201	7	1 =
53	10. 219225	219249	219273	219297	219320	219344	219368	219392	219416	219439	219463	219487	6	2.
54	10. 219511	219535	219558	219582	219606	219630	219654	219677	219701	219725	219749	219773	5	3.
55	10. 219797	219820	219844	219868	219892	219916	219939	219963	219987	220011	220035	220058	4	4.
56	10. 220082	220106	220130	220154	220178	220201	220225	220249	220273	220297	220320	220344	3	1 =
57	10. 220368	220392	220416	220440	220463	220487	220511	220535	220559	220583	220606	220630	2	2.
58	10. 220654	220678	220702	220726	220749	220773	220797	220821	220845	220869	220892	220916	1	3.
59	10. 220940	220964	220988	221012	221035	221059	221083	221107	221131	221155	221179	221202	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts

Co-tangent of 31 degrees, or Tangent of 121 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 59 degrees, or Co-tangent of 149 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 221226	221250	221274	221298	221322	221345	221369	221393	221417	221441	221465	221489	59	1″ = 5
1	10. 221512	221536	221560	221584	221608	221632	221656	221679	221703	221727	221751	221775	58	2. 10
2	10. 221799	221823	221846	221870	221894	221918	221942	221966	221990	222013	222037	222061	57	3. 14
3	10. 222085	222109	222133	222157	222181	222204	222228	222252	222276	222300	222324	222348	56	4. 19
4	10. 222372	222395	222419	222443	222467	222491	222515	222539	222563	222586	222610	222634	55	1 = 5
5	10. 222658	222682	222706	222730	222754	222778	222801	222825	222849	222873	222897	222921	54	2. 10
6	10. 222945	222969	222993	223016	223040	223064	223088	223112	223136	223160	223184	223208	53	3. 14
7	10. 223231	223255	223279	223303	223327	223351	223375	223399	223423	223447	223471	223494	52	4. 19
8	10. 223518	223542	223566	223590	223614	223638	223662	223686	223710	223733	223757	223781	51	1 = 5
9	10. 223805	223829	223853	223877	223901	223925	223949	223973	223997	224020	224044	224068	50	2. 10
10	10. 224092	224116	224140	224164	224188	224212	224236	224260	224284	224308	224331	224355	49	3. 14
11	10. 224379	224403	224427	224451	224475	224499	224523	224547	224571	224595	224619	224643	48	4. 19
12	10. 224667	224690	224714	224738	224762	224786	224810	224834	224858	224882	224906	224930	47	1 = 5
13	10. 224954	224978	225002	225026	225050	225074	225097	225121	225145	225169	225193	225217	46	2. 10
14	10. 225241	225265	225289	225313	225337	225361	225385	225409	225433	225457	225481	225505	45	3. 14
15	10. 225529	225553	225577	225600	225624	225648	225672	225696	225720	225744	225768	225792	44	4. 19
16	10. 225816	225840	225864	225888	225912	225936	225960	225984	226008	226032	226056	226080	43	1 = 5
17	10. 226104	226128	226152	226176	226200	226224	226248	226272	226296	226320	226344	226368	42	2. 10
18	10. 226392	226416	226440	226463	226487	226511	226535	226559	226583	226607	226631	226655	41	3. 14
19	10. 226679	226703	226727	226751	226775	226799	226823	226847	226871	226895	226919	226943	40	4. 19
20	10. 226967	226991	227015	227039	227063	227087	227111	227135	227159	227183	227207	227231	39	1 = 5
21	10. 227255	227279	227303	227327	227351	227375	227399	227423	227447	227471	227495	227519	38	2. 10
22	10. 227543	227567	227591	227615	227639	227663	227687	227711	227735	227760	227784	227808	37	3. 14
23	10. 227832	227856	227880	227904	227928	227952	227976	228000	228024	228048	228072	228096	36	4. 19
24	10. 228120	228144	228168	228192	228216	228240	228264	228288	228312	228336	228360	228384	35	1 = 5
25	10. 228408	228432	228456	228480	228504	228528	228552	228576	228601	228625	228649	228673	34	2. 10
26	10. 228697	228721	228745	228769	228793	228817	228841	228865	228889	228913	228937	228961	33	3. 14
27	10. 228985	229009	229033	229057	229081	229105	229130	229154	229178	229202	229226	229250	32	4. 19
28	10. 229274	229298	229322	229346	229370	229394	229418	229442	229466	229490	229514	229539	31	1 = 5
29	10. 229563	229587	229611	229635	229659	229683	229707	229731	229755	229779	229803	229827	30	2. 10
30	10. 229851	229876	229900	229924	229948	229972	229996	230020	230044	230068	230092	230116	29	3. 14
31	10. 230140	230164	230189	230213	230237	230261	230285	230309	230333	230357	230381	230405	28	4. 19
32	10. 230429	230454	230478	230502	230526	230550	230574	230598	230622	230646	230670	230694	27	1 = 5
33	10. 230719	230743	230767	230791	230815	230839	230863	230887	230911	230935	230960	230984	26	2. 10
34	10. 231008	231032	231056	231080	231104	231128	231152	231176	231201	231225	231249	231273	25	3. 14
35	10. 231297	231321	231345	231369	231393	231418	231442	231466	231490	231514	231538	231562	24	4. 19
36	10. 231586	231611	231635	231659	231683	231707	231731	231755	231779	231804	231828	231852	23	1 = 5
37	10. 231876	231900	231924	231948	231972	231997	232021	232045	232069	232093	232117	232141	22	2. 10
38	10. 232166	232190	232214	232238	232262	232286	232310	232334	232359	232383	232407	232431	21	3. 14
39	10. 232455	232479	232503	232528	232552	232576	232600	232624	232648	232673	232697	232721	20	4. 19
40	10. 232745	232769	232793	232817	232842	232866	232890	232914	232938	232962	232987	233011	19	1 = 5
41	10. 233035	233059	233083	233107	233131	233156	233180	233204	233228	233252	233276	233301	18	2. 10
42	10. 233325	233349	233373	233397	233421	233446	233470	233494	233518	233542	233567	233591	17	3. 15
43	10. 233615	233639	233663	233687	233712	233736	233760	233784	233808	233832	233857	233881	16	4. 19
44	10. 233905	233929	233953	233978	234002	234026	234050	234074	234099	234123	234147	234171	15	1 = 5
45	10. 234195	234219	234244	234268	234292	234316	234340	234365	234389	234413	234437	234461	14	2. 10
46	10. 234486	234510	234534	234558	234582	234607	234631	234655	234679	234703	234728	234752	13	3. 15
47	10. 234776	234800	234824	234849	234873	234897	234921	234946	234970	234994	235018	235042	12	4. 19
48	10. 235067	235091	235115	235139	235163	235188	235212	235236	235260	235285	235309	235333	11	1 = 5
49	10. 235357	235381	235406	235430	235454	235478	235503	235527	235551	235575	235599	235624	10	2. 10
50	10. 235648	235672	235696	235721	235745	235769	235793	235818	235842	235866	235890	235915	9	3. 15
51	10. 235939	235963	235987	236012	236036	236060	236084	236108	236133	236157	236181	236205	8	4. 19
52	10. 236230	236254	236278	236302	236327	236351	236375	236399	236424	236448	236472	236496	7	1 = 5
53	10. 236521	236545	236569	236593	236618	236642	236666	236691	236715	236739	236763	236788	6	2. 10
54	10. 236812	236836	236860	236885	236909	236933	236957	236982	237006	237030	237055	237079	5	3. 15
55	10. 237103	237127	237152	237176	237200	237224	237249	237273	237297	237322	237346	237370	4	4. 19
56	10. 237394	237419	237443	237467	237491	237516	237540	237564	237589	237613	237637	237661	3	1 = 5
57	10. 237686	237710	237734	237759	237783	237807	237832	237856	237880	237904	237929	237953	2	2. 10
58	10. 237977	238002	238026	238050	238074	238099	238123	238147	238172	238196	238220	238245	1	3. 15
59	10. 238269	238293	238317	238342	238366	238390	238415	238439	238463	238488	238512	238536	0	4. 19
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 30 degrees, or Tangent of 120 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 60 degrees, or Co-tangent of 150 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20′	25″	30′	35″	40″	45″	50″	55″		
0	10. 238561	238585	238609	238634	238658	238682	238706	238731	238755	238779	238804	238828	59	1″ =
1	10. 238852	238877	238901	238925	238950	238974	238998	239023	239047	239071	239096	239120	58	2.
2	10. 239144	239169	239193	239217	239242	239266	239290	239315	239339	239363	239388	239412	57	3.
3	10. 239436	239461	239485	239509	239534	239558	239582	239607	239631	239655	239680	239704	56	4.
4	10. 239728	239753	239777	239801	239826	239850	239874	239899	239923	239947	239972	239996	55	1 =
5	10. 240021	240045	240069	240094	240118	240142	240167	240191	240215	240240	240264	240288	54	2.
6	10. 240313	240337	240362	240386	240410	240435	240459	240483	240508	240532	240556	240581	53	3.
7	10. 240605	240630	240654	240678	240703	240727	240751	240776	240800	240825	240849	240873	52	4.
8	10. 240898	240922	240946	240971	240995	241020	241044	241068	241093	241117	241142	241166	51	1 =
9	10. 241190	241215	241239	241263	241288	241312	241337	241361	241385	241410	241434	241459	50	2.
10	10. 241483	241507	241532	241556	241581	241605	241629	241654	241678	241703	241727	241751	49	3.
11	10. 241776	241800	241825	241849	241873	241898	241922	241947	241971	241995	242020	242044	48	4.
12	10. 242069	242093	242117	242142	242166	242191	242215	242240	242264	242288	242313	242337	47	1 =
13	10. 242362	242386	242411	242435	242459	242484	242508	242533	242557	242581	242606	242630	46	2.
14	10. 242655	242679	242704	242728	242752	242777	242801	242826	242850	242875	242899	242923	45	3.
15	10. 242948	242972	242997	243021	243046	243070	243095	243119	243143	243168	243192	243217	44	4.
16	10. 243241	243266	243290	243315	243339	243363	243388	243412	243437	243461	243486	243510	43	1 =
17	10. 243535	243559	243584	243608	243632	243657	243681	243706	243730	243755	243779	243804	42	2.
18	10. 243828	243853	243877	243901	243926	243950	243975	243999	244024	244048	244073	244097	41	3.
19	10. 244122	244146	244171	244195	244220	244244	244269	244293	244317	244342	244366	244391	40	4.
20	10. 244415	244440	244464	244489	244513	244538	244562	244587	244611	244636	244660	244685	39	1 =
21	10. 244709	244734	244758	244783	244807	244832	244856	244881	244905	244930	244954	244979	38	2.
22	10. 245003	245028	245052	245077	245101	245126	245150	245175	245199	245224	245248	245273	37	3.
23	10. 245297	245322	245346	245371	245395	245420	245444	245469	245493	245518	245542	245567	36	4.
24	10. 245591	245616	245640	245665	245689	245714	245738	245763	245787	245812	245836	245861	35	1 =
25	10. 245885	245910	245934	245959	245983	246008	246033	246057	246082	246106	246131	246155	34	2.
26	10. 246180	246204	246229	246253	246278	246302	246327	246351	246376	246400	246425	246450	33	3.
27	10. 246474	246499	246523	246548	246572	246597	246621	246646	246670	246695	246719	246744	32	4.
28	10. 246769	246793	246818	246842	246867	246891	246916	246940	246965	246990	247014	247039	31	1 =
29	10. 247063	247088	247112	247137	247161	247186	247211	247235	247260	247284	247309	247333	30	2.
30	10. 247358	247382	247407	247432	247456	247481	247505	247530	247554	247579	247604	247628	29	3.
31	10. 247653	247677	247702	247726	247751	247776	247800	247825	247849	247874	247898	247923	28	4.
32	10. 247948	247972	247997	248021	248046	248071	248095	248120	248144	248169	248193	248218	27	1 =
33	10. 248243	248267	248292	248316	248341	248366	248390	248415	248439	248464	248489	248513	26	2.
34	10. 248538	248562	248587	248612	248636	248661	248685	248710	248735	248759	248784	248808	25	3.
35	10 248833	248858	248882	248907	248931	248956	248981	249005	249030	249055	249079	249104	24	4.
36	10. 249128	249153	249178	249202	249227	249251	249276	249301	249325	249350	249375	249399	23	1 =
37	10. 249424	249448	249473	249498	249522	249547	249572	249596	249621	249645	249670	249695	22	2.
38	10. 249719	249744	249769	249793	249818	249843	249867	249892	249916	249941	249966	249990	21	3.
39	10. 250015	250040	250064	250089	250114	250138	250163	250187	250212	250237	250261	250286	20	4.
40	10. 250311	250335	250360	250385	250409	250434	250459	250483	250508	250533	250557	250582	19	1 =
41	10. 250607	250631	250656	250681	250705	250730	250755	250779	250804	250829	250853	250878	18	2.
42	10. 250903	250927	250952	250977	251001	251026	251051	251075	251100	251125	251149	251174	17	3.
43	10. 251199	251223	251248	251273	251297	251322	251347	251371	251396	251421	251445	251470	16	4.
44	10. 251495	251519	251544	251569	251594	251618	251643	251668	251692	251717	251742	251766	15	1 =
45	10. 251791	251816	251840	251865	251890	251915	251939	251964	251989	252013	252038	252063	14	2.
46	10. 252087	252112	252137	252162	252186	252211	252236	252260	252285	252310	252335	252359	13	3.
47	10. 252384	252409	252433	252458	252483	252507	252532	252557	252582	252606	252631	252656	12	4.
48	10. 252681	252705	252730	252755	252779	252804	252829	252854	252878	252903	252928	252952	11	1 =
49	10. 252977	253002	253027	253051	253076	253101	253126	253150	253175	253200	253225	253249	10	2.
50	10. 253274	253299	253324	253348	253373	253398	253422	253447	253472	253497	253521	253546	9	3.
51	10. 253571	253596	253620	253645	253670	253695	253719	253744	253769	253794	253818	253843	8	4.
52	10. 253868	253893	253917	253942	253967	253992	254017	254041	254066	254091	254116	254140	7	1 =
53	10. 254165	254190	254215	254239	254264	254289	254314	254338	254363	254388	254413	254438	6	2.
54	10. 254462	254487	254512	254537	254561	254586	254611	254636	254661	254685	254710	254735	5	3.
55	10. 254760	254784	254809	254834	254859	254884	254908	254933	254958	254983	255008	255032	4	4.
56	10. 255057	255082	255107	255131	255156	255181	255206	255231	255255	255280	255305	255330	3	1 =
57	10. 255355	255379	255404	255429	255454	255479	255503	255528	255553	255578	255603	255628	2	2.
58	10. 255652	255677	255702	255727	255752	255776	255801	255826	255851	255876	255900	255925	1	3.
59	10. 255950	255975	256000	256025	256049	256074	256099	256124	256149	256173	256198	256223	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 29 degrees, or Tangent of 119 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 61 degrees, or Co-tangent of 151 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts.
0	10. 256248	256273	256298	256322	256347	256372	256397	256422	256447	256471	256496	256521	59	1″ = 5
1	10. 256546	256571	256596	256620	256645	256670	256695	256720	256745	256770	256794	256819	58	2. 10
2	10. 256844	256869	256894	256919	256943	256968	256993	257018	257043	257068	257093	257117	57	3. 15
3	10. 257142	257167	257192	257217	257242	257267	257291	257316	257341	257366	257391	257416	56	4. 20
4	10. 257441	257465	257490	257515	257540	257565	257590	257615	257640	257664	257689	257714	55	1 = 5
5	10. 257739	257764	257789	257814	257839	257863	257888	257913	257938	257963	257988	258013	54	2. 10
6	10. 258038	258062	258087	258112	258137	258162	258187	258212	258237	258262	258286	258311	53	3. 15
7	10. 258336	258361	258386	258411	258436	258461	258486	258510	258535	258560	258585	258610	52	4. 20
8	10. 258635	258660	258685	258710	258735	258759	258784	258809	258834	258859	258884	258909	51	1 = 5
9	10. 258934	258959	258984	259009	259033	259058	259083	259108	259133	259158	259183	259208	50	2. 10
10	10. 259233	259258	259283	259308	259332	259357	259382	259407	259432	259457	259482	259507	49	3. 15
11	10. 259532	259557	259582	259607	259632	259656	259681	259706	259731	259756	259781	259806	48	4. 20
12	10. 259831	259856	259881	259906	259931	259956	259981	260006	260031	260056	260080	260105	47	1 = 5
13	10. 260130	260155	260180	260205	260230	260255	260280	260305	260330	260355	260380	260405	46	2. 10
14	10. 260430	260455	260480	260505	260530	260555	260579	260604	260629	260654	260679	260704	45	3. 15
15	10. 260729	260754	260779	260804	260829	260854	260879	260904	260929	260954	260979	261004	44	4. 20
16	10. 261029	261054	261079	261104	261129	261154	261179	261204	261229	261254	261279	261304	43	1 = 5
17	10. 261329	261354	261379	261404	261429	261454	261479	261504	261529	261554	261579	261604	42	2. 10
18	10. 261629	261654	261678	261703	261728	261753	261778	261803	261828	261853	261878	261903	41	3. 15
19	10. 261928	261953	261978	262003	262028	262054	262079	262104	262129	262154	262179	262204	40	4. 20
20	10. 262229	262254	262279	262304	262329	262354	262379	262404	262429	262454	262479	262504	39	1 = 5
21	10. 262529	262554	262579	262604	262629	262654	262679	262704	262729	262754	262779	262804	38	2. 10
22	10. 262829	262854	262879	262904	262929	262954	262979	263004	263029	263054	263079	263104	37	3. 15
23	10. 263129	263155	263180	263205	263230	263255	263280	263305	263330	263355	263380	263405	36	4. 20
24	10. 263430	263455	263480	263505	263530	263555	263580	263605	263630	263655	263681	263706	35	1 = 5
25	10. 263731	263756	263781	263806	263831	263856	263881	263906	263931	263956	263981	264006	34	2. 10
26	10. 264031	264056	264082	264107	264132	264157	264182	264207	264232	264257	264282	264307	33	3. 15
27	10. 264332	264357	264382	264408	264433	264458	264483	264508	264533	264558	264583	264608	32	4. 20
28	10. 264633	264658	264683	264709	264734	264759	264784	264809	264834	264859	264884	264909	31	1 = 5
29	10. 264934	264959	264985	265010	265035	265060	265085	265110	265135	265160	265185	265210	30	2. 10
30	10. 265236	265261	265286	265311	265336	265361	265386	265411	265436	265462	265487	265512	29	3. 15
31	10. 265537	265562	265587	265612	265637	265662	265688	265713	265738	265763	265788	265813	28	4. 20
32	10. 265838	265863	265889	265914	265939	265964	265989	266014	266039	266064	266090	266115	27	1 = 5
33	10. 266140	266165	266190	266215	266240	266266	266291	266316	266341	266366	266391	266416	26	2. 10
34	10. 266442	266467	266492	266517	266542	266567	266592	266618	266643	266668	266693	266718	25	3. 15
35	10. 266743	266768	266794	266819	266844	266869	266894	266919	266945	266970	266995	267020	24	4. 20
36	10. 267045	267070	267096	267121	267146	267171	267196	267221	267247	267272	267297	267322	23	1 = 5
37	10. 267347	267372	267398	267423	267448	267473	267498	267523	267549	267574	267599	267624	22	2. 10
38	10. 267649	267675	267700	267725	267750	267775	267800	267826	267851	267876	267901	267926	21	3. 15
39	10. 267952	267977	268002	268027	268052	268078	268103	268128	268153	268178	268204	268229	20	4. 20
40	10. 268254	268279	268304	268330	268355	268380	268405	268430	268456	268481	268506	268531	19	1 = 5
41	10. 268556	268582	268607	268632	268657	268682	268708	268733	268758	268783	268809	268834	18	2. 10
42	10. 268859	268884	268909	268935	268960	268985	269010	269036	269061	269086	269111	269136	17	3. 15
43	10. 269162	269187	269212	269237	269263	269288	269313	269338	269364	269389	269414	269439	16	4. 20
44	10. 269465	269490	269515	269540	269565	269591	269616	269641	269666	269692	269717	269742	15	1 = 5
45	10. 269767	269793	269818	269843	269868	269894	269919	269944	269969	269995	270020	270045	14	2. 10
46	10. 270070	270096	270121	270146	270172	270197	270222	270247	270273	270298	270323	270348	13	3. 15
47	10. 270374	270399	270424	270449	270475	270500	270525	270551	270576	270601	270626	270652	12	4. 20
48	10. 270677	270702	270728	270753	270778	270803	270829	270854	270879	270904	270930	270955	11	1 = 5
49	10. 270980	271006	271031	271056	271082	271107	271132	271157	271183	271208	271233	271259	10	2. 10
50	10. 271284	271309	271334	271360	271385	271410	271436	271461	271486	271512	271537	271562	9	3. 15
51	10. 271588	271613	271638	271663	271689	271714	271739	271765	271790	271815	271841	271866	8	4. 20
52	10. 271891	271917	271942	271967	271993	272018	272043	272069	272094	272119	272144	272170	7	1 = 5
53	10. 272195	272220	272246	272271	272296	272322	272347	272372	272398	272423	272448	272474	6	2. 10
54	10. 272499	272524	272550	272575	272600	272626	272651	272677	272702	272727	272753	272778	5	3. 15
55	10. 272803	272829	272854	272879	272905	272930	272955	272981	273006	273031	273057	273082	4	4. 20
56	10. 273107	273133	273158	273184	273209	273234	273260	273285	273310	273336	273361	273386	3	1 = 5
57	10. 273412	273437	273463	273488	273513	273539	273564	273589	273615	273640	273666	273691	2	2. 10
58	10. 273716	273742	273767	273792	273818	273843	273869	273894	273919	273945	273970	273995	1	3. 15
59	10. 274021	274046	274072	274097	274122	274148	274173	274199	274224	274249	274275	274300	0	4. 20
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-tangent of 28 degrees, or Tangent of 118 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 62 degrees, or Co-tangent of 152 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 274326	274351	274376	274402	274427	274453	274478	274503	274529	274554	274580	274605	59	1″ =
1	10. 274630	274656	274681	274707	274732	274757	274783	274808	274834	274859	274885	274910	58	2.
2	10. 274935	274961	274986	275012	275037	275062	275088	275113	275139	275164	275190	275215	57	3.
3	10. 275240	275266	275291	275317	275342	275368	275393	275418	275444	275469	275495	275520	56	4.
4	10. 275546	275571	275596	275622	275647	275673	275698	275724	275749	275775	275800	275825	55	1″ =
5	10. 275851	275876	275902	275927	275953	275978	276004	276029	276055	276080	276105	276131	54	2.
6	10. 276156	276182	276207	276233	276258	276284	276309	276335	276360	276385	276411	276436	53	3.
7	10. 276462	276487	276513	276538	276564	276589	276615	276640	276666	276691	276717	276742	52	4.
8	10. 276768	276793	276819	276844	276869	276895	276920	276946	276971	276997	277022	277048	51	1″ =
9	10. 277073	277099	277124	277150	277175	277201	277226	277252	277277	277303	277328	277354	50	2.
10	10. 277379	277405	277430	277456	277481	277507	277532	277558	277583	277609	277634	277660	49	3.
11	10. 277685	277711	277736	277762	277787	277813	277838	277864	277889	277915	277940	277966	48	4.
12	10. 277991	278017	278042	278068	278094	278119	278145	278170	278196	278221	278247	278272	47	1″ =
13	10. 278298	278323	278349	278374	278400	278425	278451	278476	278502	278528	278553	278579	46	2.
14	10. 278604	278630	278655	278681	278706	278732	278757	278783	278808	278834	278860	278885	45	3.
15	10. 278911	278936	278962	278987	279013	279038	279064	279089	279115	279141	279166	279192	44	4.
16	10. 279217	279243	279268	279294	279320	279345	279371	279396	279422	279447	279473	279498	43	1″ =
17	10. 279524	279550	279575	279601	279626	279652	279677	279703	279729	279754	279780	279805	42	2.
18	10. 279831	279857	279882	279908	279933	279959	279984	280010	280036	280061	280087	280112	41	3.
19	10. 280138	280164	280189	280215	280240	280266	280292	280317	280343	280368	280394	280419	40	4.
20	10. 280445	280471	280496	280522	280547	280573	280599	280624	280650	280676	280701	280727	39	1″ =
21	10. 280752	280778	280804	280829	280855	280880	280906	280932	280957	280983	281008	281034	38	2.
22	10. 281060	281085	281111	281137	281162	281188	281213	281239	281265	281290	281316	281342	37	3.
23	10. 281367	281393	281418	281444	281470	281495	281521	281547	281572	281598	281624	281649	36	4.
24	10. 281675	281701	281726	281752	281777	281803	281829	281854	281880	281906	281931	281957	35	1″ =
25	10. 281983	282008	282034	282060	282085	282111	282137	282162	282188	282214	282239	282265	34	2.
26	10. 282291	282316	282342	282367	282393	282419	282444	282470	282496	282521	282547	282573	33	3.
27	10. 282599	282624	282650	282676	282701	282727	282753	282778	282804	282830	282855	282881	32	4.
28	10. 282907	282932	282958	282984	283009	283035	283061	283086	283112	283138	283164	283189	31	1″ =
29	10. 283215	283241	283266	283292	283318	283343	283369	283395	283420	283446	283472	283498	30	2.
30	10. 283523	283549	283575	283600	283626	283652	283678	283703	283729	283755	283780	283806	29	3.
31	10. 283832	283857	283883	283909	283935	283960	283986	284012	284038	284063	284089	284115	28	4.
32	10. 284140	284166	284192	284218	284243	284269	284295	284321	284346	284372	284398	284423	27	1″ =
33	10. 284449	284475	284501	284526	284552	284578	284604	284629	284655	284681	284707	284732	26	2.
34	10. 284758	284784	284810	284835	284861	284887	284913	284938	284964	284990	285016	285041	25	3.
35	10. 285067	285093	285119	285144	285170	285196	285222	285247	285273	285299	285325	285350	24	4.
36	10. 285376	285402	285428	285454	285479	285505	285531	285557	285582	285608	285634	285660	23	1″ =
37	10. 285685	285711	285737	285763	285789	285814	285840	285866	285892	285918	285943	285969	22	2.
38	10. 285995	286021	286046	286072	286098	286124	286150	286175	286201	286227	286253	286279	21	3.
39	10. 286304	286330	286356	286382	286408	286433	286459	286485	286511	286537	286562	286588	20	4.
40	10. 286614	286640	286666	286691	286717	286743	286769	286795	286821	286846	286872	286898	19	1″ =
41	10. 286924	286950	286975	287001	287027	287053	287079	287105	287130	287156	287182	287208	18	2.
42	10. 287234	287260	287285	287311	287337	287363	287389	287415	287440	287466	287492	287518	17	3.
43	10. 287544	287570	287595	287621	287647	287673	287699	287725	287750	287776	287802	287828	16	4.
44	10. 287854	287880	287906	287931	287957	287983	288009	288035	288061	288087	288112	288138	15	1″ =
45	10. 288164	288190	288216	288242	288268	288294	288319	288345	288371	288397	288423	288449	14	2.
46	10. 288475	288500	288526	288552	288578	288604	288630	288656	288682	288707	288733	288759	13	3.
47	10. 288785	288811	288837	288863	288889	288915	288940	288966	288992	289018	289044	289070	12	4.
48	10. 289096	289122	289148	289174	289199	289225	289251	289277	289303	289329	289355	289381	11	1″ =
49	10. 289407	289433	289458	289484	289510	289536	289562	289588	289614	289640	289666	289692	10	2.
50	10. 289718	289743	289769	289795	289821	289847	289873	289899	289925	289951	289977	290003	9	3.
51	10. 290029	290055	290080	290106	290132	290158	290184	290210	290236	290262	290288	290314	8	4.
52	10. 290340	290366	290392	290418	290444	290470	290495	290521	290547	290573	290599	290625	7	1″ =
53	10. 290651	290677	290703	290729	290755	290781	290807	290833	290859	290885	290911	290937	6	2.
54	10. 290963	290989	291015	291040	291066	291092	291118	291144	291170	291196	291222	291248	5	3.
55	10. 291274	291300	291326	291352	291378	291404	291430	291456	291482	291508	291534	291560	4	4.
56	10. 291586	291612	291638	291664	291690	291716	291742	291768	291794	291820	291846	291872	3	1″ =
57	10. 291898	291924	291950	291976	292002	292028	292054	292080	292106	292132	292158	292184	2	2.
58	10. 292210	292236	292262	292288	292314	292340	292366	292392	292418	292444	292470	292496	1	3.
59	10. 292522	292548	292574	292600	292626	292652	292678	292704	292730	292756	292782	292808	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 27 degrees, or Tangent of 117 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
	Tangent of 63 degrees, or Co-tangent of 153 degrees.													
0	10. 292834	292860	292886	292912	292938	292964	292990	293016	293042	293068	293094	293120	59	1″ = 5
1	10. 293146	293172	293199	293225	293251	293277	293303	293329	293355	293381	293407	293433	58	2. 10
2	10. 293459	293485	293511	293537	293563	293589	293615	293641	293667	293693	293719	293746	57	3. 16
3	10. 293772	293798	293824	293850	293876	293902	293928	293954	293980	294006	294032	294058	56	4. 21
4	10. 294084	294110	294137	294163	294189	294215	294241	294267	294293	294319	294345	294371	55	1 = 5
5	10. 294397	294423	294449	294476	294502	294528	294554	294580	294606	294632	294658	294684	54	2. 10
6	10. 294710	294736	294762	294789	294815	294841	294867	294893	294919	294945	294971	294997	53	3. 16
7	10. 295023	295050	295076	295102	295128	295154	295180	295206	295232	295258	295285	295311	52	4. 21
8	10. 295337	295363	295389	295415	295441	295467	295493	295520	295546	295572	295598	295624	51	1 = 5
9	10. 295650	295676	295702	295729	295755	295781	295807	295833	295859	295885	295912	295938	50	2. 10
10	10. 295964	295990	296016	296042	296068	296094	296121	296147	296173	296199	296225	296251	49	3. 16
11	10. 296277	296304	296330	296356	296382	296408	296434	296461	296487	296513	296539	296565	48	4. 21
12	10. 296591	296617	296644	296670	296696	296722	296748	296774	296801	296827	296853	296879	47	1 = 5
13	10. 296905	296931	296958	296984	297010	297036	297062	297089	297115	297141	297167	297193	46	2. 10
14	10. 297219	297246	297272	297298	297324	297350	297377	297403	297429	297455	297481	297507	45	3. 16
15	10. 297534	297560	297586	297612	297638	297665	297691	297717	297743	297769	297796	297822	44	4. 21
16	10. 297848	297874	297900	297927	297953	297979	298005	298031	298058	298084	298110	298136	43	1 = 5
17	10. 298163	298189	298215	298241	298267	298294	298320	298346	298372	298399	298425	298451	42	2. 11
18	10. 298477	298503	298530	298556	298582	298608	298635	298661	298687	298713	298740	298766	41	3. 16
19	10. 298792	298818	298844	298871	298897	298923	298949	298976	299002	299028	299054	299081	40	4. 21
20	10. 299107	299133	299159	299186	299212	299238	299264	299291	299317	299343	299369	299396	39	1 = 5
21	10. 299422	299448	299475	299501	299527	299553	299580	299606	299632	299658	299685	299711	38	2. 11
22	10. 299737	299763	299790	299816	299842	299869	299895	299921	299947	299974	300000	300026	37	3. 16
23	10. 300053	300079	300105	300131	300158	300184	300210	300237	300263	300289	300315	300342	36	4. 21
24	10. 300368	300394	300421	300447	300473	300499	300526	300552	300578	300605	300631	300657	35	1 = 5
25	10. 300684	300710	300736	300763	300789	300815	300841	300868	300894	300920	300947	300973	34	2. 11
26	10. 300999	301026	301052	301078	301105	301131	301157	301184	301210	301236	301263	301289	33	3. 16
27	10. 301315	301342	301368	301394	301421	301447	301473	301500	301526	301552	301579	301605	32	4. 21
28	10. 301631	301658	301684	301710	301737	301763	301789	301816	301842	301868	301895	301921	31	1 = 5
29	10. 301947	301974	302000	302026	302053	302079	302106	302132	302158	302185	302211	302237	30	2. 11
30	10. 302264	302290	302316	302343	302369	302396	302422	302448	302475	302501	302527	302554	29	3. 16
31	10. 302580	302607	302633	302659	302686	302712	302738	302765	302791	302818	302844	302870	28	4. 21
32	10. 302897	302923	302949	302976	303002	303029	303055	303081	303108	303134	303161	303187	27	1 = 5
33	10. 303213	303240	303266	303293	303319	303345	303372	303398	303425	303451	303477	303504	26	2. 11
34	10. 303530	303557	303583	303610	303636	303662	303689	303715	303742	303768	303794	303821	25	3. 16
35	10. 303847	303874	303900	303927	303953	303979	304006	304032	304059	304085	304112	304138	24	4. 21
36	10. 304164	304191	304217	304244	304270	304297	304323	304349	304376	304402	304429	304455	23	1 = 5
37	10. 304482	304508	304535	304561	304587	304614	304640	304667	304693	304720	304746	304773	22	2. 11
38	10. 304799	304826	304852	304878	304905	304931	304958	304984	305011	305037	305064	305090	21	3. 16
39	10. 305117	305143	305170	305196	305223	305249	305275	305302	305328	305355	305381	305408	20	4. 21
40	10. 305434	305461	305487	305514	305540	305567	305593	305620	305646	305673	305699	305726	19	1 = 5
41	10. 305752	305779	305805	305832	305858	305885	305911	305938	305964	305991	306017	306044	18	2. 11
42	10. 306070	306097	306123	306150	306176	306203	306229	306256	306282	306309	306335	306362	17	3. 16
43	10. 306388	306415	306441	306468	306494	306521	306547	306574	306600	306627	306653	306680	16	4. 21
44	10. 306707	306733	306760	306786	306813	306839	306866	306892	306919	306945	306972	306998	15	1 = 5
45	10. 307025	307051	307078	307105	307131	307158	307184	307211	307237	307264	307290	307317	14	2. 11
46	10. 307343	307370	307397	307423	307450	307476	307503	307529	307556	307582	307609	307636	13	3. 16
47	10. 307662	307689	307715	307742	307768	307795	307822	307848	307875	307901	307928	307954	12	4. 21
48	10. 307981	308008	308034	308061	308087	308114	308140	308167	308194	308220	308247	308273	11	1 = 5
49	10. 308300	308327	308353	308380	308406	308433	308460	308486	308513	308539	308566	308592	10	2. 11
50	10. 308619	308646	308672	308699	308725	308752	308779	308805	308832	308859	308885	308912	9	3. 16
51	10. 308938	308965	308991	309018	309045	309071	309098	309125	309151	309178	309205	309231	8	4. 21
52	10. 309258	309284	309311	309338	309364	309391	309418	309444	309471	309497	309524	309551	7	1 = 5
53	10. 309577	309604	309631	309657	309684	309710	309737	309764	309790	309817	309844	309870	6	2. 11
54	10. 309897	309924	309950	309977	310004	310030	310057	310084	310110	310137	310164	310190	5	3. 16
55	10. 310217	310243	310270	310297	310323	310350	310377	310403	310430	310457	310483	310510	4	4. 21
56	10. 310537	310563	310590	310617	310643	310670	310697	310724	310750	310777	310804	310830	3	1 = 5
57	10. 310857	310884	310910	310937	310964	310990	311017	311044	311070	311097	311124	311151	2	2. 11
58	10. 311177	311204	311231	311257	311284	311311	311337	311364	311391	311417	311444	311471	1	3. 16
59	10. 311498	311524	311551	311578	311604	311631	311658	311685	311711	311738	311765	311791	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 26 degrees, or Tangent of 116 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 64 degrees, or Co-tangent of 154 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 311818	311845	311872	311898	311925	311952	311979	312005	312032	312059	312085	312112	59	1″ = 5
1	10. 312139	312166	312192	312219	312246	312273	312299	312326	312353	312380	312406	312433	58	2. 11
2	10. 312460	312486	312513	312540	312567	312593	312620	312647	312674	312700	312727	312754	57	3. 16
3	10. 312781	312807	312834	312861	312888	312915	312941	312968	312995	313022	313048	313075	56	4. 21
4	10. 313102	313129	313155	313182	313209	313236	313263	313289	313316	313343	313370	313396	55	1 = 5
5	10. 313423	313450	313477	313504	313530	313557	313584	313611	313637	313664	313691	313718	54	2. 11
6	10. 313745	313771	313798	313825	313852	313879	313905	313932	313959	313986	314013	314039	53	3. 16
7	10. 314066	314093	314120	314147	314173	314200	314227	314254	314281	314307	314334	314361	52	4. 21
8	10. 314388	314415	314442	314468	314495	314522	314549	314576	314602	314629	314656	314683	51	1 = 5
9	10. 314710	314737	314763	314790	314817	314844	314871	314898	314924	314951	314978	315005	50	2. 11
10	10. 315032	315059	315086	315112	315139	315166	315193	315220	315247	315273	315300	315327	49	3. 16
11	10. 315354	315381	315408	315435	315461	315488	315515	315542	315569	315596	315623	315649	48	4. 21
12	10. 315676	315703	315730	315757	315784	315811	315838	315864	315891	315918	315945	315972	47	1 = 5
13	10. 315999	316026	316053	316079	316106	316133	316160	316187	316214	316241	316268	316295	46	2. 11
14	10. 316321	316348	316375	316402	316429	316456	316483	316510	316537	316563	316590	316617	45	3. 16
15	10. 316644	316671	316698	316725	316752	316779	316806	316833	316859	316886	316913	316940	44	4. 21
16	10. 316967	316994	317021	317048	317075	317102	317129	317156	317182	317209	317236	317263	43	1 = 5
17	10. 317290	317317	317344	317371	317398	317425	317452	317479	317506	317533	317560	317586	42	2. 11
18	10. 317613	317640	317667	317694	317721	317748	317775	317802	317829	317856	317883	317910	41	3. 16
19	10. 317937	317964	317991	318018	318045	318072	318099	318125	318152	318179	318206	318233	40	4. 21
20	10. 318260	318287	318314	318341	318368	318395	318422	318449	318476	318503	318530	318557	39	1 = 5
21	10. 318584	318611	318638	318665	318692	318719	318746	318773	318800	318827	318854	318881	38	2. 11
22	10. 318908	318935	318962	318989	319016	319043	319070	319097	319124	319151	319178	319205	37	3. 16
23	10. 319232	319259	319286	319313	319340	319367	319394	319421	319448	319475	319502	319529	36	4. 21
24	10. 319556	319583	319610	319637	319664	319691	319718	319745	319772	319799	319826	319853	35	1 = 5
25	10. 319880	319907	319934	319961	319988	320015	320042	320069	320096	320123	320151	320178	34	2. 11
26	10. 320205	320232	320259	320286	320313	320340	320367	320394	320421	320448	320475	320502	33	3. 16
27	10. 320529	320556	320583	320610	320637	320664	320692	320719	320746	320773	320800	320827	32	4. 21
28	10. 320854	320881	320908	320935	320962	320989	321016	321043	321070	321098	321125	321152	31	1 = 5
29	10. 321179	321206	321233	321260	321287	321314	321341	321368	321395	321423	321450	321477	30	2. 11
30	10. 321504	321531	321558	321585	321612	321639	321666	321694	321721	321748	321775	321802	29	3. 16
31	10. 321829	321856	321883	321910	321937	321965	321992	322019	322046	322073	322100	322127	28	4. 21
32	10. 322154	322182	322209	322236	322263	322290	322317	322344	322371	322398	322426	322453	27	1 = 5
33	10. 322480	322507	322534	322561	322588	322616	322643	322670	322697	322724	322751	322778	26	2. 11
34	10. 322806	322833	322860	322887	322914	322941	322968	322996	323023	323050	323077	323104	25	3. 16
35	10. 323131	323159	323186	323213	323240	323267	323294	323321	323349	323376	323403	323430	24	4. 21
36	10. 323457	323484	323512	323539	323566	323593	323620	323648	323675	323702	323729	323756	23	1 = 5
37	10. 323783	323811	323838	323865	323892	323919	323947	323974	324001	324028	324055	324083	22	2. 11
38	10. 324110	324137	324164	324191	324218	324246	324273	324300	324327	324355	324382	324409	21	3. 16
39	10. 324436	324463	324491	324518	324545	324572	324599	324627	324654	324681	324708	324735	20	4. 21
40	10. 324763	324790	324817	324844	324872	324899	324926	324953	324981	325008	325035	325062	19	1 = 5
41	10. 325089	325117	325144	325171	325198	325226	325253	325280	325307	325335	325362	325389	18	2. 11
42	10. 325416	325444	325471	325498	325525	325553	325580	325607	325634	325662	325689	325716	17	3. 16
43	10. 325743	325771	325798	325825	325852	325880	325907	325934	325962	325989	326016	326043	16	4. 21
44	10. 326071	326098	326125	326152	326180	326207	326234	326262	326289	326316	326343	326371	15	1 = 5
45	10. 326398	326425	326453	326480	326507	326534	326562	326589	326616	326644	326671	326698	14	2. 11
46	10. 326725	326753	326780	326807	326835	326862	326889	326917	326944	326971	326999	327026	13	3. 16
47	10. 327053	327080	327108	327135	327162	327190	327217	327244	327272	327299	327326	327354	12	4. 21
48	10. 327381	327408	327436	327463	327490	327518	327545	327572	327600	327627	327654	327682	11	1 = 5
49	10. 327709	327736	327764	327791	327818	327846	327873	327900	327928	327955	327982	328010	10	2. 11
50	10. 328037	328064	328092	328119	328147	328174	328201	328229	328256	328283	328311	328338	9	3. 16
51	10. 328365	328393	328420	328448	328475	328502	328530	328557	328584	328612	328639	328667	8	4. 21
52	10. 328694	328721	328749	328776	328803	328831	328858	328886	328913	328940	328968	328995	7	1 = 5
53	10. 329023	329050	329077	329105	329132	329160	329187	329214	329242	329269	329297	329324	6	2. 11
54	10. 329351	329379	329406	329434	329461	329488	329516	329543	329571	329598	329625	329653	5	3. 16
55	10. 329680	329708	329735	329763	329790	329817	329845	329872	329900	329927	329955	329981	4	4. 21
56	10. 330009	330037	330064	330092	330119	330147	330174	330201	330229	330256	330284	330311	3	1 = 5
57	10. 330339	330366	330394	330421	330448	330476	330503	330531	330558	330586	330613	330641	2	2. 11
58	10. 330668	330696	330723	330750	330778	330805	330833	330860	330888	330915	330943	330970	1	3. 16
59	10. 330998	331025	331053	331080	331108	331135	331163	331190	331217	331245	331272	331300	0	4. 21
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-tangent of 25 degrees, or Tangent of 115 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 65 degrees, or Co-tangent of 155 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 331327	331355	331382	331410	331437	331465	331492	331520	331547	331575	331602	331630	59	1″ =
1	10. 331657	331685	331712	331740	331767	331795	331822	331850	331877	331905	331932	331960	58	2. 1
2	10. 331987	332015	332042	332070	332097	332125	332152	332180	332208	332235	332263	332290	57	3. 1
3	10. 332318	332345	332373	332400	332428	332455	332483	332510	332538	332565	332593	332620	56	4. 2
4	10. 332648	332676	332703	332731	332758	332786	332813	332841	332868	332896	332923	332951	55	1 =
5	10. 332979	333006	333034	333061	333089	333116	333144	333171	333199	333227	333254	333282	54	2. 1
6	10. 333309	333337	333364	333392	333420	333447	333475	333502	333530	333557	333585	333613	53	3. 1
7	10. 333640	333668	333695	333723	333750	333778	333806	333833	333861	333888	333916	333944	52	4. 2
8	10. 333971	333999	334026	334054	334082	334109	334137	334164	334192	334220	334247	334275	51	1 =
9	10. 334302	334330	334358	334385	334413	334440	334468	334496	334523	334551	334579	334606	50	2. 1
10	10. 334634	334661	334689	334717	334744	334772	334800	334827	334855	334882	334910	334938	49	3. 1
11	10. 334965	334993	335021	335048	335076	335103	335131	335159	335186	335214	335242	335269	48	4. 2
12	10. 335297	335325	335352	335380	335408	335435	335463	335491	335518	335546	335574	335601	47	1 =
13	10. 335629	335657	335684	335712	335740	335767	335795	335823	335850	335878	335906	335933	46	2. 1
14	10. 335961	335989	336016	336044	336072	336099	336127	336155	336182	336210	336238	336265	45	3. 1
15	10. 336293	336321	336348	336376	336404	336432	336459	336487	336515	336542	336570	336598	44	4. 2
16	10. 336625	336653	336681	336709	336736	336764	336792	336819	336847	336875	336903	336930	43	1 =
17	10. 336958	336986	337013	337041	337069	337097	337124	337152	337180	337207	337235	337263	42	2. 1
18	10. 337291	337318	337346	337374	337402	337429	337457	337485	337513	337540	337568	337596	41	3. 1
19	10. 337623	337651	337679	337707	337734	337762	337790	337818	337845	337873	337901	337929	40	4. 2
20	10. 337957	337984	338012	338040	338068	338095	338123	338151	338179	338206	338234	338262	39	1 =
21	10. 338290	338317	338345	338373	338401	338429	338456	338484	338512	338540	338567	338595	38	2. 1
22	10. 338623	338651	338679	338706	338734	338762	338790	338818	338845	338873	338901	338929	37	3. 1
23	10. 338957	338984	339012	339040	339068	339096	339123	339151	339179	339207	339235	339262	36	4. 2
24	10. 339290	339318	339346	339374	339402	339429	339457	339485	339513	339541	339568	339596	35	1 =
25	10. 339624	339652	339680	339708	339735	339763	339791	339819	339847	339875	339902	339930	34	2. 1
26	10. 339958	339986	340014	340042	340070	340097	340125	340153	340181	340209	340237	340264	33	3. 1
27	10. 340292	340320	340348	340376	340404	340432	340459	340487	340515	340543	340571	340599	32	4. 2
28	10. 340627	340655	340682	340710	340738	340766	340794	340822	340850	340878	340905	340933	31	1 =
29	10. 340961	340989	341017	341045	341073	341101	341129	341156	341184	341212	341240	341268	30	2. 1
30	10. 341296	341324	341352	341380	341408	341435	341463	341491	341519	341547	341575	341603	29	3. 1
31	10. 341631	341659	341687	341715	341742	341770	341798	341826	341854	341882	341910	341938	28	4. 2
32	10. 341966	341994	342022	342050	342078	342105	342133	342161	342189	342217	342245	342273	27	1 =
33	10. 342301	342329	342357	342385	342413	342441	342469	342497	342525	342553	342580	342608	26	2. 1
34	10. 342636	342664	342692	342720	342748	342776	342804	342832	342860	342888	342916	342944	25	3. 1
35	10. 342972	343000	343028	343056	343084	343112	343140	343168	343196	343224	343252	343280	24	4. 2
36	10. 343308	343336	343364	343392	343420	343448	343476	343504	343532	343560	343588	343616	23	1 =
37	10. 343644	343672	343700	343728	343756	343784	343812	343840	343868	343896	343924	343952	22	2. 1
38	10. 343980	344008	344036	344064	344092	344120	344148	344176	344204	344232	344260	344288	21	3. 1
39	10. 344316	344344	344372	344400	344428	344456	344484	344512	344540	344568	344596	344624	20	4. 2
40	10. 344652	344680	344708	344736	344764	344792	344820	344849	344877	344905	344933	344961	19	1 =
41	10. 344989	345017	345045	345073	345101	345129	345157	345185	345213	345241	345269	345297	18	2. 1
42	10. 345326	345354	345382	345410	345438	345466	345494	345522	345550	345578	345606	345634	17	3. 1
43	10. 345662	345691	345719	345747	345775	345803	345831	345859	345887	345915	345943	345971	16	4. 2
44	10. 346000	346028	346056	346084	346112	346140	346168	346196	346224	346252	346281	346309	15	1 =
45	10. 346337	346365	346393	346421	346449	346477	346506	346534	346562	346590	346618	346646	14	2. 1
46	10. 346674	346702	346731	346759	346787	346815	346843	346871	346899	346927	346956	346984	13	3. 1
47	10. 347012	347040	347068	347096	347124	347153	347181	347209	347237	347265	347293	347322	12	4. 2
48	10. 347350	347378	347406	347434	347462	347490	347519	347547	347575	347603	347631	347659	11	1 =
49	10. 347688	347716	347744	347772	347800	347828	347857	347885	347913	347941	347969	347998	10	2. 1
50	10. 348026	348054	348082	348110	348139	348167	348195	348223	348251	348279	348308	348336	9	3. 1
51	10. 348364	348392	348420	348449	348477	348505	348533	348562	348590	348618	348646	348674	8	4. 2
52	10. 348703	348731	348759	348787	348815	348844	348872	348900	348928	348957	348985	349013	7	1 =
53	10. 349041	349069	349098	349126	349154	349182	349211	349239	349267	349295	349324	349352	6	2. 1
54	10. 349380	349408	349437	349465	349493	349521	349550	349578	349606	349634	349663	349691	5	3. 1
55	10. 349719	349747	349776	349804	349832	349860	349889	349917	349945	349973	350002	350030	4	4. 2
56	10. 350058	350087	350115	350143	350171	350200	350228	350256	350284	350313	350341	350369	3	1 =
57	10. 350398	350426	350454	350483	350511	350539	350567	350596	350624	350652	350681	350709	2	2. 1
58	10. 350737	350765	350794	350822	350850	350879	350907	350935	350964	350992	351020	351049	1	3. 1
59	10. 351077	351105	351134	351162	351190	351219	351247	351275	351303	351332	351360	351388	0	4. 2
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 24 degrees, or Tangent of 114 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 66 degrees, or Co-tangent of 156 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Proper parts
0	10. 351417	351445	351473	351502	351530	351558	351587	351615	351644	351672	351700	351729	59	1″= 6
1	10. 351757	351785	351814	351842	351870	351899	351927	351955	351984	352012	352040	352069	58	2. 11
2	10. 352097	352126	352154	352182	352211	352239	352267	352296	352324	352352	352381	352409	57	3. 17
3	10. 352438	352466	352494	352523	352551	352579	352608	352636	352665	352693	352721	352750	56	4. 23
4	10. 352778	352807	352835	352863	352892	352920	352949	352977	353005	353034	353062	353091	55	1 = 6
5	10. 353119	353147	353176	353204	353233	353261	353289	353318	353346	353375	353403	353432	54	2. 11
6	10. 353460	353488	353517	353545	353574	353602	353631	353659	353687	353716	353744	353773	53	3. 17
7	10. 353801	353830	353858	353886	353915	353943	353972	354000	354029	354057	354086	354114	52	4. 23
8	10. 354142	354171	354199	354228	354256	354285	354313	354342	354370	354399	354427	354456	51	1 = 6
9	10. 354484	354512	354541	354569	354598	354626	354655	354683	354712	354740	354769	354797	50	2. 11
10	10. 354826	354854	354883	354911	354940	354968	354997	355025	355054	355082	355111	355139	49	3. 17
11	10. 355168	355196	355225	355253	355282	355310	355339	355367	355396	355424	355453	355481	48	4. 23
12	10. 355510	355538	355567	355595	355624	355652	355681	355709	355738	355766	355795	355823	47	1 = 6
13	10. 355852	355880	355909	355937	355966	355995	356023	356052	356080	356109	356137	356166	46	2. 11
14	10. 356194	356223	356251	356280	356308	356337	356366	356394	356423	356451	356480	356508	45	3. 17
15	10. 356537	356565	356594	356623	356651	356680	356708	356737	356765	356794	356823	356851	44	4. 23
16	10. 356880	356908	356937	356965	356994	357023	357051	357080	357108	357137	357165	357194	43	1 = 6
17	10. 357223	357251	357280	357308	357337	357366	357394	357423	357451	357480	357509	357537	42	2. 11
18	10. 357566	357594	357623	357652	357680	357709	357737	357766	357795	357823	357852	357881	41	3. 17
19	10. 357909	357938	357966	357995	358024	358052	358081	358109	358138	358167	358195	358224	40	4. 23
20	10. 358253	358281	358310	358339	358367	358396	358424	358453	358482	358510	358539	358568	39	1 = 6
21	10. 358596	358625	358654	358682	358711	358740	358768	358797	358826	358854	358883	358912	38	2. 11
22	10. 358940	358969	358998	359026	359055	359084	359112	359141	359170	359198	359227	359256	37	3. 17
23	10. 359284	359313	359342	359370	359399	359428	359456	359485	359514	359543	359571	359600	36	4. 23
24	10. 359629	359657	359686	359715	359743	359772	359801	359829	359858	359887	359916	359944	35	1 = 6
25	10. 359973	360002	360030	360059	360088	360117	360145	360174	360203	360231	360260	360289	34	2. 11
26	10. 360318	360346	360375	360404	360433	360461	360490	360519	360548	360576	360605	360634	33	3. 17
27	10. 360662	360691	360720	360749	360777	360806	360835	360864	360892	360921	360950	360979	32	4. 23
28	10. 361007	361036	361065	361094	361123	361151	361180	361209	361238	361266	361295	361324	31	1 = 6
29	10. 361353	361381	361410	361439	361468	361497	361525	361554	361583	361612	361640	361669	30	2. 11
30	10. 361698	361727	361756	361784	361813	361842	361871	361900	361928	361957	361986	362015	29	3. 17
31	10. 362044	362072	362101	362130	362159	362188	362216	362245	362274	362303	362332	362361	28	4. 23
32	10. 362389	362418	362447	362476	362505	362533	362562	362591	362620	362649	362678	362706	27	1 = 6
33	10. 362735	362764	362793	362822	362851	362880	362908	362937	362966	362995	363024	363053	26	2. 11
34	10. 363081	363110	363139	363168	363197	363226	363255	363283	363312	363341	363370	363399	25	3. 17
35	10. 363428	363457	363486	363514	363543	363572	363601	363630	363659	363688	363717	363745	24	4. 23
36	10. 363774	363803	363832	363861	363890	363919	363948	363976	364005	364034	364063	364092	23	1 = 6
37	10. 364121	364150	364179	364208	364237	364265	364294	364323	364352	364381	364410	364439	22	2. 11
38	10. 364468	364497	364526	364555	364584	364612	364641	364670	364699	364728	364757	364786	21	3. 17
39	10. 364815	364844	364873	364902	364931	364960	364989	365017	365046	365075	365104	365133	20	4. 23
40	10. 365162	365191	365220	365249	365278	365307	365336	365365	365394	365423	365452	365481	19	1 = 6
41	10. 365510	365539	365568	365597	365626	365654	365683	365712	365741	365770	365799	365828	18	2. 11
42	10. 365857	365886	365915	365944	365973	366002	366031	366060	366089	366118	366147	366176	17	3. 17
43	10. 366205	366234	366263	366292	366321	366350	366379	366408	366437	366466	366495	366524	16	4. 23
44	10. 366553	366582	366611	366640	366669	366698	366727	366756	366785	366814	366843	366872	15	1 = 6
45	10. 366901	366930	366959	366988	367018	367047	367076	367105	367134	367163	367192	367221	14	2. 11
46	10. 367250	367279	367308	367337	367366	367395	367424	367453	367482	367511	367540	367569	13	3. 17
47	10. 367598	367627	367657	367686	367715	367744	367773	367802	367831	367860	367889	367918	12	4. 23
48	10. 367947	367976	368005	368034	368064	368093	368122	368151	368180	368209	368238	368267	11	1 = 6
49	10. 368296	368325	368354	368384	368413	368442	368471	368500	368529	368558	368587	368616	10	2. 11
50	10. 368645	368675	368704	368733	368762	368791	368820	368849	368878	368907	368937	368966	9	3. 17
51	10. 368995	369024	369053	369082	369111	369140	369170	369199	369228	369257	369286	369315	8	4. 23
52	10. 369344	369374	369403	369432	369461	369490	369519	369548	369578	369607	369636	369665	7	1 = 6
53	10. 369694	369723	369752	369782	369811	369840	369869	369898	369927	369957	369986	370015	6	2. 11
54	10. 370044	370073	370102	370132	370161	370190	370219	370248	370278	370307	370336	370365	5	3. 17
55	10. 370394	370423	370453	370482	370511	370540	370569	370599	370628	370657	370686	370715	4	4. 23
56	10. 370745	370774	370803	370832	370861	370891	370920	370949	370978	371008	371037	371066	3	1 = 6
57	10. 371095	371124	371154	371183	371212	371241	371271	371300	371329	371358	371387	371417	2	2. 11
58	10. 371446	371475	371504	371534	371563	371592	371621	371651	371680	371709	371738	371768	1	3. 17
59	10. 371797	371826	371855	371885	371914	371943	371972	372002	372031	372060	372089	372119	0	4. 23
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts

Co-tangent of 23 degrees, or Tangent of 113 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 67 degrees, or Co-tangent of 157 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10.372148	372177	372207	372236	372265	372294	372324	372353	372382	372412	372441	372470	59	1″ =
1	10.372499	372529	372558	372587	372617	372646	372675	372704	372734	372763	372792	372822	58	2.
2	10.372851	372880	372910	372939	372968	372997	373027	373056	373085	373115	373144	373173	57	3.
3	10.373203	373232	373261	373291	373320	373349	373379	373408	373437	373467	373496	373525	56	4.
4	10.373555	373584	373613	373643	373672	373701	373731	373760	373789	373819	373848	373877	55	1 =
5	10.373907	373936	373965	373995	374024	374053	374083	374112	374142	374171	374200	374230	54	2.
6	10.374259	374288	374318	374347	374377	374406	374435	374465	374494	374523	374553	374582	53	3.
7	10.374612	374641	374670	374700	374729	374759	374788	374817	374847	374876	374905	374935	52	4.
8	10.374964	374994	375023	375053	375082	375111	375141	375170	375200	375229	375258	375288	51	1 =
9	10.375317	375347	375376	375405	375435	375464	375494	375523	375553	375582	375611	375641	50	2.
10	10.375670	375700	375729	375759	375788	375818	375847	375876	375906	375935	375965	375994	49	3.
11	10.376024	376053	376083	376112	376142	376171	376200	376230	376259	376289	376318	376348	48	4.
12	10.376377	376407	376436	376466	376495	376525	376554	376584	376613	376643	376672	376701	47	1 =
13	10.376731	376760	376790	376819	376849	376878	376908	376937	376967	376996	377026	377055	46	2.
14	10.377085	377114	377144	377173	377203	377232	377262	377291	377321	377350	377380	377410	45	3.
15	10.377439	377469	377498	377528	377557	377587	377616	377646	377675	377705	377734	377764	44	4.
16	10.377793	377823	377852	377882	377912	377941	377971	378000	378030	378059	378089	378118	43	1 =
17	10.378148	378177	378207	378237	378266	378296	378325	378355	378384	378414	378444	378473	42	2.
18	10.378503	378532	378562	378591	378621	378651	378680	378710	378739	378769	378798	378828	41	3.
19	10.378858	378887	378917	378946	378976	379006	379035	379065	379094	379124	379154	379183	40	4.
20	10.379213	379242	379272	379302	379331	379361	379390	379420	379450	379479	379509	379539	39	1 =
21	10.379568	379598	379627	379657	379687	379716	379746	379776	379805	379835	379864	379894	38	2.
22	10.379924	379953	379983	380013	380042	380072	380102	380131	380161	380191	380220	380250	37	3.
23	10.380279	380309	380339	380368	380398	380428	380457	380487	380517	380546	380576	380606	36	4.
24	10.380635	380665	380695	380724	380754	380784	380814	380843	380873	380903	380932	380962	35	1 =
25	10.380992	381021	381051	381081	381110	381140	381170	381200	381229	381259	381289	381318	34	2.
26	10.381348	381378	381407	381437	381467	381497	381526	381556	381586	381615	381645	381675	33	3.
27	10.381705	381734	381764	381794	381824	381853	381883	381913	381942	381972	382002	382032	32	4.
28	10.382061	382091	382121	382151	382180	382210	382240	382270	382299	382329	382359	382389	31	1 =
29	10.382418	382448	382478	382508	382537	382567	382597	382627	382657	382686	382716	382746	30	2.
30	10.382776	382805	382835	382865	382895	382925	382954	382984	383014	383044	383073	383103	29	3.
31	10.383133	383163	383193	383222	383252	383282	383312	383342	383371	383401	383431	383461	28	4.
32	10.383491	383521	383550	383580	383610	383640	383670	383699	383729	383759	383789	383819	27	1 =
33	10.383849	383878	383908	383938	383968	383998	384028	384057	384087	384117	384147	384177	26	2.
34	10.384207	384236	384266	384296	384326	384356	384386	384416	384445	384475	384505	384535	25	3.
35	10.384565	384595	384625	384654	384684	384714	384744	384774	384804	384834	384864	384893	24	4.
36	10.384923	384953	384983	385013	385043	385073	385103	385133	385162	385192	385222	385252	23	1 =
37	10.385282	385312	385342	385372	385402	385431	385461	385491	385521	385551	385581	385611	22	2.
38	10.385641	385671	385701	385731	385761	385790	385820	385850	385880	385910	385940	385970	21	3.
39	10.386000	386030	386060	386090	386120	386150	386180	386210	386239	386269	386299	386329	20	4.
40	10.386359	386389	386419	386449	386479	386509	386539	386569	386599	386629	386659	386689	19	1 =
41	10.386719	386749	386779	386809	386839	386869	386899	386929	386959	386989	387019	387049	18	2.
42	10.387079	387109	387139	387168	387198	387228	387258	387288	387318	387348	387378	387408	17	3.
43	10.387438	387468	387498	387528	387559	387589	387619	387649	387679	387709	387739	387769	16	4.
44	10.387799	387829	387859	387889	387919	387949	387979	388009	388039	388069	388099	388129	15	1 =
45	10.388159	388189	388219	388249	388279	388309	388339	388369	388399	388429	388459	388490	14	2.
46	10.388520	388550	388580	388610	388640	388670	388700	388730	388760	388790	388820	388850	13	3.
47	10.388880	388910	388941	388971	389001	389031	389061	389091	389121	389151	389181	389211	12	4.
48	10.389241	389271	389302	389332	389362	389392	389422	389452	389482	389512	389542	389573	11	1 =
49	10.389603	389633	389663	389693	389723	389753	389783	389813	389844	389874	389904	389934	10	2.
50	10.389964	389994	390024	390054	390085	390115	390145	390175	390205	390235	390265	390296	9	3.
51	10.390326	390356	390386	390416	390446	390476	390507	390537	390567	390597	390627	390657	8	4.
52	10.390688	390718	390748	390778	390808	390838	390869	390899	390929	390959	390989	391020	7	1 =
53	10.391050	391080	391110	391140	391170	391201	391231	391261	391291	391321	391352	391382	6	2.
54	10.391412	391442	391472	391503	391533	391563	391593	391623	391654	391684	391714	391744	5	3.
55	10.391775	391805	391835	391865	391895	391926	391956	391986	392016	392047	392077	392107	4	4.
56	10.392137	392167	392198	392228	392258	392288	392319	392349	392379	392409	392440	392470	3	1 =
57	10.392500	392530	392561	392591	392621	392652	392682	392712	392742	392773	392803	392833	2	2.
58	10.392863	392894	392924	392954	392984	393015	393045	393075	393106	393136	393166	393196	1	3.
59	10.393227	393257	393287	393318	393348	393378	393409	393439	393469	393499	393530	393560	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 22 degrees, or Tangent of 112 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 68 degrees, or Co-tangent of 158 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 393590	393621	393651	393681	393712	393742	393772	393803	393833	393863	393894	393924	59	1″ = 0.
1	10. 393954	393985	394015	394045	394076	394106	394136	394167	394197	394227	394258	394288	58	2. 1.
2	10. 394318	394349	394379	394409	394440	394470	394500	394531	394561	394591	394622	394652	57	3. 1.
3	10. 394683	394713	394743	394774	394804	394834	394865	394895	394926	394956	394986	395017	56	4. 2.
4	10. 395047	395077	395108	395138	395169	395199	395229	395260	395290	395321	395351	395381	55	1 = 0.
5	10. 395412	395442	395473	395503	395533	395564	395594	395625	395655	395685	395716	395746	54	2. 1.
6	10. 395777	395807	395838	395868	395898	395929	395959	395990	396020	396051	396081	396111	53	3. 1.
7	10. 396142	396172	396203	396233	396264	396294	396324	396355	396385	396416	396446	396477	52	4. 2.
8	10. 396507	396538	396568	396599	396629	396660	396690	396720	396751	396781	396812	396842	51	1 = 0.
9	10. 396873	396903	396934	396964	396995	397025	397056	397086	397117	397147	397178	397208	50	2. 1.
10	10. 397239	397269	397300	397330	397361	397391	397422	397452	397483	397513	397544	397574	49	3. 1.
11	10. 397605	397635	397666	397696	397727	397757	397788	397818	397849	397879	397910	397940	48	4. 2.
12	10. 397971	398001	398032	398063	398093	398124	398154	398185	398215	398246	398276	398307	47	1 = 0.
13	10. 398337	398368	398399	398429	398460	398490	398521	398551	398582	398612	398643	398674	46	2. 1.
14	10. 398704	398735	398765	398796	398826	398857	398888	398918	398949	398979	399010	399041	45	3. 1.
15	10. 399071	399102	399132	399163	399193	399224	399255	399285	399316	399346	399377	399408	44	4. 2.
16	10. 399438	399469	399499	399530	399561	399591	399622	399653	399683	399714	399744	399775	43	1 = 0.
17	10. 399806	399836	399867	399898	399928	399959	399989	400020	400051	400081	400112	400143	42	2. 1.
18	10. 400173	400204	400235	400265	400296	400327	400357	400388	400418	400449	400480	400510	41	3. 1.
19	10. 400541	400572	400602	400633	400664	400694	400725	400756	400786	400817	400848	400878	40	4. 2.
20	10. 400909	400940	400971	401001	401032	401063	401093	401124	401155	401185	401216	401247	39	1 = 0.
21	10. 401277	401308	401339	401370	401400	401431	401462	401492	401523	401554	401585	401615	38	2. 1.
22	10. 401646	401677	401707	401738	401769	401800	401830	401861	401892	401923	401953	401984	37	3. 1.
23	10. 402015	402045	402076	402107	402138	402168	402199	402230	402261	402291	402322	402353	36	4. 2.
24	10. 402384	402414	402445	402476	402507	402538	402568	402599	402630	402661	402691	402722	35	1 = 0.
25	10. 402753	402784	402814	402845	402876	402907	402938	402968	402999	403030	403061	403092	34	2. 1.
26	10. 403122	403153	403184	403215	403246	403276	403307	403338	403369	403400	403430	403461	33	3. 1.
27	10. 403492	403523	403554	403584	403615	403646	403677	403708	403739	403769	403800	403831	32	4. 2.
28	10. 403862	403893	403924	403954	403985	404016	404047	404078	404109	404140	404170	404201	31	1 = 0.
29	10. 404232	404263	404294	404325	404355	404386	404417	404448	404479	404510	404541	404572	30	2. 1.
30	10. 404602	404633	404664	404695	404726	404757	404788	404819	404849	404880	404911	404942	29	3. 1.
31	10. 404973	405004	405035	405066	405097	405127	405158	405189	405220	405251	405282	405313	28	4. 2.
32	10. 405344	405375	405406	405437	405467	405498	405529	405560	405591	405622	405653	405684	27	1 = 0.
33	10. 405715	405746	405777	405808	405839	405870	405900	405931	405962	405993	406024	406055	26	2. 1.
34	10. 406086	406117	406148	406179	406210	406241	406272	406303	406334	406365	406396	406427	25	3. 1.
35	10. 406458	406489	406520	406551	406582	406613	406644	406675	406705	406736	406767	406798	24	4. 2.
36	10. 406829	406860	406891	406922	406953	406984	407015	407046	407077	407108	407139	407170	23	1 = 0.
37	10. 407201	407232	407263	407294	407325	407356	407388	407419	407450	407481	407512	407543	22	2. 1.
38	10. 407574	407605	407636	407667	407698	407729	407760	407791	407822	407853	407884	407915	21	3. 1.
39	10. 407946	407977	408008	408039	408070	408101	408132	408163	408195	408226	408257	408288	20	4. 2.
40	10. 408319	408350	408381	408412	408443	408474	408505	408536	408567	408598	408630	408661	19	1 = 0.
41	10. 408692	408723	408754	408785	408816	408847	408878	408909	408940	408972	409003	409034	18	2. 1.
42	10. 409065	409096	409127	409158	409189	409220	409252	409283	409314	409345	409376	409407	17	3. 1.
43	10. 409438	409469	409501	409532	409563	409594	409625	409656	409687	409718	409750	409781	16	4. 2.
44	10. 409812	409843	409874	409905	409936	409968	409999	410030	410061	410092	410123	410155	15	1 = 0.
45	10. 410186	410217	410248	410279	410310	410342	410373	410404	410435	410466	410497	410529	14	2. 1.
46	10. 410560	410591	410622	410653	410685	410716	410747	410778	410809	410841	410872	410903	13	3. 1.
47	10. 410934	410965	410997	411028	411059	411090	411121	411153	411184	411215	411246	411278	12	4. 2.
48	10. 411309	411340	411371	411402	411434	411465	411496	411527	411559	411590	411621	411652	11	1 = 0.
49	10. 411684	411715	411746	411777	411809	411840	411871	411902	411934	411965	411996	412027	10	2. 1.
50	10. 412059	412090	412121	412153	412184	412215	412246	412278	412309	412340	412371	412403	9	3. 1.
51	10. 412434	412465	412497	412528	412559	412590	412622	412653	412684	412716	412747	412778	8	4. 2.
52	10. 412810	412841	412872	412903	412935	412966	412997	413029	413060	413091	413123	413154	7	1 = 0.
53	10. 413185	413217	413248	413279	413311	413342	413373	413405	413436	413467	413499	413530	6	2. 1.
54	10. 413561	413593	413624	413655	413687	413718	413749	413781	413812	413843	413875	413906	5	3. 1.
55	10. 413938	413969	414000	414032	414063	414094	414126	414157	414189	414220	414251	414283	4	4. 2.
56	10. 414314	414345	414377	414408	414440	414471	414502	414534	414565	414597	414628	414659	3	1 = 0.
57	10. 414691	414722	414754	414785	414816	414848	414879	414911	414942	414974	415005	415036	2	2. 1.
58	10. 415068	415099	415131	415162	415194	415225	415256	415288	415319	415351	415382	415414	1	3. 1.
59	10. 415445	415476	415508	415539	415571	415602	415634	415665	415697	415728	415760	415791	0	4. 2.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 21 degrees, or Tangent of 111 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 69 degrees, or Co-tangent of 159 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10.415823	415854	415885	415917	415948	415980	416011	416043	416074	416106	416137	416169	59	1″ = 6
1	10.416200	416232	416263	416295	416326	416358	416389	416421	416452	416484	416515	416547	58	2. 13
2	10.416578	416610	416641	416673	416704	416736	416767	416799	416830	416862	416893	416925	57	3. 19
3	10.416956	416988	417019	417051	417083	417114	417146	417177	417209	417240	417272	417303	56	4. 25
4	10.417335	417366	417398	417430	417461	417493	417524	417556	417587	417619	417650	417682	55	1 = 6
5	10.417714	417745	417777	417808	417840	417871	417903	417935	417966	417998	418029	418061	54	2. 13
6	10.418093	418124	418156	418187	418219	418250	418282	418314	418345	418377	418408	418440	53	3. 19
7	10.418472	418503	418535	418567	418598	418630	418661	418693	418725	418756	418788	418820	52	4. 25
8	10.418851	418883	418914	418946	418978	419009	419041	419073	419104	419136	419168	419199	51	1 = 6
9	10.419231	419262	419294	419326	419357	419389	419421	419452	419484	419516	419547	419579	50	2. 13
10	10.419611	419642	419674	419706	419737	419769	419801	419833	419864	419896	419928	419959	49	3. 19
11	10.419991	420023	420054	420086	420118	420149	420181	420213	420245	420276	420308	420340	48	4. 25
12	10.420371	420403	420435	420467	420498	420530	420562	420593	420625	420657	420689	420720	47	1 = 6
13	10.420752	420784	420816	420847	420879	420911	420943	420974	421006	421038	421070	421101	46	2. 13
14	10.421133	421165	421197	421228	421260	421292	421324	421355	421387	421419	421451	421482	45	3. 19
15	10.421514	421546	421578	421610	421641	421673	421705	421737	421768	421800	421832	421864	44	4. 25
16	10.421896	421927	421959	421991	422023	422055	422086	422118	422150	422182	422214	422245	43	1 = 6
17	10.422277	422309	422341	422373	422405	422436	422468	422500	422532	422564	422596	422627	42	2. 13
18	10.422659	422691	422723	422755	422787	422818	422850	422882	422914	422946	422978	423010	41	3. 19
19	10.423041	423073	423105	423137	423169	423201	423233	423264	423296	423328	423360	423392	40	4. 25
20	10.423424	423456	423488	423520	423551	423583	423615	423647	423679	423711	423743	423775	39	1 = 6
21	10.423807	423838	423870	423902	423934	423966	423998	424030	424062	424094	424126	424158	38	2. 13
22	10.424190	424221	424253	424285	424317	424349	424381	424413	424445	424477	424509	424541	37	3. 19
23	10.424573	424605	424637	424669	424701	424732	424764	424796	424828	424860	424892	424924	36	4. 26
24	10.424956	424988	425020	425052	425084	425116	425148	425180	425212	425244	425276	425308	35	1 = 6
25	10.425340	425372	425404	425436	425468	425500	425532	425564	425596	425628	425660	425692	34	2. 13
26	10.425724	425756	425788	425820	425852	425884	425916	425948	425980	426012	426044	426076	33	3. 19
27	10.426108	426140	426172	426204	426236	426268	426300	426332	426364	426396	426428	426461	32	4. 26
28	10.426493	426525	426557	426589	426621	426653	426685	426717	426749	426781	426813	426845	31	1 = 6
29	10.426877	426909	426941	426974	427006	427038	427070	427102	427134	427166	427198	427230	30	2. 13
30	10.427262	427294	427326	427359	427391	427423	427455	427487	427519	427551	427583	427615	29	3. 19
31	10.427648	427680	427712	427744	427776	427808	427840	427872	427905	427937	427969	428001	28	4. 26
32	10.428033	428065	428097	428129	428162	428194	428226	428258	428290	428322	428354	428387	27	1 = 6
33	10.428419	428451	428483	428515	428547	428580	428612	428644	428676	428708	428740	428773	26	2. 13
34	10.428805	428837	428869	428901	428934	428966	428998	429030	429062	429095	429127	429159	25	3. 19
35	10.429191	429223	429256	429288	429320	429352	429384	429417	429449	429481	429513	429545	24	4. 26
36	10.429578	429610	429642	429674	429707	429739	429771	429803	429836	429868	429900	429932	23	1 = 6
37	10.429964	429997	430029	430061	430093	430126	430158	430190	430222	430255	430287	430319	22	2. 13
38	10.430352	430384	430416	430448	430481	430513	430545	430577	430610	430642	430674	430707	21	3. 19
39	10.430739	430771	430803	430836	430868	430900	430933	430965	430997	431030	431062	431094	20	4. 26
40	10.431126	431159	431191	431223	431256	431288	431320	431353	431385	431417	431450	431482	19	1 = 6
41	10.431514	431547	431579	431611	431644	431676	431708	431741	431773	431805	431838	431870	18	2. 13
42	10.431902	431935	431967	432000	432032	432064	432097	432129	432161	432194	432226	432258	17	3. 19
43	10.432291	432323	432356	432388	432420	432453	432485	432517	432550	432582	432615	432647	16	4. 26
44	10.432679	432712	432744	432777	432809	432841	432874	432906	432939	432971	433004	433036	15	1 = 6
45	10.433068	433101	433133	433166	433198	433230	433263	433295	433328	433360	433393	433425	14	2. 13
46	10.433458	433490	433522	433555	433587	433620	433652	433685	433717	433750	433782	433815	13	3. 19
47	10.433847	433879	433912	433944	433977	434009	434042	434074	434107	434139	434172	434204	12	4. 26
48	10.434237	434269	434302	434334	434367	434399	434432	434464	434497	434529	434562	434594	11	1 = 7
49	10.434627	434659	434692	434724	434757	434789	434822	434854	434887	434919	434952	434984	10	2. 13
50	10.435017	435049	435082	435114	435147	435180	435212	435245	435277	435310	435342	435375	9	3. 20
51	10.435407	435440	435473	435505	435538	435570	435603	435635	435668	435700	435733	435766	8	4. 26
52	10.435798	435831	435863	435896	435928	435961	435994	436026	436059	436091	436124	436157	7	1 = 7
53	10.436189	436222	436254	436287	436320	436352	436385	436417	436450	436483	436515	436548	6	2. 13
54	10.436581	436613	436646	436678	436711	436744	436776	436809	436842	436874	436907	436939	5	3. 20
55	10.436972	437005	437037	437070	437103	437135	437168	437201	437233	437266	437299	437331	4	4. 26
56	10.437364	437397	437429	437462	437495	437527	437560	437593	437625	437658	437691	437723	3	1 = 7
57	10.437756	437789	437821	437854	437887	437920	437952	437985	438018	438050	438083	438116	2	2. 13
58	10.438148	438181	438214	438247	438279	438312	438345	438378	438410	438443	438476	438508	1	3. 20
59	10.438541	438574	438607	438639	438672	438705	438738	438770	438803	438836	438869	438901	0	4. 26
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 20 degrees, or Tangent of 110 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 70 degrees, or Co-tangent of 160 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30	35″	40″	45″	50″	55″		
0	10. 438934	438967	439000	439032	439065	439098	439131	439163	439196	439229	439262	439295	59	1″ = 7
1	10. 439327	439360	439393	439426	439458	439491	439524	439557	439590	439622	439655	439688	58	2. 13
2	10. 439721	439754	439786	439819	439852	439885	439918	439950	439983	440016	440049	440082	57	3. 20
3	10. 440115	440147	440180	440213	440246	440279	440312	440344	440377	440410	440443	440476	56	4. 26
4	10. 440509	440541	440574	440607	440640	440673	440706	440739	440771	440804	440837	440870	55	1 = 7
5	10. 440903	440936	440969	441001	441034	441067	441100	441133	441166	441199	441232	441265	54	2. 13
6	10. 441297	441330	441363	441396	441429	441462	441495	441528	441561	441594	441626	441659	53	3. 20
7	10. 441692	441725	441758	441791	441824	441857	441890	441923	441956	441989	442022	442054	52	4. 26
8	10. 442087	442120	442153	442186	442219	442252	442285	442318	442351	442384	442417	442450	51	1 = 7
9	10. 442483	442516	442549	442582	442615	442648	442681	442714	442747	442780	442813	442846	50	2. 13
10	10. 442879	442912	442944	442977	443010	443043	443076	443109	443142	443175	443208	443241	49	3. 20
11	10. 443274	443307	443341	443374	443407	443440	443473	443506	443539	443572	443605	443638	48	4. 26
12	10. 443671	443704	443737	443770	443803	443836	443869	443902	443935	443968	444001	444034	47	1 = 7
13	10. 444067	444100	444133	444166	444199	444233	444266	444299	444332	444365	444398	444431	46	2. 13
14	10. 444464	444497	444530	444563	444596	444629	444663	444696	444729	444762	444795	444828	45	3. 20
15	10. 444861	444894	444927	444960	444994	445027	445060	445093	445126	445159	445192	445225	44	4. 26
16	10. 445258	445292	445325	445358	445391	445424	445457	445490	445524	445557	445590	445623	43	1 = 7
17	10. 445656	445689	445722	445756	445789	445822	445855	445888	445921	445955	445988	446021	42	2. 13
18	10. 446054	446087	446120	446154	446187	446220	446253	446286	446319	446353	446386	446419	41	3. 20
19	10. 446452	446485	446519	446552	446585	446618	446651	446685	446718	446751	446784	446818	40	4. 27
20	10. 446851	446884	446917	446950	446984	447017	447050	447083	447117	447150	447183	447216	39	1 = 7
21	10. 447250	447283	447316	447349	447382	447416	447449	447482	447516	447549	447582	447615	38	2. 13
22	10. 447649	447682	447715	447748	447782	447815	447848	447881	447915	447948	447981	448015	37	3. 20
23	10. 448048	448081	448114	448148	448181	448214	448248	448281	448314	448348	448381	448414	36	4. 27
24	10. 448448	448481	448514	448547	448581	448614	448647	448681	448714	448747	448781	448814	35	1 = 7
25	10. 448847	448881	448914	448947	448981	449014	449047	449081	449114	449148	449181	449214	34	2. 13
26	10. 449248	449281	449314	449348	449381	449414	449448	449481	449515	449548	449581	449615	33	3. 20
27	10. 449648	449681	449715	449748	449782	449815	449848	449882	449915	449949	449982	450015	32	4. 27
28	10. 450049	450082	450116	450149	450183	450216	450249	450283	450316	450350	450383	450416	31	1 = 7
29	10. 450450	450483	450517	450550	450584	450617	450651	450684	450717	450751	450784	450818	30	2. 13
30	10. 450851	450885	450918	450952	450985	451019	451052	451085	451119	451152	451186	451219	29	3. 20
31	10. 451253	451286	451320	451353	451387	451420	451454	451487	451521	451554	451588	451621	28	4. 27
32	10. 451655	451688	451722	451755	451789	451822	451856	451889	451923	451956	451990	452023	27	1 = 7
33	10. 452057	452091	452124	452158	452191	452225	452258	452292	452325	452359	452392	452426	26	2. 13
34	10. 452459	452493	452527	452560	452594	452627	452661	452694	452728	452762	452795	452829	25	3. 20
35	10. 452862	452896	452929	452963	452997	453030	453064	453097	453131	453165	453198	453232	24	4. 27
36	10. 453265	453299	453333	453366	453400	453433	453467	453501	453534	453568	453601	453635	23	1 = 7
37	10. 453669	453702	453736	453770	453803	453837	453871	453904	453938	453971	454005	454039	22	2. 13
38	10. 454072	454106	454140	454173	454207	454241	454274	454308	454342	454375	454409	454443	21	3. 20
39	10. 454476	454510	454544	454577	454611	454645	454678	454712	454746	454780	454813	454847	20	4. 27
40	10. 454881	454914	454948	454982	455015	455049	455083	455117	455150	455184	455218	455251	19	1 = 7
41	10. 455285	455319	455353	455386	455420	455454	455488	455521	455555	455589	455622	455656	18	2. 13
42	10. 455690	455724	455757	455791	455825	455859	455893	455926	455960	455994	456028	456061	17	3. 20
43	10. 456095	456129	456163	456196	456230	456264	456298	456332	456365	456399	456433	456467	16	4. 27
44	10. 456501	456534	456568	456602	456636	456670	456703	456736	456771	456805	456839	456872	15	1 = 7
45	10. 456906	456940	456974	457008	457042	457075	457109	457143	457177	457211	457245	457278	14	2. 13
46	10. 457312	457346	457380	457414	457448	457482	457515	457549	457583	457617	457651	457685	13	3. 20
47	10. 457719	457752	457786	457820	457854	457888	457922	457956	457990	458024	458057	458091	12	4. 27
48	10. 458125	458159	458193	458227	458261	458295	458329	458363	458396	458430	458464	458498	11	1 = 7
49	10. 458532	458566	458600	458634	458668	458702	458736	458770	458804	458838	458871	458905	10	2. 13
50	10. 458939	458973	459007	459041	459075	459109	459143	459177	459211	459245	459279	459313	9	3. 20
51	10. 459347	459381	459415	459449	459483	459517	459551	459585	459619	459653	459687	459721	8	4. 27
52	10. 459755	459789	459823	459857	459891	459925	459959	459993	460027	460061	460095	460129	7	1 = 7
53	10. 460163	460197	460231	460265	460299	460333	460367	460401	460435	460469	460503	460537	6	2. 13
54	10. 460571	460605	460639	460673	460707	460741	460776	460810	460844	460878	460912	460946	5	3. 20
55	10. 460980	461014	461048	461082	461116	461150	461184	461219	461253	461287	461321	461355	4	4. 27
56	10. 461389	461423	461457	461491	461525	461559	461594	461628	461662	461696	461730	461764	3	1 = 7
57	10. 461798	461832	461867	461901	461935	461969	462003	462037	462071	462105	462140	462174	2	2. 13
58	10. 462208	462242	462276	462310	462345	462379	462413	462447	462481	462515	462550	462584	1	3. 20
59	10. 462618	462652	462686	462720	462755	462789	462823	462857	462891	462926	462960	462994	0	4. 27
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 19 degrees, or Tangent of 109 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 71 degrees, or Co-tangent of 161 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 463028	463062	463097	463131	463165	463199	463233	463268	463302	463336	463370	463404	59	1″ = 7
1	10. 463439	463473	463507	463541	463576	463610	463644	463678	463713	463747	463781	463815	58	2. 14
2	10. 463849	463884	463918	463952	463987	464021	464055	464089	464124	464158	464192	464226	57	3. 21
3	10. 464261	464295	464329	464363	464398	464432	464466	464501	464535	464569	464604	464638	56	4. 27
4	10. 464672	464706	464741	464775	464809	464844	464878	464912	464947	464981	465015	465050	55	1 = 7
5	10. 465084	465118	465153	465187	465221	465256	465290	465324	465359	465393	465427	465462	54	2. 14
6	10. 465496	465530	465565	465599	465633	465668	465702	465736	465771	465805	465840	465874	53	3. 21
7	10. 465908	465943	465977	466012	466046	466080	466115	466149	466183	466218	466252	466287	52	4. 27
8	10. 466321	466355	466390	466424	466459	466493	466528	466562	466596	466631	466665	466700	51	1 = 7
9	10. 466734	466769	466803	466837	466872	466906	466941	466975	467010	467044	467078	467113	50	2. 14
10	10. 467147	467182	467216	467251	467285	467320	467354	467389	467423	467458	467492	467527	49	3. 21
11	10. 467561	467596	467630	467664	467699	467733	467768	467802	467837	467871	467906	467940	48	4. 28
12	10. 467975	468009	468044	468079	468113	468148	468182	468217	468251	468286	468320	468355	47	1 = 7
13	10. 468389	468424	468458	468493	468527	468562	468596	468631	468666	468700	468735	468769	46	2. 14
14	10. 468804	468838	468873	468907	468942	468977	469011	469046	469080	469115	469150	469184	45	3. 21
15	10. 469219	469253	469288	469322	469357	469392	469426	469461	469495	469530	469565	469599	44	4. 28
16	10. 469634	469669	469703	469738	469772	469807	469842	469876	469911	469945	469980	470015	43	1 = 7
17	10. 470049	470084	470119	470153	470188	470223	470257	470292	470327	470361	470396	470431	42	2. 14
18	10. 470465	470500	470535	470569	470604	470639	470673	470708	470743	470777	470812	470847	41	3. 21
19	10. 470881	470916	470951	470985	471020	471055	471090	471124	471159	471194	471228	471263	40	4. 28
20	10. 471298	471333	471367	471402	471437	471471	471506	471541	471576	471610	471645	471680	39	1 7
21	10. 471715	471749	471784	471819	471854	471888	471923	471958	471993	472027	472062	472097	38	2. 14
22	10. 472132	472167	472201	472236	472271	472306	472340	472375	472410	472445	472480	472514	37	3. 21
23	10. 472549	472584	472619	472654	472688	472723	472758	472793	472828	472862	472897	472932	36	4. 28
24	10. 472967	473002	473037	473071	473106	473141	473176	473211	473246	473280	473315	473350	35	1 = 7
25	10. 473385	473420	473455	473490	473524	473559	473594	473629	473664	473699	473734	473768	34	2. 14
26	10. 473803	473838	473873	473908	473943	473978	474013	474048	474082	474117	474152	474187	33	3. 21
27	10. 474222	474257	474292	474327	474362	474397	474432	474466	474501	474536	474571	474606	32	4. 28
28	10. 474641	474676	474711	474746	474781	474816	474851	474886	474921	474956	474991	475025	31	1 = 7
29	10. 475060	475095	475130	475165	475200	475235	475270	475305	475340	475375	475410	475445	30	2 14
30	10. 475480	475515	475550	475585	475620	475655	475690	475725	475760	475795	475830	475865	29	3. 21
31	10. 475900	475935	475970	476005	476040	476075	476110	476145	476180	476215	476250	476285	28	4. 28
32	10. 476320	476355	476390	476426	476461	476496	476531	476566	476601	476636	476671	476706	27	1 = 7
33	10. 476741	476776	476811	476846	476881	476916	476951	476987	477022	477057	477092	477127	26	2. 14
34	10. 477162	477197	477232	477267	477302	477338	477373	477408	477443	477478	477513	477548	25	3. 21
35	10. 477583	477618	477654	477689	477724	477759	477794	477829	477864	477900	477935	477970	24	4. 28
36	10. 478005	478040	478075	478110	478146	478181	478216	478251	478286	478321	478357	478392	23	1 = 7
37	10. 478427	478462	478497	478532	478568	478603	478638	478673	478708	478744	478779	478814	22	2. 14
38	10. 478849	478884	478920	478955	478990	479025	479060	479096	479131	479166	479201	479237	21	3. 21
39	10. 479272	479307	479342	479378	479413	479448	479483	479518	479554	479589	479624	479659	20	4. 28
40	10. 479695	479730	479765	479801	479836	479871	479906	479942	479977	480012	480047	480083	19	1 = 7
41	10. 480118	480153	480189	480224	480259	480294	480330	480365	480400	480436	480471	480506	18	2. 14
42	10. 480542	480577	480612	480648	480683	480718	480754	480789	480824	480860	480895	480930	17	3. 21
43	10. 480966	481001	481036	481072	481107	481142	481178	481213	481248	481284	481319	481354	16	4. 28
44	10. 481390	481425	481461	481496	481531	481567	481602	481637	481673	481708	481744	481779	15	1 = 7
45	10. 481814	481850	481885	481921	481956	481991	482027	482062	482098	482133	482169	482204	14	2. 14
46	10. 482239	482275	482310	482346	482381	482417	482452	482487	482523	482558	482594	482629	13	3. 21
47	10. 482665	482700	482736	482771	482806	482842	482877	482913	482948	482984	483019	483055	12	4. 28
48	10. 483090	483126	483161	483197	483232	483268	483303	483339	483374	483410	483445	483481	11	1 = 7
49	10. 483516	483552	483587	483623	483658	483694	483729	483765	483800	483836	483871	483907	10	2. 14
50	10. 483942	483978	484014	484049	484085	484120	484156	484191	484227	484262	484298	484334	9	3. 21
51	10. 484369	484405	484440	484476	484511	484547	484583	484618	484654	484689	484725	484760	8	4. 28
52	10. 484796	484832	484867	484903	484938	484974	485010	485045	485081	485116	485152	485188	7	1 = 7
53	10. 485223	485259	485295	485330	485366	485401	485437	485473	485508	485544	485580	485615	6	2. 14
54	10. 485651	485687	485722	485758	485794	485829	485865	485901	485936	485972	486008	486043	5	3. 21
55	10. 486079	486115	486150	486186	486222	486257	486293	486329	486364	486400	486436	486472	4	4. 29
56	10. 486507	486543	486579	486614	486650	486686	486722	486757	486793	486829	486864	486900	3	1 = 7
57	10. 486936	486972	487007	487043	487079	487115	487150	487186	487222	487258	487293	487329	2	2. 14
58	10. 487365	487401	487436	487472	487508	487544	487580	487615	487651	487687	487723	487758	1	3. 21
59	10. 487794	487830	487866	487902	487937	487973	488009	488045	488081	488116	488152	488188	0	4. 29
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 18 degrees, or Tangent of 108 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 72 degrees, or Co-tangent of 162 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 488224	488260	488296	488331	488367	488403	488439	488475	488511	488546	488582	488618	59	1″ =
1	10. 488654	488690	488726	488761	488797	488833	488869	488905	488941	488977	489013	489048	58	2.
2	10. 489084	489120	489156	489192	489228	489264	489300	489336	489371	489407	489443	489479	57	3.
3	10. 489515	489551	489587	489623	489659	489695	489731	489766	489802	489838	489874	489910	56	4.
4	10. 489946	489982	490018	490054	490090	490126	490162	490198	490234	490270	490306	490342	55	1 =
5	10. 490378	490413	490449	490485	490521	490557	490593	490629	490665	490701	490737	490773	54	2.
6	10. 490809	490845	490881	490917	490953	490989	491025	491061	491097	491133	491169	491205	53	3.
7	10. 491241	491277	491313	491349	491385	491422	491458	491494	491530	491566	491602	491638	52	4.
8	10. 491674	491710	491746	491782	491818	491854	491890	491926	491962	491998	492034	492071	51	1 =
9	10. 492107	492143	492179	492215	492251	492287	492323	492359	492395	492431	492468	492504	50	2.
10	10. 492540	492576	492612	492648	492684	492720	492756	492793	492829	492865	492901	492937	49	3.
11	10. 492973	493009	493046	493082	493118	493154	493190	493226	493262	493299	493335	493371	48	4.
12	10. 493407	493443	493479	493516	493552	493588	493624	493660	493697	493733	493769	493805	47	1 =
13	10. 493841	493878	493914	493950	493986	494022	494059	494095	494131	494167	494203	494240	46	2.
14	10. 494276	494312	494348	494385	494421	494457	494493	494530	494566	494602	494638	494675	45	3.
15	10. 494711	494747	494783	494820	494856	494892	494928	494965	495001	495037	495074	495110	44	4.
16	10. 495146	495182	495219	495255	495291	495328	495364	495400	495437	495473	495509	495545	43	1 =
17	10. 495582	495618	495654	495691	495727	495763	495800	495836	495872	495909	495945	495981	42	2.
18	10. 496018	496054	496090	496127	496163	496200	496236	496272	496309	496345	496381	496418	41	3.
19	10. 496454	496490	496527	496563	496600	496636	496672	496709	496745	496782	496818	496854	40	4.
20	10. 496891	496927	496964	497000	497036	497073	497109	497146	497182	497219	497255	497291	39	1 =
21	10. 497328	497364	497401	497437	497474	497510	497547	497583	497619	497656	497692	497729	38	2.
22	10. 497765	497802	497838	497875	497911	497948	497984	498021	498057	498094	498130	498167	37	3.
23	10. 498203	498240	498276	498313	498349	498386	498422	498459	498495	498532	498568	498605	36	4.
24	10. 498641	498678	498714	498751	498787	498824	498860	498897	498933	498970	499007	499043	35	1 =
25	10. 499080	499116	499153	499189	499226	499263	499299	499336	499372	499409	499445	499482	34	2.
26	10. 499519	499555	499592	499628	499665	499702	499738	499775	499811	499848	499885	499921	33	3.
27	10. 499958	499994	500031	500068	500104	500141	500178	500214	500251	500287	500324	500361	32	4.
28	10. 500397	500434	500471	500507	500544	500581	500617	500654	500691	500727	500764	500801	31	1 =
29	10. 500837	500874	500911	500947	500984	501021	501057	501094	501131	501168	501204	501241	30	2.
30	10. 501278	501314	501351	501388	501425	501461	501498	501535	501571	501608	501645	501682	29	3.
31	10. 501718	501755	501792	501829	501865	501902	501939	501976	502012	502049	502086	502123	28	4.
32	10. 502159	502196	502233	502270	502306	502343	502380	502417	502454	502490	502527	502564	27	1 =
33	10. 502601	502638	502674	502711	502748	502785	502822	502858	502895	502932	502969	503006	26	2.
34	10. 503043	503079	503116	503153	503190	503227	503264	503300	503337	503374	503411	503448	25	3.
35	10. 503485	503522	503558	503595	503632	503669	503706	503743	503780	503817	503854	503890	24	4.
36	10. 503927	503964	504001	504038	504075	504112	504149	504186	504223	504259	504296	504333	23	1 =
37	10. 504370	504407	504444	504481	504518	504555	504592	504629	504666	504703	504740	504776	22	2.
38	10. 504813	504850	504887	504924	504961	504998	505035	505072	505109	505146	505183	505220	21	3.
39	10. 505257	505294	505331	505368	505405	505442	505479	505516	505553	505590	505627	505664	20	4.
40	10. 505701	505738	505775	505812	505849	505886	505923	505960	505997	506034	506071	506108	19	1 =
41	10. 506145	506183	506220	506257	506294	506331	506368	506405	506442	506479	506516	506553	18	2.
42	10. 506590	506627	506664	506702	506739	506776	506813	506850	506887	506924	506961	506998	17	3.
43	10. 507035	507073	507110	507147	507184	507221	507258	507295	507332	507369	507407	507444	16	4.
44	10. 507481	507518	507555	507592	507629	507667	507704	507741	507778	507815	507852	507890	15	1 =
45	10. 507927	507964	508001	508038	508076	508113	508150	508187	508224	508261	508299	508336	14	2.
46	10. 508373	508410	508447	508485	508522	508559	508596	508634	508671	508708	508745	508782	13	3.
47	10. 508820	508857	508894	508931	508969	509006	509043	509080	509118	509155	509192	509229	12	4.
48	10. 509267	509304	509341	509379	509416	509453	509490	509528	509565	509602	509640	509677	11	1 =
49	10. 509714	509751	509789	509826	509863	509901	509938	509975	510013	510050	510087	510125	10	2.
50	10. 510162	510199	510237	510274	510311	510349	510386	510423	510461	510498	510535	510573	9	3.
51	10. 510610	510647	510685	510722	510760	510797	510834	510872	510909	510946	510984	511021	8	4.
52	10. 511059	511096	511133	511171	511208	511246	511283	511320	511358	511395	511433	511470	7	1 =
53	10. 511508	511545	511582	511620	511657	511695	511732	511770	511807	511845	511882	511919	6	2.
54	10. 511957	511994	512032	512069	512107	512144	512182	512219	512257	512294	512332	512369	5	3.
55	10. 512407	512444	512482	512519	512557	512594	512632	512669	512707	512744	512782	512819	4	4.
56	10. 512857	512894	512932	512969	513007	513044	513082	513119	513157	513195	513232	513270	3	1 =
57	10. 513307	513345	513382	513420	513457	513495	513533	513570	513608	513645	513683	513720	2	2.
58	10. 513758	513796	513833	513871	513908	513946	513984	514021	514059	514096	514134	514172	1	3.
59	10. 514209	514247	514285	514322	514360	514397	514435	514473	514510	514548	514586	514623	0	4.
Minutes	60′	55′	50′	45′	40′	35′	30′	25′	20′	15′	10′	5′	Minutes	Proper parts.
	Co-tangent of 17 degrees, or Tangent of 107 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 73 degrees, or Co-tangent of 163 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 514661	514699	514736	514774	514812	514849	514887	514925	514962	515000	515038	515075	59	1″ =
1	10. 515113	515151	515188	515226	515264	515301	515339	515377	515415	515452	515490	515528	58	2. 1
2	10. 515565	515603	515641	515679	515716	515754	515792	515829	515867	515905	515943	515980	57	3. 2
3	10. 516018	516056	516094	516131	516169	516207	516245	516283	516320	516358	516396	516434	56	4. 3
4	10. 516471	516509	516547	516585	516623	516660	516698	516736	516774	516812	516849	516887	55	1 =
5	10. 516925	516963	517001	517038	517076	517114	517152	517190	517228	517265	517303	517341	54	2. 1
6	10. 517379	517417	517455	517493	517530	517568	517606	517644	517682	517720	517758	517795	53	3. 2
7	10. 517833	517871	517909	517947	517985	518023	518061	518099	518137	518174	518212	518250	52	4. 3
8	10. 518288	518326	518364	518402	518440	518478	518516	518554	518592	518629	518667	518705	51	1 =
9	10. 518743	518781	518819	518857	518895	518933	518971	519009	519047	519085	519123	519161	50	2. 1
10	10. 519199	519237	519275	519313	519351	519389	519427	519465	519503	519541	519579	519617	49	3. 2
11	10. 519655	519693	519731	519769	519807	519845	519883	519921	519959	519997	520035	520073	48	4. 3
12	10. 520111	520149	520187	520225	520263	520302	520340	520378	520416	520454	520492	520530	47	1 =
13	10. 520568	520606	520644	520682	520720	520758	520797	520835	520873	520911	520949	520987	46	2. 1
14	10. 521025	521063	521101	521140	521178	521216	521254	521292	521330	521368	521406	521445	45	3. 2
15	10. 521483	521521	521559	521597	521635	521674	521712	521750	521788	521826	521864	521903	44	4. 3
16	10. 521941	521979	522017	522055	522093	522132	522170	522208	522246	522284	522323	522361	43	1 =
17	10. 522399	522437	522476	522514	522552	522590	522628	522667	522705	522743	522781	522820	42	2. 1
18	10. 522858	522896	522934	522973	523011	523049	523087	523126	523164	523202	523241	523279	41	3. 2
19	10. 523317	523355	523394	523432	523470	523509	523547	523585	523623	523662	523700	523738	40	4. 3
20	10. 523777	523815	523853	523892	523930	523968	524007	524045	524083	524122	524160	524198	39	1 =
21	10. 524237	524275	524313	524352	524390	524428	524467	524505	524544	524582	524620	524659	38	2. 1
22	10. 524697	524735	524774	524812	524851	524889	524927	524966	525004	525043	525081	525119	37	3. 2
23	10. 525158	525196	525235	525273	525312	525350	525388	525427	525465	525504	525542	525581	36	4. 3
24	10. 525619	525658	525696	525734	525773	525811	525850	525888	525927	525965	526004	526042	35	1 =
25	10. 526081	526119	526158	526196	526235	526273	526312	526350	526389	526427	526466	526504	34	2. 1
26	10. 526543	526581	526620	526658	526697	526735	526774	526813	526851	526890	526928	526967	33	3. 2
27	10. 527005	527044	527082	527121	527159	527198	527237	527275	527314	527352	527391	527430	32	4. 3
28	10. 527468	527507	527545	527584	527623	527661	527700	527738	527777	527816	527854	527893	31	1 =
29	10. 527931	527970	528009	528047	528086	528125	528163	528202	528240	528279	528318	528356	30	2. 1
30	10. 528395	528434	528472	528511	528550	528588	528627	528666	528704	528743	528782	528821	29	3. 2
31	10. 528859	528898	528937	528975	529014	529053	529091	529130	529169	529208	529246	529285	28	4. 3
32	10. 529324	529362	529401	529440	529479	529517	529556	529595	529634	529672	529711	529750	27	1 =
33	10. 529789	529827	529866	529905	529944	529983	530021	530060	530099	530138	530176	530215	26	2. 1
34	10. 530254	530293	530332	530370	530409	530448	530487	530526	530565	530603	530642	530681	25	3. 2
35	10. 530720	530759	530798	530836	530875	530914	530953	530992	531031	531069	531108	531147	24	4. 3
36	10. 531186	531225	531264	531303	531342	531380	531419	531458	531497	531536	531575	531614	23	1 =
37	10. 531653	531692	531731	531769	531808	531847	531886	531925	531964	532003	532042	532081	22	2. 1
38	10. 532120	532159	532198	532237	532276	532314	532353	532392	532431	532470	532509	532548	21	3. 2
39	10. 532587	532626	532665	532704	532743	532782	532821	532860	532899	532938	532977	533016	20	4. 3
40	10. 533055	533094	533133	533172	533211	533250	533289	533328	533367	533406	533445	533484	19	1 =
41	10. 533523	533562	533602	533641	533680	533719	533758	533797	533836	533875	533914	533953	18	2. 1
42	10. 533992	534031	534070	534109	534149	534188	534227	534266	534305	534344	534383	534422	17	3. 2
43	10. 534461	534500	534540	534579	534618	534657	534696	534735	534774	534814	534853	534892	16	4. 3
44	10. 534931	534970	535009	535048	535088	535127	535166	535205	535244	535283	535323	535362	15	1 =
45	10. 535401	535440	535479	535519	535558	535597	535636	535675	535715	535754	535793	535832	14	2. 1
46	10. 535871	535911	535950	535989	536028	536068	536107	536146	536185	536225	536264	536303	13	3. 2
47	10. 536342	536382	536421	536460	536499	536539	536578	536617	536657	536696	536735	536774	12	4. 3
48	10. 536814	536853	536892	536932	536971	537010	537049	537089	537128	537167	537207	537246	11	1 =
49	10. 537285	537325	537364	537403	537443	537482	537521	537561	537600	537640	537679	537718	10	2. 1
50	10. 537758	537797	537836	537876	537915	537954	537994	538033	538073	538112	538151	538191	9	3. 2
51	10. 538230	538270	538309	538348	538388	538427	538467	538506	538546	538585	538624	538664	8	4. 3
52	10. 538703	538743	538782	538822	538861	538901	538940	538979	539019	539058	539098	539137	7	1 =
53	10. 539177	539216	539256	539295	539335	539374	539414	539453	539493	539532	539572	539611	6	2. 1
54	10. 539651	539690	539730	539769	539809	539848	539888	539927	539967	540006	540046	540086	5	3. 2
55	10. 540125	540165	540204	540244	540283	540323	540362	540402	540442	540481	540521	540560	4	4. 3
56	10. 540600	540639	540679	540719	540758	540798	540837	540877	540917	540956	540996	541036	3	1 =
57	10. 541075	541115	541154	541194	541234	541273	541313	541353	541392	541432	541471	541511	2	2. 1
58	10. 541551	541590	541630	541670	541709	541749	541789	541828	541868	541908	541948	541987	1	3. 2
59	10. 542027	542067	542106	542146	542186	542225	542265	542305	542345	542384	542424	542464	0	4. 3
Minutes	60′	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 16 degrees, or Tangent of 106 degrees.													

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LOGARITHMIC TANGENTS.

Tangent of 74 degrees, or Co-tangent of 164 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 542504	542543	542583	542623	542662	542702	542742	542782	542821	542861	542901	542941	59	1″ = 8
1	10. 542981	543020	543060	543100	543140	543179	543219	543259	543299	543339	543378	543418	58	2. 16
2	10. 543458	543498	543538	543577	543617	543657	543697	543737	543777	543816	543856	543896	57	3. 24
3	10. 543936	543976	544016	544055	544095	544135	544175	544215	544255	544295	544334	544374	56	4. 32
4	10. 544414	544454	544494	544534	544574	544614	544654	544693	544733	544773	544813	544853	55	1 = 8
5	10. 544893	544933	544973	545013	545053	545093	545133	545173	545213	545252	545292	545332	54	2. 16
6	10. 545372	545412	545452	545492	545532	545572	545612	545652	545692	545732	545772	545812	53	3. 24
7	10. 545852	545892	545932	545972	546012	546052	546092	546132	546172	546212	546252	546292	52	4. 32
8	10. 546332	546372	546412	546452	546492	546532	546572	546612	546653	546693	546733	546773	51	1 = 8
9	10. 546813	546853	546893	546933	546973	547013	547053	547093	547133	547174	547214	547254	50	2. 16
10	10. 547294	547334	547374	547414	547454	547494	547535	547575	547615	547655	547695	547735	49	3. 24
11	10. 547775	547815	547856	547896	547936	547976	548016	548056	548097	548137	548177	548217	48	4. 32
12	10. 548257	548297	548338	548378	548418	548458	548498	548539	548579	548619	548659	548699	47	1 = 8
13	10. 548740	548780	548820	548860	548901	548941	548981	549021	549062	549102	549142	549182	46	2. 16
14	10. 549223	549263	549303	549343	549384	549424	549464	549504	549545	549585	549625	549666	45	3. 24
15	10. 549706	549746	549787	549827	549867	549907	549948	549988	550028	550069	550109	550149	44	4. 32
16	10. 550190	550230	550270	550311	550351	550391	550432	550472	550513	550553	550593	550634	43	1 = 8
17	10. 550674	550714	550755	550795	550835	550876	550916	550957	550997	551037	551078	551118	42	2. 16
18	10. 551159	551199	551240	551280	551320	551361	551401	551442	551482	551523	551563	551603	41	3. 24
19	10. 551644	551684	551725	551765	551806	551846	551887	551927	551968	552008	552049	552089	40	4. 32
20	10. 552130	552170	552210	552251	552291	552332	552373	552413	552454	552494	552535	552575	39	1 = 8
21	10. 552616	552656	552697	552737	552778	552818	552859	552899	552940	552981	553021	553062	38	2. 16
22	10. 553102	553143	553183	553224	553264	553305	553346	553386	553427	553467	553508	553549	37	3. 24
23	10. 553589	553630	553670	553711	553752	553792	553833	553874	553914	553955	553995	554036	36	4. 32
24	10. 554077	554117	554158	554199	554239	554280	554321	554361	554402	554443	554483	554524	35	1 = 8
25	10. 554565	554605	554646	554687	554727	554768	554809	554850	554890	554931	554972	555012	34	2. 16
26	10. 555053	555094	555135	555175	555216	555257	555298	555338	555379	555420	555461	555501	33	3. 24
27	10. 555542	555583	555624	555664	555705	555746	555787	555827	555868	555909	555950	555991	32	4. 32
28	10. 556031	556072	556113	556154	556195	556236	556276	556317	556358	556399	556440	556480	31	1 = 8
29	10. 556521	556562	556603	556644	556685	556726	556766	556807	556848	556889	556930	556971	30	2. 16
30	10. 557012	557053	557093	557134	557175	557216	557257	557298	557339	557380	557421	557462	29	3. 24
31	10. 557502	557543	557584	557625	557666	557707	557748	557789	557830	557871	557912	557953	28	4. 32
32	10. 557994	558035	558076	558117	558158	558199	558240	558281	558322	558363	558404	558444	27	1 = 8
33	10. 558485	558526	558568	558609	558650	558691	558732	558773	558814	558855	558896	558937	26	2. 16
34	10. 558978	559019	559060	559101	559142	559183	559224	559265	559306	559347	559388	559429	25	3. 24
35	10. 559470	559512	559553	559594	559635	559676	559717	559758	559799	559840	559881	559923	24	4. 32
36	10. 559964	560005	560046	560087	560128	560169	560210	560252	560293	560334	560375	560416	23	1 = 8
37	10. 560457	560498	560540	560581	560622	560663	560704	560746	560787	560828	560869	560910	22	2. 16
38	10. 560951	560993	561034	561075	561116	561158	561199	561240	561281	561322	561364	561405	21	3. 24
39	10. 561446	561487	561529	561570	561611	561652	561694	561735	561776	561817	561859	561900	20	4. 32
40	10. 561941	561983	562024	562065	562106	562148	562189	562230	562272	562313	562354	562396	19	1 = 8
41	10. 562437	562478	562520	562561	562602	562644	562685	562726	562768	562809	562850	562892	18	2. 17
42	10. 562933	562974	563016	563057	563098	563140	563181	563223	563264	563305	563347	563388	17	3. 25
43	10. 563430	563471	563512	563554	563595	563637	563678	563719	563761	563802	563844	563885	16	4. 33
44	10. 563927	563968	564010	564051	564092	564134	564175	564217	564258	564300	564341	564383	15	1 = 8
45	10. 564424	564466	564507	564549	564590	564632	564673	564715	564756	564798	564839	564881	14	2. 17
46	10. 564922	564964	565005	565047	565088	565130	565172	565213	565255	565296	565338	565379	13	3. 25
47	10. 565421	565462	565504	565546	565587	565629	565670	565712	565754	565795	565837	565878	12	4. 33
48	10. 565920	565962	566003	566045	566086	566128	566170	566211	566253	566295	566336	566378	11	1 = 8
49	10. 566419	566461	566503	566544	566586	566628	566669	566711	566753	566794	566836	566878	10	2. 17
50	10. 566920	566961	567003	567045	567086	567128	567170	567211	567253	567295	567337	567378	9	3. 25
51	10. 567420	567462	567504	567545	567587	567629	567671	567712	567754	567796	567838	567879	8	4. 33
52	10. 567921	567963	568005	568046	568088	568130	568172	568214	568255	568297	568339	568381	7	1 = 8
53	10. 568423	568464	568506	568548	568590	568632	568674	568715	568757	568799	568841	568883	6	2. 17
54	10. 568925	568967	569008	569050	569092	569134	569176	569218	569260	569302	569343	569385	5	3. 25
55	10. 569427	569469	569511	569553	569595	569637	569679	569721	569763	569804	569846	569888	4	4. 33
56	10. 569930	569972	570014	570056	570098	570140	570182	570224	570266	570308	570350	570392	3	1 = 8
57	10. 570434	570476	570518	570560	570602	570644	570686	570728	570770	570812	570854	570896	2	2. 17
58	10. 570938	570980	571022	571064	571106	571148	571190	571232	571274	571316	571358	571400	1	3. 25
59	10. 571442	571484	571527	571569	571611	571653	571695	571737	571779	571821	571863	571905	0	4. 33
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 15 degrees, or Tangent of 105 degrees.

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LOGARITHMIC TANGENTS.

Tangent of 75 degrees, or Co-tangent of 165 degrees.

Minutes	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 571947	571990	572032	572074	572116	572158	572200	572242	572284	572327	572369	572411	59	1″ = 8
1	10. 572453	572495	572537	572580	572622	572664	572706	572748	572790	572833	572875	572917	58	2. 17
2	10. 572959	573001	573044	573086	573128	573170	573212	573255	573297	573339	573381	573424	57	3. 25
3	10. 573466	573508	573550	573592	573635	573677	573719	573762	573804	573846	573888	573931	56	4. 34
4	10. 573973	574015	574057	574100	574142	574184	574227	574269	574311	574354	574396	574438	55	1 = 8
5	10. 574481	574523	574565	574607	574650	574692	574735	574777	574819	574862	574904	574946	54	2. 17
6	10. 574989	575031	575073	575116	575158	575201	575243	575285	575328	575370	575413	575455	53	3. 25
7	10. 575497	575540	575582	575625	575667	575709	575752	575794	575837	575879	575922	575964	52	4. 34
8	10. 576006	576049	576091	576134	576176	576219	576261	576304	576346	576389	576431	576474	51	1 = 9
9	10. 576516	576559	576601	576644	576686	576729	576771	576814	576856	576899	576941	576984	50	2. 17
10	10. 577026	577069	577111	577154	577197	577239	577282	577324	577367	577409	577452	577495	49	3. 26
11	10. 577537	577580	577622	577665	577708	577750	577793	577835	577878	577921	577963	578006	48	4. 34
12	10. 578048	578091	578134	578176	578219	578262	578304	578347	578390	578432	578475	578518	47	1 = 9
13	10. 578560	578603	578646	578688	578731	578774	578816	578859	578902	578944	578987	579030	46	2. 17
14	10. 579072	579115	579158	579201	579243	579286	579329	579372	579414	579457	579500	579543	45	3. 26
15	10. 579585	579628	579671	579714	579756	579799	579842	579885	579928	579970	580013	580056	44	4. 34
16	10. 580099	580142	580184	580227	580270	580313	580356	580398	580441	580484	580527	580570	43	1 = 9
17	10. 580613	580655	580698	580741	580784	580827	580870	580913	580955	580998	581041	581084	42	2. 17
18	10. 581127	581170	581213	581256	581299	581342	581384	581427	581470	581513	581556	581599	41	3. 26
19	10. 581642	581685	581728	581771	581814	581857	581900	581943	581986	582029	582072	582114	40	4. 34
20	10. 582157	582200	582243	582286	582329	582372	582415	582458	582501	582544	582587	582630	39	1 = 9
21	10. 582673	582716	582760	582803	582846	582889	582932	582975	583018	583061	583104	583147	38	2. 17
22	10. 583190	583233	583276	583319	583362	583405	583449	583492	583535	583578	583621	583664	37	3. 26
23	10 583707	583750	583793	583836	583880	583923	583966	584009	584052	584095	584138	584182	36	4. 34
24	10. 584225	584268	584311	584354	584397	584441	584484	584527	584570	584613	584657	584700	35	1 = 9
25	10. 584743	584786	584829	584873	584916	584959	585002	585045	585089	585132	585175	585218	34	2. 17
26	10. 585262	585305	585348	585391	585435	585478	585521	585564	585608	585651	585694	585738	33	3. 26
27	10. 585781	585824	585867	585911	585954	585997	586041	586084	586127	586171	586214	586257	32	4. 35
28	10. 586301	586344	586387	586431	586474	586517	586561	586604	586648	586691	586734	586778	31	1 = 9
29	10. 586821	586864	586908	586951	586995	587038	587081	587125	587168	587212	587255	587298	30	2. 17
30	10. 587342	587385	587429	587472	587516	587559	587603	587646	587689	587733	587776	587820	29	3. 26
31	10. 587863	587907	587950	587994	588037	588081	588124	588168	588211	588255	588298	588342	28	4. 35
32	10. 588385	588429	588472	588516	588559	588603	588647	588690	588734	588777	588821	588864	27	1 = 9
33	10. 588908	588951	588995	589039	589082	589126	589169	589213	589256	589300	589344	589387	26	2. 17
34	10. 589431	589475	589518	589562	589605	589649	589693	589736	589780	589824	589867	589911	25	3. 26
35	10. 589955	589998	590042	590086	590129	590173	590217	590260	590304	590348	590391	590435	24	4. 35
36	10. 590479	590522	590566	590610	590654	590697	590741	590785	590829	590872	590916	590960	23	1 = 9
37	10. 591003	591047	591091	591135	591179	591222	591266	591310	591354	591397	591441	591485	22	2. 18
38	10. 591529	591573	591616	591660	591704	591748	591792	591835	591879	591923	591967	592011	21	3. 26
39	10. 592055	592098	592142	592186	592230	592274	592318	592362	592406	592449	592493	592537	20	4. 35
40	10. 592581	592625	592669	592713	592757	592801	592844	592888	592932	592976	593020	593064	19	1 = 9
41	10. 593108	593152	593196	593240	593284	593328	593372	593416	593460	593504	593548	593592	18	2. 18
42	10. 593636	593680	593724	593768	593812	593856	593900	593944	593988	594032	594076	594120	17	3. 26
43	10. 594164	594208	594252	594296	594340	594384	594428	594472	594516	594560	594604	594648	16	4. 35
44	10. 594692	594736	594780	594825	594869	594913	594957	595001	595045	595089	595133	595177	15	1 = 9
45	10. 595222	595266	595310	595354	595398	595442	595486	595531	595575	595619	595663	595707	14	2. 18
46	10. 595751	595796	595840	595884	595928	595972	596016	596061	596105	596149	596193	596238	13	3. 26
47	10. 596282	596326	596370	596414	596459	596503	596547	596591	596636	596680	596724	596768	12	4. 35
48	10. 596813	596857	596901	596945	596990	597034	597078	597123	597167	597211	597256	597300	11	1 = 9
49	10. 597344	597388	597433	597477	597521	597566	597610	597654	597699	597743	597788	597832	10	2. 18
50	10. 597876	597921	597965	598009	598054	598098	598143	598187	598231	598276	598320	598364	9	3. 27
51	10. 598409	598453	598498	598542	598587	598631	598675	598720	598764	598809	598853	598898	8	4. 35
52	10. 598942	598987	599031	599076	599120	599164	599209	599253	599298	599342	599387	599431	7	1 = 9
53	10. 599476	599520	599565	599609	599654	599699	599743	599788	599832	599877	599921	599966	6	2. 18
54	10. 600010	600055	600099	600144	600189	600233	600278	600322	600367	600412	600456	600501	5	3. 27
55	10. 600545	600590	600635	600679	600724	600768	600813	600858	600902	600947	600992	601036	4	4. 36
56	10. 601081	601126	601170	601215	601259	601304	601349	601394	601438	601483	601528	601572	3	1 = 9
57	10. 601617	601662	601706	601751	601796	601841	601885	601930	601975	602019	602064	602109	2	2. 18
58	10. 602154	602198	602243	602288	602333	602378	602422	602467	602512	602557	602601	602646	1	3. 27
59	10. 602691	602736	602781	602825	602870	602915	602960	603005	603050	603094	603139	603184	0	4. 36
	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.

Co-tangent of 14 degrees, or Tangent of 104 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 76 degrees, or Co-tangent of 166 degrees.												Minutes	Proportional parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 603229	603274	603319	603363	603408	603453	603498	603543	603588	603633	603678	603722	59	1″= 0
1	10. 603767	603812	603857	603902	603947	603992	604037	604082	604127	604172	604217	604261	58	2. 18
2	10. 604306	604351	604396	604441	604486	604531	604576	604621	604666	604711	604756	604801	57	3. 27
3	10. 604846	604891	604936	604981	605026	605071	605116	605161	605206	605251	605296	605341	56	4. 36
4	10. 605386	605431	605476	605522	605567	605612	605657	605702	605747	605792	605837	605882	55	1 = 0
5	10. 605927	605972	606017	606063	606108	606153	606198	606243	606288	606333	606378	606424	54	2. 18
6	10. 606469	606514	606559	606604	606649	606694	606740	606785	606830	606875	606920	606966	53	3. 27
7	10. 607011	607056	607101	607146	607192	607237	607282	607327	607372	607418	607463	607508	52	4. 36
8	10. 607553	607599	607644	607689	607734	607780	607825	607870	607915	607961	608006	608051	51	1 = 0
9	10. 608097	608142	608187	608232	608278	608323	608368	608414	608459	608504	608550	608595	50	2. 18
10	10. 608640	608686	608731	608776	608822	608867	608913	608958	609003	609049	609094	609139	49	3. 27
11	10. 609185	609230	609276	609321	609366	609412	609457	609503	609548	609594	609639	609684	48	4. 36
12	10. 609730	609775	609821	609866	609912	609957	610003	610048	610094	610139	610185	610230	47	1 = 0
13	10. 610276	610321	610367	610412	610458	610503	610549	610594	610640	610685	610731	610776	46	2. 18
14	10. 610822	610867	610913	610959	611004	611050	611095	611141	611186	611232	611278	611323	45	3. 27
15	10. 611369	611414	611460	611506	611551	611597	611642	611688	611734	611779	611825	611871	44	4. 36
16	10. 611916	611962	612008	612053	612099	612145	612190	612236	612282	612327	612373	612419	43	1 = 0
17	10. 612464	612510	612556	612601	612647	612693	612739	612784	612830	612876	612922	612967	42	2. 18
18	10. 613013	613059	613105	613150	613196	613242	613288	613333	613379	613425	613471	613517	41	3. 27
19	10. 613562	613608	613654	613700	613746	613791	613837	613883	613929	613975	614021	614066	40	4. 36
20	10. 614112	614158	614204	614250	614296	614342	614388	614433	614479	614525	614571	614617	39	1 = 0
21	10. 614663	614709	614755	614801	614847	614893	614938	614984	615030	615076	615122	615168	38	2. 18
22	10. 615214	615260	615306	615352	615398	615444	615490	615536	615582	615628	615674	615720	37	3. 28
23	10. 615766	615812	615858	615904	615950	615996	616042	616088	616134	616180	616226	616272	36	4. 37
24	10. 616318	616364	616411	616457	616503	616549	616595	616641	616687	616733	616779	616825	35	1 = 0
25	10. 616871	616918	616964	617010	617056	617102	617148	617194	617240	617287	617333	617379	34	2. 18
26	10. 617425	617471	617517	617564	617610	617656	617702	617748	617795	617841	617887	617933	33	3. 28
27	10. 617979	618026	618072	618118	618164	618211	618257	618303	618349	618396	618442	618488	32	4. 37
28	10. 618534	618581	618627	618673	618720	618766	618812	618858	618905	618951	618997	619044	31	1 = 0
29	10. 619090	619136	619183	619229	619275	619322	619368	619414	619461	619507	619553	619600	30	2. 18
30	10. 619646	619693	619739	619785	619832	619878	619925	619971	620017	620064	620110	620157	29	3. 28
31	10. 620203	620250	620296	620342	620389	620435	620482	620528	620575	620621	620668	620714	28	4. 37
32	10. 620761	620807	620854	620900	620947	620993	621040	621086	621133	621179	621226	621272	27	1 = 0
33	10. 621319	621365	621412	621458	621505	621551	621598	621645	621691	621738	621784	621831	26	2. 18
34	10. 621877	621924	621971	622017	622064	622110	622157	622204	622250	622297	622344	622390	25	3. 28
35	10. 622437	622484	622530	622577	622623	622670	622717	622763	622810	622857	622904	622950	24	4. 37
36	10. 622997	623044	623090	623137	623184	623230	623277	623324	623371	623417	623464	623511	23	1 = 0
37	10. 623558	623604	623651	623698	623745	623791	623838	623885	623932	623979	624025	624072	22	2. 18
38	10. 624119	624166	624213	624259	624306	624353	624400	624447	624494	624540	624587	624634	21	3. 28
39	10. 624681	624728	624775	624822	624868	624915	624962	625009	625056	625103	625150	625197	20	4. 37
40	10. 625244	625291	625337	625384	625431	625478	625525	625572	625619	625666	625713	625760	19	1 = 0
41	10. 625807	625854	625901	625948	625995	626042	626089	626136	626183	626230	626277	626324	18	2. 18
42	10. 626371	626418	626465	626512	626559	626606	626653	626700	626747	626794	626841	626888	17	3. 28
43	10. 626935	626983	627030	627077	627124	627171	627218	627265	627312	627359	627407	627454	16	4. 37
44	10. 627501	627548	627595	627642	627689	627736	627784	627831	627878	627925	627972	628019	15	1 = 0
45	10. 628067	628114	628161	628208	628255	628303	628350	628397	628444	628492	628539	628586	14	2. 18
46	10. 628633	628681	628728	628775	628822	628870	628917	628964	629011	629059	629106	629153	13	3. 28
47	10. 629201	629248	629295	629342	629390	629437	629484	629532	629579	629626	629674	629721	12	4. 37
48	10. 629768	629816	629863	629911	629958	630005	630053	630100	630147	630195	630242	630290	11	1 = 0
49	10. 630337	630384	630432	630479	630527	630574	630622	630669	630716	630764	630811	630859	10	2. 18
50	10. 630906	630954	631001	631049	631096	631144	631191	631239	631286	631334	631381	631429	9	3. 28
51	10. 631476	631524	631571	631619	631666	631714	631761	631809	631856	631904	631952	631999	8	4. 37
52	10. 632047	632094	632142	632190	632237	632285	632332	632380	632428	632475	632523	632570	7	1 = 0
53	10. 632618	632666	632713	632761	632809	632856	632904	632952	632999	633047	633095	633142	6	2. 18
54	10. 633190	633238	633285	633333	633381	633428	633476	633524	633572	633619	633667	633715	5	3. 28
55	10. 633763	633810	633858	633906	633954	634001	634049	634097	634145	634192	634240	634288	4	4. 37
56	10. 634336	634384	634431	634479	634527	634575	634623	634671	634718	634766	634814	634862	3	1 = 0
57	10. 634910	634958	635006	635053	635101	635149	635197	635245	635293	635341	635389	635437	2	2. 18
58	10. 635484	635532	635580	635628	635676	635724	635772	635820	635868	635916	635964	636012	1	3. 28
59	10. 636060	636108	636156	636204	636252	636300	636348	636396	636444	636492	636540	636588	0	4. 37
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts.
	Co-tangent of 13 degrees, or Tangent of 103 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 77 degrees, or Co-tangent of 167 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 636636	636684	636732	636780	636828	636876	636924	636972	637020	637068	637116	637164	59	1″=10
1	10. 637213	637261	637309	637357	637405	637453	637501	637549	637597	637646	637694	637742	58	2. 19
2	10. 637790	637838	637886	637934	637983	638031	638079	638127	638175	638223	638272	638320	57	3. 29
3	10. 638368	638416	638464	638513	638561	638609	638657	638706	638754	638802	638850	638899	56	4. 39
4	10. 638947	638995	639043	639092	639140	639188	639236	639285	639333	639381	639430	639478	55	1 =10
5	10. 639526	639575	639623	639671	639720	639768	639816	639865	639913	639961	640010	640058	54	2. 19
6	10. 640106	640155	640203	640252	640300	640348	640397	640445	640494	640542	640591	640639	53	3. 29
7	10. 640687	640736	640784	640833	640881	640930	640978	641027	641075	641123	641172	641220	52	4. 39
8	10. 641269	641317	641366	641414	641463	641511	641560	641609	641657	641706	641754	641803	51	1 =10
9	10 641851	641900	641948	641997	642045	642094	642143	642191	642240	642288	642337	642386	50	2. 19
10	10. 642434	642483	642531	642580	642629	642677	642726	642775	642823	642872	642921	642969	49	3. 29
11	10. 643018	643067	643115	643164	643213	643261	643310	643359	643407	643456	643505	643554	48	4. 39
12	10. 643602	643651	643700	643748	643797	643846	643895	643944	643992	644041	644090	644139	47	1 =10
13	10. 644187	644236	644285	644334	644383	644431	644480	644529	644578	644627	644676	644724	46	2. 20
14	10. 644773	644822	644871	644920	644969	645018	645066	645115	645164	645213	645262	645311	45	3. 29
15	10. 645360	645409	645458	645506	645555	645604	645653	645702	645751	645800	645849	645898	44	4. 39
16	10. 645947	645996	646045	646094	646143	646192	646241	646290	646339	646388	646437	646486	43	1 =10
17	10. 646535	646584	646633	646682	646731	646780	646829	646878	646927	646976	647025	647075	42	2. 20
18	10. 647124	647173	647222	647271	647320	647369	647418	647467	647516	647566	647615	647664	41	3. 29
19	10. 647713	647762	647811	647861	647910	647959	648008	648057	648106	648156	648205	648254	40	4. 39
20	10. 648303	648352	648402	648451	648500	648549	648599	648648	648697	648746	648795	648845	39	1 =10
21	10. 648894	648943	648993	649042	649091	649140	649190	649239	649288	649338	649387	649436	38	2. 20
22	10. 649486	649535	649584	649634	649683	649732	649782	649831	649880	649930	649979	650029	37	3. 30
23	10. 650078	650127	650177	650226	650276	650325	650374	650424	650473	650523	650572	650622	36	4. 39
24	10. 650671	650720	650770	650819	650869	650918	650968	651017	651067	651116	651166	651215	35	1 =10
25	10. 651265	651314	651364	651413	651463	651512	651562	651611	651661	651711	651760	651810	34	2. 20
26	10. 651859	651909	651958	652008	652058	652107	652157	652206	652256	652306	652355	652405	33	3. 30
27	10. 652455	652504	652554	652603	652653	652703	652752	652802	652852	652901	652951	653001	32	4. 40
28	10. 653051	653100	653150	653200	653249	653299	653349	653399	653448	653498	653548	653597	31	1 =10
29	10. 653647	653697	653747	653797	653846	653896	653946	653996	654045	654095	654145	654195	30	2. 20
30	10. 654245	654295	654344	654394	654444	654494	654544	654594	654643	654693	654743	654793	29	3. 30
31	10. 654843	654893	654943	654993	655043	655092	655142	655192	655242	655292	655342	655392	28	4. 40
32	10. 655442	655492	655542	655592	655642	655692	655742	655792	655842	655892	655942	655992	27	1 =10
33	10. 656042	656092	656142	656192	656242	656292	656342	656392	656442	656492	656542	656592	26	2. 20
34	10. 656642	656692	656742	656792	656842	656893	656943	656993	657043	657093	657143	657193	25	3. 30
35	10. 657243	657293	657344	657394	657444	657494	657544	657594	657645	657695	657745	657795	24	4. 40
36	10. 657845	657896	657946	657996	658046	658096	658147	658197	658247	658297	658348	658398	23	1 =10
37	10. 658448	658498	658549	658599	658649	658699	658750	658800	658850	658901	658951	659001	22	2. 20
38	10. 659052	659102	659152	659203	659253	659303	659354	659404	659454	659505	659555	659605	21	3. 30
39	10. 659656	659706	659757	659807	659857	659908	659958	660009	660059	660110	660160	660210	20	4. 40
40	10. 660261	660311	660362	660412	660463	660513	660564	660614	660665	660715	660766	660816	19	1 =10
41	10. 660867	660917	660968	661018	661069	661119	661170	661220	661271	661322	661372	661423	18	2. 20
42	10. 661473	661524	661574	661625	661676	661726	661777	661827	661878	661929	661979	662030	17	3. 30
43	10. 662081	662131	662182	662233	662283	662334	662385	662435	662486	662537	662587	662638	16	4. 40
44	10. 662689	662739	662790	662841	662892	662942	662993	663044	663095	663145	663196	663247	15	1 =10
45	10. 663298	663348	663399	663450	663501	663551	663602	663653	663704	663755	663806	663856	14	2. 20
46	10. 663907	663958	664009	664060	664111	664161	664212	664263	664314	664365	664416	664467	13	3. 31
47	10. 664518	664569	664619	664670	664721	664772	664823	664874	664925	664976	665027	665078	12	4. 41
48	10. 665129	665180	665231	665282	665333	665384	665435	665486	665537	665588	665639	665690	11	1 =10
49	10. 665741	665792	665843	665894	665945	665996	666047	666098	666149	666200	666252	666303	10	2. 20
50	10. 666354	666405	666456	666507	666558	666609	666660	666712	666763	666814	666865	666916	9	3. 31
51	10. 666967	667018	667070	667121	667172	667223	667274	667326	667377	667428	667479	667530	8	4. 41
52	10. 667582	667633	667684	667735	667787	667838	667889	667940	667992	668043	668094	668146	7	1 =10
53	10. 668197	668248	668299	668351	668402	668453	668505	668556	668607	668659	668710	668761	6	2. 21
54	10. 668813	668864	668916	668967	669018	669070	669121	669172	669224	669275	669327	669378	5	3. 31
55	10. 669430	669481	669532	669584	669635	669687	669738	669790	669841	669893	669944	669996	4	4. 41
56	10. 670047	670099	670150	670202	670253	670305	670356	670408	670459	670511	670562	670614	3	1 =10
57	10. 670665	670717	670769	670820	670872	670923	670975	671027	671078	671130	671181	671233	2	2. 21
58	10. 671285	671336	671388	671440	671491	671543	671595	671646	671698	671750	671801	671853	1	3. 31
59	10. 671905	671956	672008	672060	672111	672163	672215	672267	672318	672370	672422	672474	0	4. 41
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 12 degrees, or Tangent of 102 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 78 degrees, or Co-tangent of 168 degrees.												Minutes	Proper parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 672525	672577	672629	672681	672733	672784	672836	672888	672940	672992	673043	673095	59	1″=10
1	10. 673147	673199	673251	673303	673354	673406	673458	673510	673562	673614	673666	673718	58	2. 21
2	10. 673769	673821	673873	673925	673977	674029	674081	674133	674185	674237	674289	674341	57	3. 31
3	10. 674393	674445	674497	674549	674601	674653	674705	674757	674809	674861	674913	674965	56	4. 42
4	10. 675017	675069	675121	675173	675225	675277	675329	675381	675433	675485	675537	675589	55	1 =10
5	10. 675642	675694	675746	675798	675850	675902	675954	676006	676059	676111	676163	676215	54	2. 21
6	10. 676267	676319	676372	676424	676476	676528	676580	676633	676685	676737	676789	676842	53	3. 31
7	10. 676894	676946	676998	677051	677103	677155	677207	677260	677312	677364	677417	677469	52	4. 42
8	10. 677521	677573	677626	677678	677730	677783	677835	677887	677940	677992	678045	678097	51	1 =10
9	10. 678149	678202	678254	678307	678359	678411	678464	678516	678569	678621	678673	678726	50	2. 21
10	10. 678778	678831	678883	678936	678988	679041	679093	679146	679198	679251	679303	679356	49	3. 31
11	10. 679408	679461	679513	679566	679618	679671	679723	679776	679829	679881	679934	679986	48	4. 42
12	10. 680039	680091	680144	680197	680249	680302	680355	680407	680460	680512	680565	680618	47	1 =11
13	10. 680670	680723	680776	680828	680881	680934	680986	681039	681092	681145	681197	681250	46	2. 21
14	10. 681303	681356	681408	681461	681514	681567	681619	681672	681725	681778	681830	681883	45	3. 32
15	10. 681936	681989	682042	682094	682147	682200	682253	682306	682359	682411	682464	682517	44	4. 42
16	10. 682570	682623	682676	682729	682782	682834	682887	682940	682993	683046	683099	683152	43	1 =11
17	10. 683205	683258	683311	683364	683417	683470	683523	683576	683629	683682	683735	683788	42	2. 21
18	10. 683841	683894	683947	684000	684053	684106	684159	684212	684265	684318	684371	684424	41	3. 32
19	10. 684477	684530	684584	684637	684690	684743	684796	684849	684902	684955	685009	685062	40	4. 42
20	10. 685115	685168	685221	685274	685328	685381	685434	685487	685540	685593	685647	685700	39	1 =11
21	10. 685753	685806	685860	685913	685966	686019	686073	686126	686179	686232	686286	686339	38	2. 21
22	10. 686392	686446	686499	686552	686606	686659	686712	686766	686819	686872	686926	686979	37	3. 32
23	10. 687032	687086	687139	687193	687246	687299	687353	687406	687460	687513	687566	687620	36	4. 43
24	10. 687673	687727	687780	687834	687887	687941	687994	688048	688101	688155	688208	688262	35	1 =11
25	10. 688315	688369	688422	688476	688529	688583	688636	688690	688744	688797	688851	688904	34	2. 21
26	10. 688958	689011	689065	689119	689172	689226	689280	689333	689387	689440	689494	689548	33	3. 32
27	10. 689601	689655	689709	689762	689816	689870	689924	689977	690031	690085	690138	690192	32	4. 43
28	10. 690246	690300	690353	690407	690461	690515	690568	690622	690676	690730	690784	690837	31	1 =11
29	10. 690891	690945	690999	691053	691106	691160	691214	691268	691322	691376	691430	691483	30	2. 22
30	10. 691537	691591	691645	691699	691753	691807	691861	691915	691969	692023	692077	692130	29	3. 32
31	10. 692184	692238	692292	692346	692400	692454	692508	692562	692616	692670	692724	692778	28	4. 43
32	10. 692832	692886	692940	692995	693049	693103	693157	693211	693265	693319	693373	693427	27	1 =11
33	10. 693481	693535	693589	693644	693698	693752	693806	693860	693914	693969	694023	694077	26	2. 22
34	10. 694131	694185	694239	694294	694348	694402	694456	694510	694565	694619	694673	694727	25	3. 33
35	10. 694782	694836	694890	694944	694999	695053	695107	695162	695216	695270	695325	695379	24	4. 43
36	10. 695433	695488	695542	695596	695651	695705	695759	695814	695868	695922	695977	696031	23	1 =11
37	10. 696086	696140	696195	696249	696303	696358	696412	696467	696521	696576	696630	696685	22	2. 22
38	10. 696739	696794	696848	696903	696957	697012	697066	697121	697175	697230	697284	697339	21	3. 33
39	10. 697393	697448	697502	697557	697612	697666	697721	697775	697830	697885	697939	697994	20	4. 44
40	10. 698049	698103	698158	698212	698267	698322	698376	698431	698486	698540	698595	698650	19	1 =11
41	10. 698705	698759	698814	698869	698924	698978	699033	699088	699143	699197	699252	699307	18	2. 22
42	10. 699362	699416	699471	699526	699581	699636	699690	699745	699800	699855	699910	699965	17	3. 33
43	10. 700020	700074	700129	700184	700239	700294	700349	700404	700459	700514	700569	700623	16	4. 44
44	10. 700678	700733	700788	700843	700898	700953	701008	701063	701118	701173	701228	701283	15	1 =11
45	10. 701338	701393	701448	701503	701558	701613	701668	701723	701779	701834	701889	701944	14	2. 22
46	10. 701999	702054	702109	702164	702219	702274	702330	702385	702440	702495	702550	702605	13	3. 33
47	10. 702660	702716	702771	702826	702881	702936	702992	703047	703102	703157	703213	703268	12	4. 44
48	10. 703323	703378	703434	703489	703544	703599	703655	703710	703765	703821	703876	703931	11	1 =11
49	10. 703987	704042	704097	704153	704208	704263	704319	704374	704429	704485	704540	704596	10	2. 22
50	10. 704651	704706	704762	704817	704873	704928	704984	705039	705094	705150	705205	705261	9	3. 33
51	10. 705316	705372	705427	705483	705538	705594	705649	705705	705761	705816	705872	705927	8	4. 44
52	10. 705983	706038	706094	706149	706205	706261	706316	706372	706427	706483	706539	706594	7	1 =11
53	10. 706650	706706	706761	706817	706873	706928	706984	707040	707095	707151	707207	707262	6	2. 22
54	10. 707318	707374	707430	707485	707541	707597	707653	707708	707764	707820	707876	707932	5	3. 34
55	10. 707987	708043	708099	708155	708211	708266	708322	708378	708434	708490	708546	708602	4	4. 45
56	10. 708658	708713	708769	708825	708881	708937	708993	709049	709105	709161	709217	709273	3	1 =11
57	10. 709329	709385	709441	709497	709553	709609	709665	709721	709777	709833	709889	709945	2	2. 22
58	10. 710001	710057	710113	710169	710225	710281	710337	710393	710449	710505	710561	710618	1	3. 34
59	10. 710674	710730	710786	710842	710898	710954	711011	711067	711123	711179	711235	711291	0	4. 45
Minutes	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper parts.
	Co-tangent of 11 degrees, or Tangent of 101 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 79 degrees, or Co-tangent of 169 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 711348	711404	711460	711516	711573	711629	711685	711741	711798	711854	711910	711966	59	1″ = 11
1	10. 712023	712079	712135	712192	712248	712304	712360	712417	712473	712530	712586	712642	58	2. 23
2	10. 712699	712755	712811	712868	712924	712981	713037	713093	713150	713206	713263	713319	57	3. 34
3	10. 713375	713432	713488	713545	713601	713658	713714	713771	713827	713884	713940	713997	56	4. 45
4	10. 714053	714110	714166	714223	714280	714336	714393	714449	714506	714562	714619	714676	55	1 = 11
5	10. 714732	714789	714845	714902	714959	715015	715072	715129	715185	715242	715299	715355	54	2. 23
6	10. 715412	715469	715526	715582	715639	715696	715752	715809	715866	715923	715979	716036	53	3. 34
7	10. 716093	716150	716207	716263	716320	716377	716434	716491	716547	716604	716661	716718	52	4. 45
8	10. 716775	716832	716889	716945	717002	717059	717116	717173	717230	717287	717344	717401	51	1 = 11
9	10. 717458	717515	717572	717629	717685	717742	717799	717856	717913	717970	718027	718084	50	2. 23
10	10. 718141	718199	718256	718313	718370	718427	718484	718541	718598	718655	718712	718769	49	3. 34
11	10. 718826	718883	718941	718998	719055	719112	719169	719226	719283	719341	719398	719455	48	4. 46
12	10. 719512	719569	719627	719684	719741	719798	719855	719913	719970	720027	720084	720142	47	1 = 11
13	10. 720199	720256	720314	720371	720428	720486	720543	720600	720657	720715	720772	720830	46	2. 23
14	10. 720887	720944	721002	721059	721116	721174	721231	721289	721346	721403	721461	721518	45	3. 34
15	10. 721576	721633	721691	721748	721806	721863	721921	721978	722036	722093	722151	722208	44	4. 46
16	10. 722266	722323	722381	722438	722496	722553	722611	722669	722726	722784	722841	722899	43	1 = 12
17	10. 722957	723014	723072	723129	723187	723245	723302	723360	723418	723475	723533	723591	42	2. 23
18	10. 723649	723706	723764	723822	723879	723937	723995	724053	724110	724168	724226	724284	41	3. 35
19	10. 724342	724399	724457	724515	724573	724631	724688	724746	724804	724862	724920	724978	40	4. 46
20	10. 725036	725093	725151	725209	725267	725325	725383	725441	725499	725557	725615	725673	39	1 = 12
21	10. 725731	725789	725847	725904	725962	726020	726078	726136	726194	726253	726311	726369	38	2. 23
22	10. 726427	726485	726543	726601	726659	726717	726775	726833	726891	726949	727008	727066	37	3. 35
23	10. 727124	727182	727240	727298	727356	727415	727473	727531	727589	727647	727705	727764	36	4. 46
24	10. 727822	727880	727938	727997	728055	728113	728171	728230	728288	728346	728405	728463	35	1 = 12
25	10. 728521	728579	728638	728696	728754	728813	728871	728929	728988	729046	729105	729163	34	2. 23
26	10. 729221	729280	729338	729397	729455	729513	729572	729630	729689	729747	729806	729864	33	3. 35
27	10. 729923	729981	730040	730098	730157	730215	730274	730332	730391	730449	730508	730567	32	4. 47
28	10. 730625	730684	730742	730801	730859	730918	730977	731035	731094	731153	731211	731270	31	1 = 12
29	10. 731329	731387	731446	731505	731563	731622	731681	731739	731798	731857	731916	731974	30	2. 24
30	10. 732033	732092	732151	732209	732268	732327	732386	732444	732503	732562	732621	732680	29	3. 35
31	10. 732739	732797	732856	732915	732974	733033	733092	733151	733210	733268	733327	733386	28	4. 47
32	10. 733445	733504	733563	733622	733681	733740	733799	733858	733917	733976	734035	734094	27	1 = 12
33	10. 734153	734212	734271	734330	734389	734448	734507	734566	734625	734684	734744	734803	26	2. 24
34	10. 734862	734921	734980	735039	735098	735157	735217	735276	735335	735394	735453	735512	25	3. 35
35	10. 735572	735631	735690	735749	735809	735868	735927	735986	736045	736105	736164	736223	24	4. 47
36	10. 736283	736342	736401	736461	736520	736579	736638	736698	736757	736817	736876	736935	23	1 = 12
37	10. 736995	737054	737113	737173	737232	737292	737351	737411	737470	737529	737589	737648	22	2. 24
38	10. 737708	737767	737827	737886	737946	738005	738065	738124	738184	738243	738303	738362	21	3. 36
39	10. 738422	738482	738541	738601	738660	738720	738780	738839	738899	738958	739018	739078	20	4. 48
40	10. 739137	739197	739257	739316	739376	739436	739495	739555	739615	739675	739734	739794	19	1 = 12
41	10. 739854	739914	739973	740033	740093	740153	740212	740272	740332	740392	740452	740512	18	2. 24
42	10. 740571	740631	740691	740751	740811	740871	740931	740991	741050	741110	741170	741230	17	3. 36
43	10. 741290	741350	741410	741470	741530	741590	741650	741710	741770	741830	741890	741950	16	4. 48
44	10. 742010	742070	742130	742190	742250	742310	742370	742430	742490	742550	742611	742671	15	1 = 12
45	10. 742731	742791	742851	742911	742971	743031	743092	743152	743212	743272	743332	743393	14	2. 24
46	10. 743453	743513	743573	743633	743694	743754	743814	743874	743935	743995	744055	744116	13	3. 36
47	10. 744176	744236	744297	744357	744417	744478	744538	744598	744659	744719	744779	744840	12	4. 48
48	10. 744900	744961	745021	745081	745142	745202	745263	745323	745384	745444	745505	745565	11	1 = 12
49	10. 745626	745686	745747	745807	745868	745928	745989	746049	746110	746170	746231	746292	10	2. 24
50	10. 746352	746413	746473	746534	746595	746655	746716	746777	746837	746898	746959	747019	9	3. 36
51	10. 747080	747141	747201	747262	747323	747383	747444	747505	747566	747626	747687	747748	8	4. 48
52	10. 747809	747870	747930	747991	748052	748113	748174	748234	748295	748356	748417	748478	7	1 = 12
53	10. 748539	748600	748661	748721	748782	748843	748904	748965	749026	749087	749148	749209	6	2. 24
54	10. 749270	749331	749392	749453	749514	749575	749636	749697	749758	749819	749880	749941	5	3. 37
55	10. 750002	750063	750124	750185	750247	750308	750369	750430	750491	750552	750613	750674	4	4. 49
56	10. 750736	750797	750858	750919	750980	751042	751103	751164	751225	751287	751348	751409	3	1 = 12
57	10. 751470	751532	751593	751654	751715	751777	751838	751899	751961	752022	752083	752145	2	2. 25
58	10. 752206	752267	752329	752390	752452	752513	752574	752636	752697	752759	752820	752882	1	3. 37
59	10. 752943	753005	753066	753127	753189	753250	753312	753373	753435	753497	753558	753620	0	4. 49
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 10 degrees, or Tangent of 100 degrees.													

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Tangent of 78 degre

	0′	5′	10″	15″	20
	10. 672525	672577	672629	672681	67
1	10. 673147	673199	673251	673303	67
2	10. 673769	673821	673873	673925	67
3	10. 674393	674445	674497	674549	67
4	10. 675017	675069	675121	675173	67
5	10. 675642	675694	675746	675798	6
6	10. 676267	676319	676372	676424	6
7	10. 676894	676946	676998	677051	6
8	10. 677521	677573	677626	677678	6
9	10. 678149	678202	678254	678307	6
10	10. 678778	678831	678883	678936	6
11	10. 679408	679461	679513	679566	6
12	10. 680039	680091	680144	680197	6
13	10. 680670	680723	680776	680829	6
14	10. 681303	681356	681408	681461	6
15	10. 681936	681989	682042	682095	6
16	10. 682570	682623	682676	682729	6
17	10. 683205	683258	683311	683364	6
18	10. 683841	683894	683947	684000	6
19	10. 684477	684530	684584	684637	6
20	10. 685115	685168	685221	685274	6
21	10. 685753	685806	685860	685913	6
22	10. 686392	686446	686499	686552	6
23	10. 687032	687086	687139	687192	6
24	10. 687673	687727	687780	687833	6
25	10. 688315	688369	688422	688476	6
26	10. 688958	689011	689065	689118	6
27	10. 689601	689655	689709	689762	6
28	10. 690246	690300	690353	690407	6
29	10. 690891	690945	690999	691052	6
30	10. 691537	691591	691645	691698	6
31	10. 692184	692238	692292	692345	6
32	10. 692832	692886	692940	692993	6
33	10. 693481	693535	693589	693642	6
34	10. 694131	694185	694239	694292	6
35	10. 694782	694836	694890	694943	6
36	10. 695433	695488	695542	695595	6
37	10. 696086	696140	696194	696247	6
38	10. 696739	696794	696848	696901	6
39	10. 697393	697448	697502	697555	6
40	10. 698049	698103	698157	698210	6
41	10. 698705	698759	698813	698866	6
42	10. 699362	699416	699470	699523	6
43	10. 700020	700074	700128	700181	7
44	10. 700678	700732	700786	700839	7
45	10. 701338	701392	701446	701499	7
46	10. 701999	702053	702107	702160	7
47	10. 702660	702714	702768	702821	7
48	10. 703323	703377	703431	703484	7
49	10. 703987	704041	704095	704148	7
50	10. 704651	704705	704759	704812	7
51	10. 705316	705370	705424	705477	7
52	10. 705983	706037	706091	706144	7
53	10. 706650	706704	706758	706811	7
54	10. 707318	707372	707426	707479	7
55	10. 707987	708041	708095	708148	7
	10. 708658	708712	708766	708819	7
	10. 709329	709383	709437	709490	7
	10. 710001	710055	710109	710162	7
	10. 710674	710728	710782	710835	7

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LOGARITHMIC TANGENTS.

Minutes		degrees, or 70 degrees.		Seconds	Minutes	Propor. parts.
			10″			
		458	10. 776523	45		1″ = 13
		652	10. 776717	30		2. 26
		846	10. 776911	15		3. 39
		041	10. 777105	0	29	4. 52
		7235	10. 777300	45		1 = 13
		7429	10. 777494	30		2. 26
		7624	10. 777689	15		3. 39
		7818	10. 777883	0	28	4. 52
		8013	10. 778078	45		1 = 13
		8208	10. 778273	30		2. 26
		8403	10. 778468	15		3. 39
		8598	10. 778663	0	27	4. 52
		8793	10. 778858	45		1 = 13
		8988	10. 779053	30		2. 26
		9183	10. 779248	15		3. 39
		9378	10. 779443	0	26	4. 52
		9573	10. 779638	45		1 = 13
		9769	10. 779834	30		2. 26
		9964	10. 780029	15		3. 39
		0160	10. 780225	0	25	4. 52
		0355	10. 780421	45		1 = 13
		0551	10. 780616	30		2. 26
		0747	10. 780812	15		3. 39
		0943	10. 781008	0	24	4. 52
		1139	10. 781204	45		1 = 13
		1335	10. 781400	30		2. 26
		1531	10. 781597	15		3. 39
		1727	10. 781793	0	23	4. 52
		1924	10. 781989	45		1 = 13
		2120	10. 782186	30		2. 26
		2317	10. 782382	15		3. 39
		2513	10. 782579	0	22	4. 52
		2710	10. 782775	45		1 = 13
		2907	10. 782972	30		2. 26
		3103	10. 783169	15		3. 39
		3300	10. 783366	0	21	4. 52
		3497	10. 783563	45		1 = 13
		3694	10. 783760	30		2. 26
		3892	10. 783957	15		3. 39
		4089	10. 784155	0	20	4. 53
		4286	10. 784352	45		1 = 13
		4484	10. 784549	30		2. 26
		4681	10. 784747	15		3. 40
		4879	10. 784945	0	19	4. 53
		5076	10. 785142	45		1 = 13
		5274	10. 785340	30		2. 26
		5472	10. 785538	15		3. 40
		5670	10. 785736	0	18	4. 53
		5868	10. 785934	45		1 = 13
		6066	10. 786132	30		2. 26
		6264	10. 786330	15		3. 40
		6463	10. 786529	0	17	4. 53
		6661	10. 786727	45		1 = 13
		6859	10. 786926	30		2. 26
		7058	10. 787124	15		3. 40
		7257	10. 787323	0	16	4. 53
		7455	10. 787522	45		1 = 13
		7654	10. 787720	30		2. 27
		7853	10. 787919	15		3. 40
		8052	10. 788118	0	15	4. 53
		15″	10″			
		Co-tangent of 9 degrees, or Tangent of 99 degrees.		Seconds	Minutes	Propor. parts.

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 788185	10. 788251	10. 788317	45		1″ = 13
	15	10. 788384	10. 788450	10. 788517	30		2. 27
	30	10. 788583	10. 788649	10. 788716	15		3. 40
	45	10. 788782	10. 788849	10. 788915	0	14	4. 53
46	0	10. 788982	10. 789048	10. 789115	45		1 = 13
	15	10. 789181	10. 789248	10. 789314	30		2. 27
	30	10. 789381	10. 789447	10. 789514	15		3. 40
	45	10. 789580	10. 789647	10. 789713	0	13	4. 53
47	0	10. 789780	10. 789847	10. 789913	45		1 = 13
	15	10. 789980	10. 790046	10. 790113	30		2. 27
	30	10. 790180	10. 790246	10. 790313	15		3. 40
	45	10. 790380	10. 790446	10. 790513	0	12	4. 53
48	0	10. 790580	10. 790646	10. 790713	45		1 = 13
	15	10. 790780	10. 790847	10. 790913	30		2. 27
	30	10. 790980	10. 791047	10. 791114	15		3. 40
	45	10. 791180	10. 791247	10. 791314	0	11	4. 53
49	0	10. 791381	10. 791448	10. 791515	45		1 = 13
	15	10. 791581	10. 791648	10. 791715	30		2. 27
	30	10. 791782	10. 791849	10. 791916	15		3. 40
	45	10. 791983	10. 792050	10. 792116	0	10	4. 53
50	0	10. 792183	10. 792250	10. 792317	45		1 = 13
	15	10. 792384	10. 792451	10. 792518	30		2. 27
	30	10. 792585	10. 792652	10. 792719	15		3. 40
	45	10. 792786	10. 792853	10. 792920	0	9	4. 54
51	0	10. 792987	10. 793054	10. 793122	45		1 = 13
	15	10. 793189	10. 793256	10. 793323	30		2. 27
	30	10. 793390	10. 793457	10. 793524	15		3. 40
	45	10. 793591	10. 793658	10. 793726	0	8	4. 54
52	0	10. 793793	10. 793860	10. 793927	45		1 = 13
	15	10. 793994	10. 794062	10. 794129	30		2. 27
	30	10. 794196	10. 794263	10. 794330	15		3. 40
	45	10. 794398	10. 794465	10. 794532	0	7	4. 54
53	0	10. 794600	10. 794667	10. 794734	45		1 = 13
	15	10. 794801	10. 794869	10. 794936	30		2. 27
	30	10. 795004	10. 795071	10. 795138	15		3. 40
	45	10. 795206	10. 795273	10. 795340	0	6	4. 54
54	0	10. 795408	10. 795475	10. 795543	45		1 = 13
	15	10. 795610	10. 795678	10. 795745	30		2. 27
	30	10. 795812	10. 795880	10. 795947	15		3. 40
	45	10. 796015	10. 796082	10. 796150	0	5	4. 54
55	0	10. 796217	10. 796285	10. 796353	45		1 = 14
	15	10. 796420	10. 796488	10. 796555	30		2. 27
	30	10. 796623	10. 796690	10. 796758	15		3. 41
	45	10. 796826	10. 796893	10. 796961	0	4	4. 54
56	0	10. 797029	10. 797096	10. 797164	45		1 = 14
	15	10. 797232	10. 797299	10. 797367	30		2. 27
	30	10. 797435	10. 797502	10. 797570	15		3. 41
	45	10. 797638	10. 797706	10. 797773	0	3	4. 54
57	0	10. 797841	10. 797909	10. 797977	45		1 = 14
	15	10. 798044	10. 798112	10. 798180	30		2. 27
	30	10. 798248	10. 798316	10. 798384	15		3. 41
	45	10. 798451	10. 798519	10. 798587	0	2	4. 54
58	0	10. 798655	10. 798723	10. 798791	45		1 = 14
	15	10. 798859	10. 798927	10. 798995	30		2. 27
	30	10. 799063	10. 799131	10. 799199	15		3. 41
	45	10. 799267	10. 799335	10. 799403	0	1	4. 54
59	0	10. 799471	10. 799539	10. 799607	45		1 = 14
	15	10. 799675	10. 799743	10. 799811	30		2. 27
	30	10. 799879	10. 799947	10. 800015	15		3. 41
	45	10. 800083	10. 800151	10. 800219	0	0	4. 54
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 753681	10. 753743	10. 753804	45		1″ = 12
	15	10. 753866	10. 753927	10. 753989	30		2. 25
	30	10. 754051	10. 754112	10. 754174	15		3. 37
	45	10. 754236	10. 754297	10. 754359	0	59	4. 49
1	0	10. 754421	10. 754482	10. 754544	45		1 = 12
	15	10. 754606	10. 754667	10. 754729	30		2. 25
	30	10. 754791	10. 754852	10. 754914	15		3. 37
	45	10. 754976	10. 755038	10. 755099	0	58	4. 49
2	0	10. 755161	10. 755223	10. 755285	45		1 = 12
	15	10. 755346	10. 755408	10. 755470	30		2. 25
	30	10. 755532	10. 755594	10. 755655	15		3. 37
	45	10. 755717	10. 755779	10. 755841	0	57	4. 49
3	0	10. 755903	10. 755965	10. 756026	45		1 = 12
	15	10. 756088	10. 756150	10. 756212	30		2. 25
	30	10. 756274	10. 756336	10. 756398	15		3. 37
	45	10. 756460	10. 756522	10. 756584	0	56	4. 50
4	0	10. 756646	10. 756708	10. 756770	45		1 = 12
	15	10. 756832	10. 756894	10. 756956	30		2. 25
	30	10. 757018	10. 757080	10. 757142	15		3. 37
	45	10. 757204	10. 757266	10. 757328	0	55	4. 50
5	0	10. 757390	10. 757452	10. 757514	45		1 = 12
	15	10. 757576	10. 757638	10. 757700	30		2. 25
	30	10. 757762	10. 757824	10. 757886	15		3. 37
	45	10. 757949	10. 758011	10. 758073	0	54	4. 50
6	0	10. 758135	10. 758197	10. 758259	45		1 = 12
	15	10. 758322	10. 758384	10. 758446	30		2. 25
	30	10. 758508	10. 758570	10. 758633	15		3. 37
	45	10. 758695	10. 758757	10. 758819	0	53	4. 50
7	0	10. 758881	10. 758944	10. 759006	45		1 = 12
	15	10. 759068	10. 759131	10. 759193	30		2. 25
	30	10. 759255	10. 759318	10. 759380	15		3. 37
	45	10. 759442	10. 759504	10. 759567	0	52	4. 50
8	0	10. 759629	10. 759692	10. 759754	45		1 = 12
	15	10. 759816	10. 759879	10. 759941	30		2. 25
	30	10. 760004	10. 760066	10. 760128	15		3. 37
	45	10. 760191	10. 760253	10. 760316	0	51	4. 50
9	0	10. 760378	10. 760441	10. 760503	45		1 = 13
	15	10. 760566	10. 760628	10. 760691	30		2. 25
	30	10. 760753	10. 760816	10. 760878	15		3. 38
	45	10. 760941	10. 761003	10. 761066	0	50	4. 50
10	0	10. 761128	10. 761191	10. 761253	45		1 = 13
	15	10. 761316	10. 761379	10. 761441	30		2. 25
	30	10. 761504	10. 761566	10. 761629	15		3. 38
	45	10. 761692	10. 761754	10. 761817	0	49	4. 50
11	0	10. 761880	10. 761942	10. 762005	45		1 = 13
	15	10. 762068	10. 762130	10. 762193	30		2. 25
	30	10. 762256	10. 762318	10. 762381	15		3. 38
	45	10. 762444	10. 762507	10. 762569	0	48	4. 50
12	0	10. 762632	10. 762695	10. 762758	45		1 = 13
	15	10. 762821	10. 762883	10. 762946	30		2. 25
	30	10. 763009	10. 763072	10. 763135	15		3. 38
	45	10. 763197	10. 763260	10. 763323	0	47	4. 50
13	0	10. 763386	10. 763449	10. 763512	45		1 = 13
	15	10. 763575	10. 763638	10. 763700	30		2. 25
	30	10. 763763	10. 763826	10. 763889	15		3. 38
	45	10. 763952	10. 764015	10. 764078	0	46	4. 50
14	0	10. 764141	10. 764204	10. 764267	45		1 = 13
	15	10. 764330	10. 764393	10. 764456	30		2. 25
	30	10. 764519	10. 764582	10. 764645	15		3. 38
	45	10. 764708	10. 764771	10. 764834	0	45	4. 50
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 764897	10. 764960	10. 765024	45		1″ = 13
	15	10. 765087	10. 765150	10. 765213	30		2. 25
	30	10. 765276	10. 765339	10. 765402	15		3. 38
	45	10. 765465	10. 765529	10. 765592	0	44	4. 50
16	0	10. 765655	10. 765718	10. 765781	45		1 = 13
	15	10. 765844	10. 765908	10. 765971	30		2. 25
	30	10. 766034	10. 766097	10. 766161	15		3. 38
	45	10. 766224	10. 766287	10. 766350	0	43	4. 51
17	0	10. 766414	10. 766477	10. 766540	45		1 = 13
	15	10. 766604	10. 766667	10. 766730	30		2. 25
	30	10. 766794	10. 766857	10. 766920	15		3. 38
	45	10. 766984	10. 767047	10. 767110	0	42	4. 51
18	0	10. 767174	10. 767237	10. 767300	45		1 = 13
	15	10. 767364	10. 767427	10. 767491	30		2. 25
	30	10. 767554	10. 767618	10. 767681	15		3. 38
	45	10. 767745	10. 767808	10. 767872	0	41	4. 51
19	0	10. 767935	10. 767998	10. 768062	45		1 = 13
	15	10. 768126	10. 768189	10. 768253	30		2. 25
	30	10. 768316	10. 768380	10. 768443	15		3. 38
	45	10. 768507	10. 768570	10. 768634	0	40	4. 51
20	0	10. 768698	10. 768761	10. 768825	45		1 = 13
	15	10. 768888	10. 768952	10. 769016	30		2. 25
	30	10. 769079	10. 769143	10. 769207	15		3. 38
	45	10. 769270	10. 769334	10. 769398	0	39	4. 51
21	0	10. 769461	10. 769525	10. 769589	45		1 = 13
	15	10. 769653	10. 769716	10. 769780	30		2. 26
	30	10. 769844	10. 769908	10. 769971	15		3. 38
	45	10. 770035	10. 770099	10. 770163	0	38	4. 51
22	0	10. 770226	10. 770290	10. 770354	45		1 = 13
	15	10. 770418	10. 770482	10. 770546	30		2. 26
	30	10. 770609	10. 770673	10. 770737	15		3. 38
	45	10. 770801	10. 770865	10. 770929	0	37	4. 51
23	0	10. 770993	10. 771057	10. 771121	45		1 = 13
	15	10. 771185	10. 771249	10. 771313	30		2. 26
	30	10. 771376	10. 771440	10. 771504	15		3. 38
	45	10. 771568	10. 771632	10. 771696	0	36	4. 51
24	0	10. 771760	10. 771824	10. 771889	45		1 = 13
	15	10. 771953	10. 772017	10. 772081	30		2. 26
	30	10. 772145	10. 772209	10. 772273	15		3. 38
	45	10. 772337	10. 772401	10. 772465	0	35	4. 51
25	0	10. 772529	10. 772594	10. 772658	45		1 = 13
	15	10. 772722	10. 772786	10. 772850	30		2. 26
	30	10. 772914	10. 772979	10. 773043	15		3. 38
	45	10. 773107	10. 773171	10. 773235	0	34	4. 51
26	0	10. 773300	10. 773364	10. 773428	45		1 = 13
	15	10. 773492	10. 773557	10. 773621	30		2. 26
	30	10. 773685	10. 773749	10. 773814	15		3. 38
	45	10. 773878	10. 773942	10. 774007	0	33	4. 51
27	0	10. 774071	10. 774135	10. 774200	45		1 = 13
	15	10. 774264	10. 774329	10. 774393	30		2. 26
	30	10. 774457	10. 774522	10. 774586	15		3. 38
	45	10. 774651	10. 774715	10. 774779	0	32	4. 51
28	0	10. 774844	10. 774908	10. 774973	45		1 = 13
	15	10. 775037	10. 775102	10. 775166	30		2. 26
	30	10. 775231	10. 775295	10. 775360	15		3. 38
	45	10. 775424	10. 775489	10. 775553	0	31	4. 51
29	0	10. 775618	10. 775683	10. 775747	45		1 = 13
	15	10. 775812	10. 775876	10. 775941	30		2. 26
	30	10. 776006	10. 776070	10. 776135	15		3. 38
	45	10. 776199	10. 776264	10. 776329	0	30	4. 51
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
30	0	10. 776393	10. 776458	10. 776523	45		1″ = 13
	15	10. 776587	10. 776652	10. 776717	30		2. 26
	30	10. 776782	10. 776846	10. 776911	15		3. 39
	45	10. 776976	10. 777041	10. 777105	0	29	4. 52
31	0	10. 777170	10. 777235	10. 777300	45		1 = 13
	15	10. 777365	10. 777429	10. 777494	30		2. 26
	30	10. 777559	10. 777624	10. 777689	15		3. 39
	45	10. 777754	10. 777818	10. 777883	0	28	4. 52
32	0	10. 777948	10. 778013	10. 778078	45		1 = 13
	15	10. 778143	10. 778208	10. 778273	30		2. 26
	30	10. 778338	10. 778403	10. 778468	15		3. 39
	45	10. 778533	10. 778598	10. 778663	0	27	4. 52
33	0	10. 778728	10. 778793	10. 778858	45		1 = 13
	15	10. 778923	10. 778988	10. 779053	30		2. 26
	30	10. 779118	10. 779183	10. 779248	15		3. 39
	45	10. 779313	10. 779378	10. 779443	0	26	4. 52
34	0	10. 779508	10. 779573	10. 779638	45		1 = 13
	15	10. 779704	10. 779769	10. 779834	30		2. 26
	30	10. 779899	10. 779964	10. 780029	15		3. 39
	45	10. 780095	10. 780160	10. 780225	0	25	4. 52
35	0	10. 780290	10. 780355	10. 780421	45		1 = 13
	15	10. 780486	10. 780551	10. 780616	30		2. 26
	30	10. 780682	10. 780747	10. 780812	15		3. 39
	45	10. 780878	10. 780943	10. 781008	0	24	4. 52
36	0	10. 781074	10. 781139	10. 781204	45		1 = 13
	15	10. 781270	10. 781335	10. 781400	30		2. 26
	30	10. 781466	10. 781531	10. 781597	15		3. 39
	45	10. 781662	10. 781727	10. 781793	0	23	4. 52
37	0	10. 781858	10. 781924	10. 781989	45		1 = 13
	15	10. 782055	10. 782120	10. 782186	30		2. 26
	30	10. 782251	10. 782317	10. 782382	15		3. 39
	45	10. 782448	10. 782513	10. 782579	0	22	4. 52
38	0	10. 782644	10. 782710	10. 782775	45		1 = 13
	15	10. 782841	10. 782907	10. 782972	30		2. 26
	30	10. 783038	10. 783103	10. 783169	15		3. 39
	45	10. 783235	10. 783300	10. 783366	0	21	4. 52
39	0	10. 783432	10. 783497	10. 783563	45		1 = 13
	15	10. 783629	10. 783694	10. 783760	30		2. 26
	30	10. 783826	10. 783892	10. 783957	15		3. 39
	45	10. 784023	10. 784089	10. 784155	0	20	4. 53
40	0	10. 784220	10. 784286	10. 784352	45		1 = 13
	15	10. 784418	10. 784484	10. 784549	30		2. 26
	30	10. 784615	10. 784681	10. 784747	15		3. 40
	45	10. 784813	10. 784879	10. 784945	0	19	4. 53
41	0	10. 785011	10. 785076	10. 785142	45		1 = 13
	15	10. 785208	10. 785274	10. 785340	30		2. 26
	30	10. 785406	10. 785472	10. 785538	15		3. 40
	45	10. 785604	10. 785670	10. 785736	0	18	4. 53
42	0	10. 785802	10. 785868	10. 785934	45		1 = 13
	15	10. 786000	10. 786066	10. 786132	30		2. 26
	30	10. 786198	10. 786264	10. 786330	15		3. 40
	45	10. 786396	10. 786463	10. 786529	0	17	4. 53
43	0	10. 786595	10. 786661	10. 786727	45		1 = 13
	15	10. 786793	10. 786859	10. 786926	30		2. 26
	30	10. 786992	10. 787058	10. 787124	15		3. 40
	45	10. 787190	10. 787257	10. 787323	0	16	4. 53
44	0	10. 787389	10. 787455	10. 787522	45		1 = 13
	15	10. 787588	10. 787654	10. 787720	30		2. 27
	30	10. 787787	10. 787853	10. 787919	15		3. 40
	45	10. 787986	10. 788052	10. 788118	0	15	4. 53
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
45	0	10. 788185	10. 788251	10. 788317	45		1″ = 13
	15	10. 788384	10. 788450	10. 788517	30		2. 27
	30	10. 788583	10. 788649	10. 788716	15		3. 40
	45	10. 788782	10. 788849	10. 788915	0	14	4. 53
46	0	10. 788982	10. 789048	10. 789115	45		1 = 13
	15	10. 789181	10. 789248	10. 789314	30		2. 27
	30	10. 789381	10. 789447	10. 789514	15		3. 40
	45	10. 789580	10. 789647	10. 789713	0	13	4. 53
47	0	10. 789780	10. 789847	10. 789913	45		1 = 13
	15	10. 789980	10. 790046	10. 790113	30		2. 27
	30	10. 790180	10. 790246	10. 790313	15		3. 40
	45	10. 790380	10. 790446	10. 790513	0	12	4. 53
48	0	10. 790580	10. 790646	10. 790713	45		1 = 13
	15	10. 790780	10. 790847	10. 790913	30		2. 27
	30	10. 790980	10. 791047	10. 791114	15		3. 40
	45	10. 791180	10. 791247	10. 791314	0	11	4. 53
49	0	10. 791381	10. 791448	10. 791515	45		1 = 13
	15	10. 791581	10. 791648	10. 791715	30		2. 27
	30	10. 791782	10. 791849	10. 791916	15		3. 40
	45	10. 791983	10. 792050	10. 792116	0	10	4. 53
50	0	10. 792183	10. 792250	10. 792317	45		1 = 13
	15	10. 792384	10. 792451	10. 792518	30		2. 27
	30	10. 792585	10. 792652	10. 792719	15		3. 40
	45	10. 792786	10. 792853	10. 792920	0	9	4. 54
51	0	10. 792987	10. 793054	10. 793122	45		1 = 13
	15	10. 793189	10. 793256	10. 793323	30		2. 27
	30	10. 793390	10. 793457	10. 793524	15		3. 40
	45	10. 793591	10. 793658	10. 793726	0	8	4. 54
52	0	10. 793793	10. 793860	10. 793927	45		1 = 13
	15	10. 793994	10. 794062	10. 794129	30		2. 27
	30	10. 794196	10. 794263	10. 794330	15		3. 40
	45	10. 794398	10. 794465	10. 794532	0	7	4. 54
53	0	10. 794600	10. 794667	10. 794734	45		1 = 13
	15	10. 794801	10. 794869	10. 794936	30		2. 27
	30	10. 795004	10. 795071	10. 795138	15		3. 40
	45	10. 795206	10. 795273	10. 795340	0	6	4. 54
54	0	10. 795408	10. 795475	10. 795543	45		1 = 13
	15	10. 795610	10. 795678	10. 795745	30		2. 27
	30	10. 795812	10. 795880	10. 795947	15		3. 40
	45	10. 796015	10. 796082	10. 796150	0	5	4. 54
55	0	10. 796217	10. 796285	10. 796353	45		1 = 14
	15	10. 796420	10. 796488	10. 796555	30		2. 27
	30	10. 796623	10. 796690	10. 796758	15		3. 41
	45	10. 796826	10. 796893	10. 796961	0	4	4. 54
56	0	10. 797029	10. 797096	10. 797164	45		1 = 14
	15	10. 797232	10. 797299	10. 797367	30		2. 27
	30	10. 797435	10. 797502	10. 797570	15		3. 41
	45	10. 797638	10. 797706	10. 797773	0	3	4. 54
57	0	10. 797841	10. 797909	10. 797977	45		1 = 14
	15	10. 798044	10. 798112	10. 798180	30		2. 27
	30	10. 798248	10. 798316	10. 798384	15		3. 41
	45	10. 798451	10. 798519	10. 798587	0	2	4. 54
58	0	10. 798655	10. 798723	10. 798791	45		1 = 14
	15	10. 798859	10. 798927	10. 798995	30		2. 27
	30	10. 799063	10. 799131	10. 799199	15		3. 41
	45	10. 799267	10. 799335	10. 799403	0	1	4. 54
59	0	10. 799471	10. 799539	10. 799607	45		1 = 14
	15	10. 799675	10. 799743	10. 799811	30		2. 27
	30	10. 799879	10. 799947	10. 800015	15		3. 41
	45	10. 800083	10. 800151	10. 800219	0	0	4. 54
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
0	0	10. 800287	10. 800356	10. 800424	45		1″ = 14
	15	10. 800492	10. 800560	10. 800628	30		2. 27
	30	10. 800696	10. 800765	10. 800833	15		3. 41
	45	10. 800901	10. 800969	10. 801038	0	59	4. 55
1	0	10. 801106	10. 801174	10. 801242	45		1 = 14
	15	10. 801311	10. 801379	10. 801447	30		2. 27
	30	10. 801516	10. 801584	10. 801652	15		3. 41
	45	10. 801721	10. 801789	10. 801857	0	58	4. 55
2	0	10. 801926	10. 801994	10. 802062	45		1 = 14
	15	10. 802131	10. 802199	10. 802268	30		2. 27
	30	10. 802336	10. 802405	10. 802473	15		3. 41
	45	10. 802541	10. 802610	10. 802678	0	57	4. 55
3	0	10. 802747	10. 802815	10. 802884	45		1 = 14
	15	10. 802953	10. 803021	10. 803090	30		2. 27
	30	10. 803158	10. 803227	10. 803295	15		3. 41
	45	10. 803364	10. 803433	10. 803501	0	56	4. 55
4	0	10. 803570	10. 803638	10. 803707	45		1 = 14
	15	10. 803776	10. 803844	10. 803913	30		2. 27
	30	10. 803982	10. 804050	10. 804119	15		3. 41
	45	10. 804188	10. 804257	10. 804325	0	55	4. 55
5	0	10. 804394	10. 804463	10. 804532	45		1 = 14
	15	10. 804600	10. 804669	10. 804738	30		2. 28
	30	10. 804807	10. 804876	10. 804944	15		3. 41
	45	10. 805013	10. 805082	10. 805151	0	54	4. 55
6	0	10. 805220	10. 805289	10. 805358	45		1 = 14
	15	10. 805426	10. 805495	10. 805564	30		2. 28
	30	10. 805633	10. 805702	10. 805771	15		3. 41
	45	10. 805840	10. 805909	10. 805978	0	53	4. 55
7	0	10. 806047	10. 806116	10. 806185	45		1 = 14
	15	10. 806254	10. 806323	10. 806392	30		2. 28
	30	10. 806461	10. 806530	10. 806599	15		3. 41
	45	10. 806668	10. 806738	10. 806807	0	52	4. 55
8	0	10. 806876	10. 806945	10. 807014	45		1 = 14
	15	10. 807083	10. 807152	10. 807222	30		2. 28
	30	10. 807291	10. 807360	10. 807429	15		3. 41
	45	10. 807498	10. 807568	10. 807637	0	51	4. 55
9	0	10. 807706	10. 807775	10. 807845	45		1 = 14
	15	10. 807914	10. 807983	10. 808052	30		2. 28
	30	10. 808122	10. 808191	10. 808260	15		3. 42
	45	10. 808330	10. 808399	10. 808469	0	50	4. 55
10	0	10. 808538	10. 808607	10. 808677	45		1 = 14
	15	10. 808746	10. 808815	10. 808885	30		2. 28
	30	10. 808954	10. 809024	10. 809093	15		3. 42
	45	10. 809163	10. 809232	10. 809302	0	49	4. 56
11	0	10. 809371	10. 809441	10. 809510	45		1 = 14
	15	10. 809580	10. 809649	10. 809719	30		2. 28
	30	10. 809788	10. 809858	10. 809928	15		3. 42
	45	10. 809997	10. 810067	10. 810136	0	48	4. 56
12	0	10. 810206	10. 810276	10. 810345	45		1 = 14
	15	10. 810415	10. 810485	10. 810554	30		2. 28
	30	10. 810624	10. 810694	10. 810763	15		3. 42
	45	10. 810833	10. 810903	10. 810973	0	47	4. 56
13	0	10. 811042	10. 811112	10. 811182	45		1 = 14
	15	10. 811252	10. 811322	10. 811391	30		2. 28
	30	10. 811461	10. 811531	10. 811601	15		3. 42
	45	10. 811671	10. 811741	10. 811810	0	46	4. 56
14	0	10. 811880	10. 811950	10. 812020	45		1 = 14
	15	10. 812090	10. 812160	10. 812230	30		2. 28
	30	10. 812300	10. 812370	10. 812440	15		3. 42
	45	10. 812510	10. 812580	10. 812650	0	45	4. 56
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-tangent of 8 degrees, or Tangent of 98 degrees.					

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
15	0	10. 812720	10. 812790	10. 812860	45		1″ = 14
	15	10. 812930	10. 813000	10. 813070	30		2. 28
	30	10. 813140	10. 813210	10. 813280	15		3. 41
	45	10. 813350	10. 813421	10. 813491	0	44	4. 56
16	0	10. 813561	10. 813631	10. 813701	45		1 = 14
	15	10. 813771	10. 813841	10. 813912	30		2. 28
	30	10. 813982	10. 814052	10. 814122	15		3. 41
	45	10. 814193	10. 814263	10. 814333	0	43	4. 56
17	0	10. 814403	10. 814474	10. 814544	45		1 = 14
	15	10. 814614	10. 814685	10. 814755	30		2. 28
	30	10. 814825	10. 814896	10. 814966	15		3. 41
	45	10. 815036	10. 815107	10. 815177	0	42	4. 56
18	0	10. 815247	10. 815318	10. 815388	45		1 = 14
	15	10. 815459	10. 815529	10. 815600	30		2. 28
	30	10. 815670	10. 815741	10. 815811	15		3. 42
	45	10. 815882	10. 815952	10. 816023	0	41	4. 56
19	0	10. 816093	10. 816164	10. 816234	45		1 = 14
	15	10. 816305	10. 816375	10. 816446	30		2. 28
	30	10. 816517	10. 816587	10. 816658	15		3. 42
	45	10. 816728	10. 816799	10. 816870	0	40	4. 56
20	0	10. 816940	10. 817011	10. 817082	45		1 = 14
	15	10. 817153	10. 817223	10. 817294	30		2. 28
	30	10. 817365	10. 817435	10. 817506	15		3. 42
	45	10. 817577	10. 817648	10. 817719	0	39	4. 57
21	0	10. 817789	10. 817860	10. 817931	45		1 = 14
	15	10. 818002	10. 818073	10. 818143	30		2. 28
	30	10. 818214	10. 818285	10. 818356	15		3. 42
	45	10. 818427	10. 818498	10. 818569	0	38	4. 57
22	0	10. 818640	10. 818711	10. 818782	45		1 = 14
	15	10. 818853	10. 818924	10. 818995	30		2. 28
	30	10. 819066	10. 819137	10. 819208	15		3. 42
	45	10. 819279	10. 819350	10. 819421	0	37	4. 57
23	0	10. 819492	10. 819563	10. 819634	45		1 = 14
	15	10. 819705	10. 819776	10. 819847	30		2. 28
	30	10. 819918	10. 819990	10. 820061	15		3. 42
	45	10. 820132	10. 820203	10. 820274	0	36	4. 57
24	0	10. 820345	10. 820417	10. 820488	45		1 = 14
	15	10. 820559	10. 820630	10. 820702	30		2. 28
	30	10. 820773	10. 820844	10. 820915	15		3. 42
	45	10. 820987	10. 821058	10. 821129	0	35	4. 57
25	0	10. 821201	10. 821272	10. 821343	45		1 = 14
	15	10. 821415	10. 821486	10. 821557	30		2. 28
	30	10. 821629	10. 821700	10. 821772	15		3. 42
	45	10. 821843	10. 821915	10. 821986	0	34	4. 57
26	0	10. 822057	10. 822129	10. 822200	45		1 = 14
	15	10. 822272	10. 822343	10. 822415	30		2. 28
	30	10. 822487	10. 822558	10. 822630	15		3. 42
	45	10. 822701	10. 822773	10. 822844	0	33	4. 57
27	0	10. 822916	10. 822988	10. 823059	45		1 = 14
	15	10. 823131	10. 823202	10. 823274	30		2. 28
	30	10. 823346	10. 823417	10. 823489	15		3. 42
	45	10. 823561	10. 823633	10. 823704	0	32	4. 57
28	0	10. 823776	10. 823848	10. 823920	45		1 = 14
	15	10. 823991	10. 824063	10. 824135	30		2. 28
	30	10. 824207	10. 824279	10. 824350	15		3. 42
	45	10. 824422	10. 824494	10. 824566	0	31	4. 57
29	0	10. 824638	10. 824710	10. 824782	45		1 = 14
	15	10. 824853	10. 824925	10. 824997	30		2. 28
	30	10. 825069	10. 825141	10. 825213	15		3. 42
	45	10. 825285	10. 825357	10. 825429	0	30	4. 57
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-tangent of 8 degrees, or Tangent of 98 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10. 825501	10. 825573	10. 825645	45		1″ = 14
	15	10. 825717	10. 825789	10. 825861	30		2. 29
	30	10. 825933	10. 826006	10. 826078	15		3. 43
	45	10 826150	10. 826222	10. 826294	0	29	4. 58
31	0	10. 826366	10. 826438	10. 826510	45		1 = 14
	15	10. 826583	10. 826655	10. 826727	30		2. 29
	30	10. 826799	10. 826871	10. 826944	15		3. 43
	45	10. 827016	10. 827088	10. 827160	0	28	4. 58
32	0	10. 827233	10. 827305	10. 827377	45		1 = 14
	15	10. 827450	10. 827522	10. 827594	30		2. 29
	30	10. 827667	10. 827739	10. 827811	15		3 43
	45	10. 827884	10. 827956	10. 828029	0	27	4. 58
33	0	10. 828101	10. 828174	10. 828246	45		1 = 14
	15	10. 828318	10. 828391	10. 828463	30		2. 29
	30	10. 828536	10. 828608	10. 828681	15		3. 43
	45	10. 828753	10. 828826	10. 828899	0	26	4. 58
34	0	10. 828971	10. 829044	10. 829116	45		1 = 15
	15	10. 829189	10. 829261	10. 829334	30		2. 29
	30	10. 829407	10. 829479	10. 829552	15		3. 44
	45	10. 829625	10. 829697	10. 829770	0	25	4. 58
35	0	10. 829843	10. 829915	10. 829988	45		1 = 15
	15	10. 830061	10. 830134	10. 830206	30		2. 29
	30	10. 830279	10. 830352	10. 830425	15		3. 44
	45	10. 830498	10. 830570	10. 830643	0	24	4. 58
36	0	10. 830716	10. 830789	10. 830862	45		1 = 15
	15	10. 830935	10. 831008	10. 831080	30		2. 29
	30	10. 831153	10. 831226	10. 831299	15		3. 44
	45	10. 831372	10. 831445	10. 831518	0	23	4. 58
37	0	10. 831591	10. 831664	10. 831737	45		1 = 15
	15	10. 831810	10. 831883	10. 831956	30		2. 29
	30	10. 832029	10. 832102	10. 832175	15		3. 44
	45	10. 832248	10. 832322	10. 832395	0	22	4. 58
38	0	10. 832468	10. 832541	10. 832614	45		1 = 15
	15	10. 832687	10. 832760	10. 832834	30		2. 29
	30	10. 832907	10. 832980	10. 833053	15		3. 44
	45	10. 833126	10. 833200	10. 833273	0	21	4. 59
39	0	10. 833346	10. 833419	10. 833493	45		1 = 15
	15	10. 833566	10. 833639	10. 833713	30		2. 29
	30	10. 833786	10. 833859	10. 833933	15		3. 44
	45	10. 834006	10. 834079	10. 834153	0	20	4. 59
40	0	10. 834226	10. 834300	10. 834373	45		1 = 15
	15	10. 834447	10. 834520	10. 834593	30		2. 29
	30	10. 834667	10. 834740	10. 834814	15		3. 44
	45	10. 834887	10. 834961	10. 835035	0	19	4. 59
41	0	10. 835108	10. 835182	10. 835255	45		1 = 15
	15	10. 835329	10. 835402	10. 835476	30		2. 29
	30	10. 835550	10. 835623	10. 835697	15		3. 44
	45	10. 835771	10. 835844	10. 835918	0	18	4. 59
42	0	10. 835992	10. 836065	10. 836139	45		1 = 15
	15	10. 836213	10. 836287	10. 836360	30		2. 30
	30	10. 836434	10. 836508	10. 836582	15		3. 44
	45	10. 836655	10. 836729	10. 836803	0	17	4. 59
43	0	10. 836877	10. 836951	10. 837025	45		1 = 15
	15	10. 837098	10. 837172	10. 837246	30		2. 30
	30	10. 837320	10. 837394	10. 837468	15		3. 44
	45	10. 837542	10. 837616	10. 837690	0	16	4. 59
44	0	10. 837764	10. 837838	10. 837912	45		1 = 15
	15	10. 837986	10. 838060	10. 838134	30		2. 30
	30	10. 838208	10. 838282	10. 838356	15		3. 44
	45	10. 838430	10. 838504	10. 838578	0	15	4. 59
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 8 degrees, or					

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 838653	10. 838727	10. 838801	45		1″ = 15
	15	10. 838875	10. 838949	10. 839023	30		2. 30
	30	10. 839098	10. 839172	10. 839246	15		3. 45
	45	10. 839320	10. 839395	10. 839469	0	14	4. 59
46	0	10. 839543	10. 839617	10. 839692	45		1 = 15
	15	10. 839766	10. 839840	10. 839915	30		2. 30
	30	10. 839989	10. 840063	10. 840138	15		3. 45
	45	10. 840212	10. 840287	10. 840361	0	13	4. 59
47	0	10. 840435	10. 840510	10. 840584	45		1 = 15
	15	10. 840659	10. 840733	10. 840808	30		2. 30
	30	10. 840882	10. 840957	10. 841031	15		3. 45
	45	10. 841106	10. 841180	10. 841255	0	12	4. 60
48	0	10. 841329	10. 841404	10. 841479	45		1 = 15
	15	10. 841553	10. 841628	10. 841702	30		2. 30
	30	10. 841777	10. 841852	10. 841926	15		3. 45
	45	10. 842001	10. 842076	10. 842150	0	11	4. 60
49	0	10. 842225	10. 842300	10. 842375	45		1 = 15
	15	10. 842449	10. 842524	10. 842599	30		2. 30
	30	10. 842674	10. 842748	10. 842823	15		3. 45
	45	10. 842898	10. 842973	10. 843048	0	10	4. 60
50	0	10. 843123	10. 843198	10. 843272	45		1 = 15
	15	10. 843347	10. 843422	10. 843497	30		2. 30
	30	10. 843572	10. 843647	10. 843722	15		3. 45
	45	10. 843797	10. 843872	10. 843947	0	9	4. 60
51	0	10. 844022	10. 844097	10. 844172	45		1 = 15
	15	10. 844247	10. 844322	10. 844397	30		2. 30
	30	10. 844472	10. 844547	10. 844623	15		3. 45
	45	10. 844698	10. 844773	10. 844848	0	8	4. 60
52	0	10. 844923	10. 844998	10. 845073	45		1 = 15
	15	10. 845149	10. 845224	10. 845299	30		2. 30
	30	10. 845374	10. 845450	10. 845525	15		3. 45
	45	10. 845600	10. 845675	10. 845751	0	7	4. 60
53	0	10. 845826	10. 845901	10. 845977	45		1 = 15
	15	10. 846052	10. 846127	10. 846203	30		2. 30
	30	10. 846278	10. 846354	10. 846429	15		3. 45
	45	10. 846504	10. 846580	10. 846655	0	6	4. 60
54	0	10. 846731	10. 846806	10. 846882	45		1 = 15
	15	10. 846957	10. 847033	10. 847108	30		2. 30
	30	10. 847184	10. 847259	10. 847335	15		3. 45
	45	10. 847410	10. 847486	10. 847562	0	5	4. 60
55	0	10. 847637	10. 847713	10. 847789	45		1 = 15
	15	10. 847864	10. 847940	10. 848016	30		2. 30
	30	10. 848091	10. 848167	10. 848243	15		3. 45
	45	10. 848318	10. 848394	10. 848470	0	4	4. 61
56	0	10. 848546	10. 848621	10. 848697	45		1 = 15
	15	10. 848773	10. 848849	10. 848925	30		2. 30
	30	10. 849000	10. 849076	10. 849152	15		3. 45
	45	10. 849228	10. 849304	10. 849380	0	3	4. 61
57	0	10. 849456	10. 849532	10. 849608	45		1 = 15
	15	10. 849684	10. 849760	10. 849836	30		2. 30
	30	10. 849912	10. 849988	10. 850064	15		3. 46
	45	10. 850140	10. 850216	10. 850292	0	2	4. 61
58	0	10. 850368	10. 850444	10. 850520	45		1 = 15
	15	10. 850596	10. 850672	10. 850748	30		2. 30
	30	10. 850825	10. 850901	10. 850977	15		3. 46
	45	10. 851053	10. 851129	10. 851205	0	1	4. 61
59	0	10. 851282	10. 851358	10. 851434	45		1 = 15
	15	10. 851510	10. 851587	10. 851663	30		2. 31
	30	10. 851739	10. 851816	10. 851892	15		3. 46
	45	10. 851968	10. 852045	10. 852121	0	0	4. 61
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 8 degrees, or					

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LOGARITHMIC TANGENTS.

Minute.	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 852197	10. 852274	10. 852350	45		1″ = 15
	15	10. 852427	10. 852503	10. 852580	30		2. 31
	30	10. 852656	10. 852732	10. 852809	15		3. 46
	45	10. 852885	10. 852962	10. 853038	0	59	4. 61
1	0	10. 853115	10. 853192	10. 853268	45		1 = 15
	15	10. 853345	10. 853421	10. 853498	30		2. 31
	30	10. 853574	10. 853651	10. 853728	15		3. 46
	45	10. 853804	10. 853881	10. 853958	0	58	4. 61
2	0	10. 854034	10. 854111	10. 854188	45		1 = 15
	15	10. 854265	10. 854341	10. 854418	30		2. 31
	30	10. 854495	10. 854572	10. 854648	15		3. 46
	45	10. 854725	10. 854802	10. 854879	0	57	4. 61
3	0	10. 854956	10. 855033	10. 855110	45		1 = 15
	15	10. 855186	10. 855263	10. 855340	30		2. 31
	30	10. 855417	10. 855494	10. 855571	15		3. 46
	45	10. 855648	10. 855725	10. 855802	0	56	4. 62
4	0	10. 855879	10. 855956	10. 856033	45		1 = 15
	15	10. 856110	10. 856187	10. 856264	30		2. 31
	30	10. 856341	10. 856418	10. 856495	15		3. 46
	45	10. 856573	10. 856650	10. 856727	0	55	4. 62
5	0	10. 856804	10. 856881	10. 856958	45		1 = 15
	15	10. 857036	10. 857113	10. 857190	30		2. 31
	30	10. 857267	10. 857345	10. 857422	15		3. 46
	45	10. 857499	10. 857576	10. 857654	0	54	4. 62
6	0	10. 857731	10. 857808	10. 857886	45		1 = 15
	15	10. 857963	10. 858040	10. 858118	30		2. 31
	30	10. 858195	10. 858273	10. 858350	15		3. 46
	45	10. 858428	10. 858505	10. 858582	0	53	4. 62
7	0	10. 858660	10. 858737	10. 858815	45		1 = 16
	15	10. 858892	10. 858970	10. 859048	30		2. 31
	30	10. 859125	10. 859203	10. 859280	15		3. 47
	45	10. 859358	10. 859436	10. 859513	0	52	4. 62
8	0	10. 859591	10. 859668	10. 859746	45		1 = 16
	15	10. 859824	10. 859901	10. 859979	30		2. 31
	30	10. 860057	10. 860135	10. 860212	15		3. 47
	45	10. 860290	10. 860368	10. 860446	0	51	4. 62
9	0	10. 860524	10. 860601	10. 860679	45		1 = 16
	15	10. 860757	10. 860835	10. 860913	30		2. 31
	30	10. 860991	10. 861069	10. 861146	15		3. 47
	45	10. 861224	10. 861302	10. 861380	0	50	4. 62
10	0	10. 861458	10. 861536	10. 861614	45		1 = 16
	15	10. 861692	10. 861770	10. 861848	30		2. 31
	30	10. 861926	10. 862004	10. 862082	15		3. 47
	45	10. 862160	10. 862239	10. 862317	0	49	4. 62
11	0	10. 862395	10. 862473	10. 862551	45		1 = 16
	15	10. 862629	10. 862707	10. 862786	30		2. 31
	30	10. 862864	10. 862942	10. 863020	15		3. 47
	45	10. 863099	10. 863177	10. 863255	0	48	4. 63
12	0	10. 863333	10. 863412	10. 863490	45		1 = 16
	15	10. 863568	10. 863647	10. 863725	30		2. 31
	30	10. 863803	10. 863882	10. 863960	15		3. 47
	45	10. 864039	10. 864117	10. 864195	0	47	4. 63
13	0	10. 864274	10. 864352	10. 864431	45		1 = 16
	15	10. 864509	10. 864588	10. 864666	30		2. 31
	30	10. 864745	10. 864823	10. 864902	15		3. 47
	45	10. 864981	10. 865059	10. 865138	0	46	4. 63
14	0	10. 865216	10. 865295	10. 865374	45		1 = 16
	15	10. 865452	10. 865531	10. 865610	30		2. 31
	30	10. 865688	10. 865767	10. 865846	15		3. 47
	45	10. 865925	10. 866003	10. 866082	0	45	4. 63
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

Minutes	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 866161	10. 866240	10. 866318	45		1″ = 15
	15	10. 866397	10. 866476	10. 866555	30		2. 31
	30	10. 866634	10. 866713	10. 866792	15		3. 46
	45	10. 866871	10. 866949	10. 867028	0	44	4. 61
16	0	10. 867107	10. 867186	10. 867265	45		1 = 15
	15	10. 867344	10. 867423	10. 867502	30		2. 31
	30	10. 867581	10. 867660	10. 867739	15		3. 46
	45	10. 867818	10. 867898	10. 867977	0	43	4. 61
17	0	10. 868056	10. 868135	10. 868214	45		1 = 15
	15	10. 868293	10. 868372	10. 868452	30		2. 31
	30	10. 868531	10. 868610	10. 868689	15		3. 46
	45	10. 868768	10. 868848	10. 868927	0	42	4. 61
18	0	10. 869006	10. 869086	10. 869165	45		1 = 15
	15	10. 869244	10. 869323	10. 869403	30		2. 31
	30	10. 869482	10. 869562	10. 869641	15		3. 46
	45	10. 869720	10. 869800	10. 869879	0	41	4. 62
19	0	10. 869959	10. 870038	10. 870118	45		1 = 15
	15	10. 870197	10. 870277	10. 870356	30		2. 31
	30	10. 870436	10. 870515	10. 870595	15		3. 46
	45	10. 870674	10. 870754	10. 870834	0	40	4. 62
20	0	10. 870913	10. 870993	10. 871072	45		1 = 15
	15	10. 871152	10. 871232	10. 871311	30		2. 31
	30	10. 871391	10. 871471	10. 871551	15		3. 46
	45	10. 871630	10. 871710	10. 871790	0	39	4. 62
21	0	10. 871870	10. 871949	10. 872029	45		1 = 15
	15	10. 872109	10. 872189	10. 872269	30		2. 31
	30	10. 872349	10. 872429	10. 872508	15		3. 46
	45	10. 872588	10. 872668	10. 872748	0	38	4. 62
22	0	10. 872828	10. 872908	10. 872988	45		1 = 16
	15	10. 873068	10. 873148	10. 873228	30		2. 31
	30	10. 873308	10. 873388	10. 873468	15		3. 47
	45	10. 873548	10. 873629	10. 873709	0	37	4. 62
23	0	10. 873789	10. 873869	10. 873949	45		1 = 16
	15	10. 874029	10. 874109	10. 874190	30		2. 31
	30	10. 874270	10. 874350	10. 874430	15		3. 47
	45	10. 874511	10. 874591	10. 874671	0	36	4. 62
24	0	10. 874751	10. 874832	10. 874912	45		1 = 16
	15	10. 874992	10. 875073	10. 875153	30		2. 31
	30	10. 875233	10. 875314	10. 875394	15		3. 47
	45	10. 875475	10. 875555	10. 875636	0	35	4. 62
25	0	10. 875716	10. 875797	10. 875877	45		1 = 16
	15	10. 875958	10. 876038	10. 876119	30		2. 31
	30	10. 876199	10. 876280	10. 876360	15		3. 47
	45	10. 876441	10. 876522	10. 876602	0	34	4. 62
26	0	10. 876683	10. 876764	10. 876844	45		1 = 16
	15	10. 876925	10. 877006	10. 877086	30		2. 31
	30	10. 877167	10. 877248	10. 877329	15		3. 47
	45	10. 877409	10. 877490	10. 877571	0	33	4. 63
27	0	10. 877652	10. 877733	10. 877813	45		1 = 16
	15	10. 877894	10. 877975	10. 878056	30		2. 31
	30	10. 878137	10. 878218	10. 878299	15		3. 47
	45	10. 878380	10. 878461	10. 878542	0	32	4. 63
28	0	10. 878623	10. 878704	10. 878785	45		1 = 16
	15	10. 878866	10. 878947	10. 879028	30		2. 31
	30	10. 879109	10. 879190	10. 879271	15		3. 47
	45	10. 879352	10. 879433	10. 879515	0	31	4. 63
29	0	10. 879596	10. 879677	10. 879758	45		1 = 16
	15	10. 879839	10. 879921	10. 880002	30		2. 31
	30	10. 880083	10. 880164	10. 880246	15		3. 47
	45	10. 880327	10. 880408	10. 880490	0	30	4. 63
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10. 880571	10. 880652	10. 880734	45		1″ = 16
	15	10. 880815	10. 880896	10. 880978	30		2. 33
	30	10. 881059	10. 881141	10. 881222	15		3. 49
	45	10. 881304	10. 881385	10. 881467	0	29	4. 65
31	0	10. 881548	10. 881630	10. 881711	45		1 = 16
	15	10. 881793	10. 881874	10. 881956	30		2. 33
	30	10. 882038	10. 882119	10. 882201	15		3. 49
	45	10. 882282	10. 882364	10. 882446	0	28	4. 65
32	0	10. 882528	10. 882609	10. 882691	45		1 = 16
	15	10. 882773	10. 882854	10. 882936	30		2. 33
	30	10. 883018	10. 883100	10. 883182	15		3. 49
	45	10. 883263	10. 883345	10. 883427	0	27	4. 65
33	0	10. 883509	10. 883591	10. 883673	45		1 = 16
	15	10. 883755	10. 883837	10. 883919	30		2. 33
	30	10. 884001	10. 884083	10. 884165	15		3. 49
	45	10. 884247	10. 884329	10. 884411	0	26	4. 66
34	0	10. 884493	10. 884575	10. 884657	45		1 = 16
	15	10. 884739	10. 884821	10. 884903	30		2. 33
	30	10. 884985	10. 885068	10. 885150	15		3. 49
	45	10. 885232	10. 885314	10. 885396	0	25	4. 66
35	0	10. 885479	10. 885561	10. 885643	45		1 = 16
	15	10. 885725	10. 885808	10. 885890	30		2. 33
	30	10. 885972	10. 886055	10. 886137	15		3. 49
	45	10. 886219	10. 886302	10. 886384	0	24	4. 66
36	0	10. 886467	10. 886549	10. 886632	45		1 = 17
	15	10. 886714	10. 886796	10. 886879	30		2. 33
	30	10. 886961	10. 887044	10. 887127	15		3. 50
	45	10. 887209	10. 887292	10. 887374	0	23	4. 66
37	0	10. 887457	10. 887539	10. 887622	45		1 = 17
	15	10. 887705	10. 887787	10. 887870	30		2. 33
	30	10. 887953	10. 888035	10. 888118	15		3. 50
	45	10. 888201	10. 888284	10. 888366	0	22	4. 66
38	0	10. 888449	10. 888532	10. 888615	45		1 = 17
	15	10. 888698	10. 888780	10. 888863	30		2. 33
	30	10. 888946	10. 889029	10. 889112	15		3. 50
	45	10. 889195	10. 889278	10. 889361	0	21	4. 66
39	0	10. 889444	10. 889527	10. 889610	45		1 = 17
	15	10. 889693	10. 889776	10. 889859	30		2. 33
	30	10. 889942	10. 890025	10. 890108	15		3. 50
	45	10. 890191	10. 890274	10. 890357	0	20	4. 66
40	0	10. 890441	10. 890524	10. 890607	45		1 = 17
	15	10. 890690	10. 890773	10. 890857	30		2. 33
	30	10. 890940	10. 891023	10. 891106	15		3. 50
	45	10. 891190	10. 891273	10. 891356	0	19	4. 67
41	0	10. 891440	10. 891523	10. 891606	45		1 = 17
	15	10. 891690	10. 891773	10. 891856	30		2. 33
	30	10. 891940	10. 892023	10. 892107	15		3. 50
	45	10. 892190	10. 892274	10. 892357	0	18	4. 67
42	0	10. 892441	10. 892524	10. 892608	45		1 = 17
	15	10. 892691	10. 892775	10. 892859	30		2. 33
	30	10. 892942	10. 893026	10. 893110	15		3. 50
	45	10. 893193	10. 893277	10. 893361	0	17	4. 67
43	0	10. 893444	10. 893528	10. 893612	45		1 = 17
	15	10. 893695	10. 893779	10. 893863	30		2. 34
	30	10. 893947	10. 894031	10. 894115	15		3. 50
	45	10. 894198	10. 894282	10. 894366	0	16	4. 67
44	0	10. 894450	10. 894534	10. 894618	45		1 = 17
	15	10. 894702	10. 894786	10. 894870	30		2. 34
	30	10. 894954	10. 895038	10. 895122	15		3. 50
	45	10. 895206	10. 895290	10. 895374	0	15	4. 67
Seconds		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

Minutes	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 895458	10. 895542	10. 895626	45		1″ = 17
	15	10. 895710	10. 895794	10. 895879	30		2. 34
	30	10. 895963	10. 896047	10. 896131	15		3. 51
	45	10. 896215	10. 896300	10. 896384	0	14	4. 67
46	0	10. 896468	10. 896553	10. 896637	45		1 = 17
	15	10. 896721	10. 896805	10. 896890	30		2. 34
	30	10. 896974	10. 897059	10. 897143	15		3. 51
	45	10. 897227	10. 897312	10. 897396	0	13	4. 68
47	0	10. 897481	10. 897565	10. 897650	45		1 = 17
	15	10. 897734	10. 897819	10. 897903	30		2. 34
	30	10. 897988	10. 898072	10. 898157	15		3. 51
	45	10. 898242	10. 898326	10. 898411	0	12	4. 68
48	0	10. 898496	10. 898580	10. 898665	45		1 = 17
	15	10. 898750	10. 898834	10. 898919	30		2. 34
	30	10. 899004	10. 899089	10. 899173	15		3. 51
	45	10. 899258	10. 899343	10. 899428	0	11	4. 68
49	0	10. 899513	10. 899598	10. 899682	45		1 = 17
	15	10. 899767	10. 899852	10. 899937	30		2. 34
	30	10. 900022	10. 900107	10. 900192	15		3. 51
	45	10. 900277	10. 900362	10. 900447	0	10	4. 68
50	0	10. 900532	10. 900617	10. 900702	45		1 = 17
	15	10. 900787	10. 900872	10. 900958	30		2. 34
	30	10. 901043	10. 901128	10. 901213	15		3. 51
	45	10. 901298	10. 901383	10. 901469	0	9	4. 68
51	0	10. 901554	10. 901639	10. 901724	45		1 = 17
	15	10. 901810	10. 901895	10. 901980	30		2. 34
	30	10. 902066	10. 902151	10. 902236	15		3. 51
	45	10. 902322	10. 902407	10. 902493	0	8	4. 68
52	0	10. 902578	10. 902663	10. 902749	45		1 = 17
	15	10. 902834	10. 902920	10. 903005	30		2. 34
	30	10. 903091	10. 903176	10. 903262	15		3. 51
	45	10. 903348	10. 903433	10. 903519	0	7	4. 68
53	0	10. 903604	10. 903690	10. 903776	45		1 = 17
	15	10. 903861	10. 903947	10. 904033	30		2. 34
	30	10. 904119	10. 904204	10. 904290	15		3. 51
	45	10. 904376	10. 904462	10. 904547	0	6	4. 69
54	0	10. 904633	10. 904719	10. 904805	45		1 = 17
	15	10. 904891	10. 904977	10. 905063	30		2. 34
	30	10. 905149	10. 905234	10. 905320	15		3. 52
	45	10. 905406	10. 905492	10. 905578	0	5	4. 69
55	0	10. 905664	10. 905750	10. 905837	45		1 = 17
	15	10. 905923	10. 906009	10. 906095	30		2. 34
	30	10. 906181	10. 906267	10. 906353	15		3. 52
	45	10. 906439	10. 906526	10. 906612	0	4	4. 69
56	0	10. 906698	10. 906784	10. 906870	45		1 = 17
	15	10. 906957	10. 907043	10. 907129	30		2. 35
	30	10. 907216	10. 907302	10. 907388	15		3. 52
	45	10. 907475	10. 907561	10. 907647	0	3	4. 69
57	0	10. 907734	10. 907820	10. 907907	45		1 = 17
	15	10. 907993	10. 908080	10. 908166	30		2. 35
	30	10. 908253	10. 908339	10. 908426	15		3. 52
	45	10. 908512	10. 908599	10. 908686	0	2	4. 69
58	0	10. 908772	10. 908859	10. 908946	45		1 = 17
	15	10. 909032	10. 909119	10. 909206	30		2. 35
	30	10. 909292	10. 909379	10. 909466	15		3. 52
	45	10. 909553	10. 909639	10. 909726	0	1	4. 69
59	0	10. 909813	10. 909900	10. 909987	45		1 = 17
	15	10. 910074	10. 910160	10. 910247	30		2. 35
	30	10. 910334	10. 910421	10. 910508	15		3. 52
	45	10. 910595	10. 910682	10. 910769	0	0	4. 70
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10.910856	10.910943	10.911030	45		1″ = 17
	15	10.911117	10.911204	10.911292	30		2. 35
	30	10.911379	10.911466	10.911553	15		3. 52
	45	10.911640	10.911727	10.911815	0	59	4. 70
1	0	10.911902	10.911989	10.912076	45		1 = 17
	15	10.912164	10.912251	10.912338	30		2. 35
	30	10.912426	10.912513	10.912600	15		3. 52
	45	10.912688	10.912775	10.912862	0	58	4. 70
2	0	10.912950	10.913037	10.913125	45		1 = 18
	15	10.913212	10.913300	10.913387	30		2. 35
	30	10.913475	10.913562	10.913650	15		3. 53
	45	10.913738	10.913825	10.913913	0	57	4. 70
3	0	10.914000	10.914088	10.914176	45		1 = 18
	15	10.914263	10.914351	10.914439	30		2. 35
	30	10.914527	10.914614	10.914702	15		3. 53
	45	10.914790	10.914878	10.914966	0	56	4. 70
4	0	10.915053	10.915141	10.915229	45		1 = 18
	15	10.915317	10.915405	10.915493	30		2. 35
	30	10.915581	10.915669	10.915757	15		3. 53
	45	10.915845	10.915933	10.916021	0	55	4. 70
5	0	10.916109	10.916197	10.916285	45		1 = 18
	15	10.916373	10.916461	10.916549	30		2. 35
	30	10.916638	10.916726	10.916814	15		3. 53
	45	10.916902	10.916990	10.917079	0	54	4. 71
6	0	10.917167	10.917255	10.917343	45		1 = 18
	15	10.917432	10.917520	10.917608	30		2. 35
	30	10.917697	10.917785	10.917874	15		3. 53
	45	10.917962	10.918050	10.918139	0	53	4. 71
7	0	10.918227	10.918316	10.918404	45		1 = 18
	15	10.918493	10.918581	10.918670	30		2. 35
	30	10.918759	10.918847	10.918936	15		3. 53
	45	10.919024	10.919113	10.919202	0	52	4. 71
8	0	10.919290	10.919379	10.919468	45		1 = 18
	15	10.919557	10.919645	10.919734	30		2. 36
	30	10.919823	10.919912	10.920000	15		3. 53
	45	10.920089	10.920178	10.920267	0	51	4. 71
9	0	10.920356	10.920445	10.920534	45		1 = 18
	15	10.920623	10.920712	10.920801	30		2. 36
	30	10.920890	10.920979	10.921068	15		3. 53
	45	10.921157	10.921246	10.921335	0	50	4. 71
10	0	10.921424	10.921513	10.921602	45		1 = 18
	15	10.921691	10.921781	10.921870	30		2. 36
	30	10.921959	10.922048	10.922137	15		3. 54
	45	10.922227	10.922316	10.922405	0	49	4. 71
11	0	10.922495	10.922584	10.922673	45		1 = 18
	15	10.922763	10.922852	10.922941	30		2. 36
	30	10.923031	10.923120	10.923210	15		3. 54
	45	10.923299	10.923389	10.923478	0	48	4. 72
12	0	10.923568	10.923657	10.923747	45		1 = 18
	15	10.923837	10.923926	10.924016	30		2. 36
	30	10.924105	10.924195	10.924285	15		3. 54
	45	10.924374	10.924464	10.924554	0	47	4. 72
13	0	10.924644	10.924733	10.924823	45		1 = 18
	15	10.924913	10.925003	10.925093	30		2. 36
	30	10.925183	10.925272	10.925362	15		3. 54
	45	10.925452	10.925542	10.925632	0	46	4. 72
14	0	10.925722	10.925812	10.925902	45		1 = 18
	15	10.925992	10.926082	10.926172	30		2. 36
	30	10.926262	10.926352	10.926442	15		3. 54
	45	10.926533	10.926623	10.926713	0	45	4. 72
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10.926803	10.926893	10.926983	45		1″ = 1[illegible]
	15	10.927074	10.927164	10.927254	30		2. [illegible]
	30	10.927345	10.927435	10.927525	15		3. [illegible]
	45	10.927616	10.927706	10.927796	0	44	4. [illegible]
16	0	10.927887	10.927977	10.928068	45		1 = [illegible]
	15	10.928158	10.928248	10.928339	30		2. [illegible]
	30	10.928430	10.928520	10.928611	15		3. [illegible]
	45	10.928701	10.928792	10.928882	0	43	4. [illegible]
17	0	10.928973	10.929064	10.929154	45		1 = [illegible]
	15	10.929245	10.929336	10.929426	30		2. [illegible]
	30	10.929517	10.929608	10.929699	15		3. [illegible]
	45	10.929789	10.929880	10.929971	0	42	4. [illegible]
18	0	10.930062	10.930153	10.930244	45		1 = [illegible]
	15	10.930335	10.930425	10.930516	30		2. [illegible]
	30	10.930607	10.930698	10.930789	15		3. [illegible]
	45	10.930880	10.930971	10.931062	0	41	4. [illegible]
19	0	10.931153	10.931245	10.931336	45		1 = [illegible]
	15	10.931427	10.931518	10.931609	30		2. [illegible]
	30	10.931700	10.931791	10.931883	15		3. [illegible]
	45	10.931974	10.932065	10.932156	0	40	4. [illegible]
20	0	10.932248	10.932339	10.932430	45		1 = [illegible]
	15	10.932522	10.932613	10.932704	30		2. [illegible]
	30	10.932796	10.932887	10.932979	15		3. [illegible]
	45	10.933070	10.933162	10.933253	0	39	4. [illegible]
21	0	10.933345	10.933436	10.933528	45		1 = [illegible]
	15	10.933619	10.933711	10.933803	30		2. [illegible]
	30	10.933894	10.933986	10.934077	15		3. [illegible]
	45	10.934169	10.934261	10.934353	0	38	4. [illegible]
22	0	10.934444	10.934536	10.934628	45		1 = [illegible]
	15	10.934720	10.934811	10.934903	30		2. [illegible]
	30	10.934995	10.935087	10.935179	15		3. [illegible]
	45	10.935271	10.935363	10.935455	0	37	4. [illegible]
23	0	10.935547	10.935639	10.935731	45		1 = [illegible]
	15	10.935823	10.935915	10.936007	30		2. [illegible]
	30	10.936099	10.936191	10.936283	15		3. [illegible]
	45	10.936375	10.936467	10.936560	0	36	4. [illegible]
24	0	10.936652	10.936744	10.936836	45		1 = [illegible]
	15	10.936928	10.937021	10.937113	30		2. [illegible]
	30	10.937205	10.937298	10.937390	15		3. [illegible]
	45	10.937482	10.937575	10.937667	0	35	4. [illegible]
25	0	10.937760	10.937852	10.937945	45		1 = [illegible]
	15	10.938037	10.938130	10.938222	30		2. [illegible]
	30	10.938315	10.938407	10.938500	15		3. [illegible]
	45	10.938592	10.938685	10.938778	0	34	4. [illegible]
26	0	10.938870	10.938963	10.939056	45		1 = [illegible]
	15	10.939148	10.939241	10.939334	30		2. [illegible]
	30	10.939427	10.939519	10.939612	15		3. [illegible]
	45	10.939705	10.939798	10.939891	0	33	4. [illegible]
27	0	10.939984	10.940076	10.940169	45		1 = [illegible]
	15	10.940262	10.940355	10.940448	30		2. [illegible]
	30	10.940541	10.940634	10.940727	15		3. [illegible]
	45	10.940820	10.940914	10.941007	0	32	4. [illegible]
28	0	10.941100	10.941193	10.941286	45		1 = [illegible]
	15	10.941379	10.941472	10.941566	30		2. [illegible]
	30	10.941659	10.941752	10.941845	15		3. [illegible]
	45	10.941939	10.942032	10.942125	0	31	4. [illegible]
29	0	10.942219	10.942312	10.942405	45		1 = [illegible]
	15	10.942499	10.942592	10.942686	30		2. [illegible]
	30	10.942779	10.942873	10.942966	15		3. [illegible]
	45	10.943060	10.943153	10.943247	0	30	4. [illegible]
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
10	0	10.943340	10.943434	10.943528	45		1″ = 19
	15	10.943621	10.943715	10.943809	30		2. 37
	30	10.943902	10.943996	10.944090	15		3. 56
	45	10.944184	10.944277	10.944371	0	29	4. 75
11	0	10.944465	10.944559	10.944653	45		1 = 19
	15	10.944747	10.944841	10.944935	30		2. 38
	30	10.945028	10.945122	10.945216	15		3. 56
	45	10.945310	10.945404	10.945498	0	28	4. 75
12	0	10.945593	10.945687	10.945781	45		1 = 19
	15	10.945875	10.945969	10.946063	30		2. 38
	30	10.946157	10.946252	10.946346	15		3. 57
	45	10.946440	10.946534	10.946629	0	27	4. 75
13	0	10.946723	10.946817	10.946912	45		1 = 19
	15	10.947006	10.947100	10.947195	30		2. 38
	30	10.947289	10.947384	10.947478	15		3. 57
	45	10.947572	10.947667	10.947761	0	26	4. 76
14	0	10.947856	10.947951	10.948045	45		1 = 19
	15	10.948140	10.948234	10.948329	30		2. 38
	30	10.948424	10.948518	10.948613	15		3. 57
	45	10.948708	10.948803	10.948897	0	25	4. 76
15	0	10.948992	10.949087	10.949182	45		1 = 19
	15	10.949277	10.949371	10.949466	30		2. 38
	30	10.949561	10.949656	10.949751	15		3. 57
	45	10.949846	10.949941	10.950036	0	24	4. 76
16	0	10.950131	10.950226	10.950321	45		1 = 19
	15	10.950416	10.950511	10.950607	30		2. 38
	30	10.950702	10.950797	10.950892	15		3. 57
	45	10.950987	10.951082	10.951178	0	23	4. 76
17	0	10.951273	10.951368	10.951464	45		1 = 19
	15	10.951559	10.951654	10.951750	30		2. 38
	30	10.951845	10.951940	10.952036	15		3. 57
	45	10.952131	10.952227	10.952322	0	22	4. 76
18	0	10.952418	10.952513	10.952609	45		1 = 19
	15	10.952704	10.952800	10.952896	30		2. 38
	30	10.952991	10.953087	10.953183	15		3. 57
	45	10.953278	10.953374	10.953470	0	21	4. 77
19	0	10.953566	10.953661	10.953757	45		1 = 19
	15	10.953853	10.953949	10.954045	30		2. 38
	30	10.954141	10.954237	10.954332	15		3. 58
	45	10.954428	10.954524	10.954620	0	20	4. 77
20	0	10.954716	10.954812	10.954908	45		1 = 19
	15	10.955005	10.955101	10.955197	30		2. 38
	30	10.955293	10.955389	10.955485	15		3. 58
	45	10.955581	10.955678	10.955774	0	19	4. 77
21	0	10.955870	10.955966	10.956063	45		1 = 19
	15	10.956159	10.956255	10.956352	30		2. 39
	30	10.956448	10.956544	10.956641	15		3. 58
	45	10.956737	10.956834	10.956930	0	18	4. 77
22	0	10.957027	10.957123	10.957220	45		1 = 19
	15	10.957316	10.957413	10.957510	30		2. 39
	30	10.957606	10.957703	10.957800	15		3. 58
	45	10.957896	10.957993	10.958090	0	17	4. 77
23	0	10.958187	10.958283	10.958380	45		1 = 19
	15	10.958477	10.958574	10.958671	30		2. 39
	30	10.958768	10.958865	10.958961	15		3. 58
	45	10.959058	10.959155	10.959252	0	16	4. 77
24	0	10.959349	10.959446	10.959543	45		1 = 19
	15	10.959641	10.959738	10.959835	30		2. 39
	30	10.959932	10.960029	10.960126	15		3. 58
	45	10.960223	10.960321	10.960418	0	15	4. 78
Seconds		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10.960515	10.960612	10.960710	45		1″ = 19
	15	10.960807	10.960904	10.961002	30		2. 39
	30	10.961099	10.961197	10.961294	15		3. 58
	45	10.961392	10.961489	10.961587	0	14	4. 78
46	0	10.961684	10.961782	10.961879	45		1 = 20
	15	10.961977	10.962074	10.962172	30		2. 39
	30	10.962270	10.962367	10.962465	15		3. 59
	45	10.962563	10.962661	10.962758	0	13	4. 78
47	0	10.962856	10.962954	10.963052	45		1 = 20
	15	10.963150	10.963247	10.963345	30		2. 39
	30	10.963443	10.963541	10.963639	15		3. 59
	45	10.963737	10.963835	10.963933	0	12	4. 78
48	0	10.964031	10.964129	10.964227	45		1 = 20
	15	10.964325	10.964424	10.964522	30		2. 39
	30	10.964620	10.964718	10.964816	15		3. 59
	45	10.964914	10.965013	10.965111	0	11	4. 79
49	0	10.965209	10.965308	10.965406	45		1 = 20
	15	10.965504	10.965603	10.965701	30		2. 39
	30	10.965800	10.965898	10.965996	15		3. 59
	45	10.966095	10.966194	10.966292	0	10	4. 79
50	0	10.966391	10.966489	10.966588	45		1 = 20
	15	10.966686	10.966785	10.966884	30		2. 39
	30	10.966982	10.967081	10.967180	15		3. 59
	45	10.967279	10.967377	10.967476	0	9	4. 79
51	0	10.967575	10.967674	10.967773	45		1 = 20
	15	10.967872	10.967971	10.968070	30		2. 40
	30	10.968168	10.968267	10.968366	15		3. 59
	45	10.968465	10.968565	10.968664	0	8	4. 79
52	0	10.968763	10.968862	10.968961	45		1 = 20
	15	10.969060	10.969159	10.969258	30		2. 40
	30	10.969358	10.969457	10.969556	15		3. 60
	45	10.969656	10.969755	10.969854	0	7	4. 79
53	0	10.969954	10.970053	10.970152	45		1 = 20
	15	10.970252	10.970351	10.970451	30		2. 40
	30	10.970550	10.970650	10.970749	15		3. 60
	45	10.970849	10.970948	10.971048	0	6	4. 80
54	0	10.971148	10.971247	10.971347	45		1 = 20
	15	10.971447	10.971546	10.971646	30		2. 40
	30	10.971746	10.971845	10.971945	15		3. 60
	45	10.972045	10.972145	10.972245	0	5	4. 80
55	0	10.972345	10.972445	10.972545	45		1 = 20
	15	10.972645	10.972745	10.972845	30		2. 40
	30	10.972945	10.973045	10.973145	15		3. 60
	45	10.973245	10.973345	10.973445	0	4	4. 80
56	0	10.973545	10.973645	10.973746	45		1 = 20
	15	10.973846	10.973946	10.974046	30		2. 40
	30	10.974147	10.974247	10.974347	15		3. 60
	45	10.974448	10.974548	10.974648	0	3	4. 80
57	0	10.974749	10.974849	10.974950	45		1 = 20
	15	10.975050	10.975151	10.975251	30		2. 40
	30	10.975352	10.975453	10.975553	15		3. 60
	45	10.975654	10.975754	10.975855	0	2	4. 80
58	0	10.975956	10.976057	10.976157	45		1 = 20
	15	10.976258	10.976359	10.976460	30		2. 40
	30	10.976561	10.976661	10.976762	15		3. 60
	45	10.976863	10.976964	10.977065	0	1	4. 81
59	0	10.977166	10.977267	10.977368	45		1 = 20
	15	10.977469	10.977570	10.977671	30		2. 40
	30	10.977773	10.977874	10.977975	15		3. 60
	45	10.978076	10.978177	10.978278	0	0	4. 81
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 76 degrees, or Co-tangent of 166 degrees.												Minutes	Proportional parts
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 603229	603274	603319	603363	603408	603453	603498	603543	603588	603633	603678	603722	59	1″= 9
1	10. 603767	603812	603857	603902	603947	603992	604037	604082	604127	604172	604217	604261	58	2. 18
2	10. 604306	604351	604396	604441	604486	604531	604576	604621	604666	604711	604756	604801	57	3. 27
3	10. 604846	604891	604936	604981	605026	605071	605116	605161	605206	605251	605296	605341	56	4. 36
4	10. 605386	605431	605476	605522	605567	605612	605657	605702	605747	605792	605837	605882	55	1 = 9
5	10. 605927	605972	606017	606063	606108	606153	606198	606243	606288	606333	606378	606424	54	2. 18
6	10. 606469	606514	606559	606604	606649	606694	606740	606785	606830	606875	606920	606966	53	3. 27
7	10. 607011	607056	607101	607146	607192	607237	607282	607327	607372	607418	607463	607508	52	4. 36
8	10. 607553	607599	607644	607689	607734	607780	607825	607870	607915	607961	608006	608051	51	1 = 9
9	10. 608097	608142	608187	608232	608278	608323	608368	608414	608459	608504	608550	608595	50	2. 18
10	10. 608640	608686	608731	608776	608822	608867	608913	608958	609003	609049	609094	609139	49	3. 27
11	10. 609185	609230	609276	609321	609366	609412	609457	609503	609548	609594	609639	609684	48	4. 36
12	10. 609730	609775	609821	609866	609912	609957	610003	610048	610094	610139	610185	610230	47	1 = 9
13	10. 610276	610321	610367	610412	610458	610503	610549	610594	610640	610685	610731	610776	46	2. 18
14	10. 610822	610867	610913	610959	611004	611050	611095	611141	611186	611232	611278	611323	45	3. 27
15	10. 611369	611414	611460	611506	611551	611597	611642	611688	611734	611779	611825	611871	44	4. 36
16	10. 611916	611962	612008	612053	612099	612145	612190	612236	612282	612327	612373	612419	43	1 = 9
17	10. 612464	612510	612556	612601	612647	612693	612739	612784	612830	612876	612922	612967	42	2. 18
18	10. 613013	613059	613105	613150	613196	613242	613288	613333	613379	613425	613471	613517	41	3. 27
19	10. 613562	613608	613654	613700	613746	613791	613837	613883	613929	613975	614021	614066	40	4. 36
20	10. 614112	614158	614204	614250	614296	614342	614388	614433	614479	614525	614571	614617	39	1 = 9
21	10. 614663	614709	614755	614801	614847	614893	614938	614984	615030	615076	615122	615168	38	2. 18
22	10. 615214	615260	615306	615352	615398	615444	615490	615536	615582	615628	615674	615720	37	3. 27
23	10. 615766	615812	615858	615904	615950	615996	616042	616088	616134	616180	616226	616272	36	4. 36
24	10. 616318	616364	616411	616457	616503	616549	616595	616641	616687	616733	616779	616825	35	1 = 9
25	10. 616871	616918	616964	617010	617056	617102	617148	617194	617240	617287	617333	617379	34	2. 18
26	10. 617425	617471	617517	617564	617610	617656	617702	617748	617795	617841	617887	617933	33	3. 27
27	10. 617979	618026	618072	618118	618164	618211	618257	618303	618349	618396	618442	618488	32	4. 36
28	10. 618534	618581	618627	618673	618720	618766	618812	618858	618905	618951	618997	619044	31	1 = 9
29	10. 619090	619136	619183	619229	619275	619322	619368	619414	619461	619507	619553	619600	30	2. 18
30	10. 619646	619693	619739	619785	619832	619878	619925	619971	620017	620064	620110	620157	29	3. 27
31	10. 620203	620250	620296	620342	620389	620435	620482	620528	620575	620621	620668	620714	28	4. 36
32	10. 620761	620807	620854	620900	620947	620993	621040	621086	621133	621179	621226	621272	27	1 = 9
33	10. 621319	621365	621412	621458	621505	621551	621598	621645	621691	621738	621784	621831	26	2. 18
34	10. 621877	621924	621971	622017	622064	622110	622157	622204	622250	622297	622344	622390	25	3. 27
35	10. 622437	622484	622530	622577	622623	622670	622717	622763	622810	622857	622904	622950	24	4. 36
36	10. 622997	623044	623090	623137	623184	623230	623277	623324	623371	623417	623464	623511	23	1 = 9
37	10. 623558	623604	623651	623698	623745	623791	623838	623885	623932	623979	624025	624072	22	2. 18
38	10. 624119	624166	624213	624259	624306	624353	624400	624447	624494	624540	624587	624634	21	3. 27
39	10. 624681	624728	624775	624822	624868	624915	624962	625009	625056	625103	625150	625197	20	4. 36
40	10. 625244	625291	625337	625384	625431	625478	625525	625572	625619	625666	625713	625760	19	1 = 9
41	10. 625807	625854	625901	625948	625995	626042	626089	626136	626183	626230	626277	626324	18	2. 18
42	10. 626371	626418	626465	626512	626559	626606	626653	626700	626747	626794	626841	626888	17	3. 27
43	10. 626935	626983	627030	627077	627124	627171	627218	627265	627312	627359	627407	627454	16	4. 36
44	10. 627501	627548	627595	627642	627689	627736	627784	627831	627878	627925	627972	628019	15	1 = 9
45	10. 628067	628114	628161	628208	628255	628303	628350	628397	628444	628492	628539	628586	14	2. 18
46	10. 628633	628681	628728	628775	628822	628870	628917	628964	629011	629059	629106	629153	13	3. 27
47	10. 629201	629248	629295	629342	629390	629437	629484	629532	629579	629626	629674	629721	12	4. 36
48	10. 629768	629816	629863	629911	629958	630005	630053	630100	630147	630195	630242	630290	11	1 = 9
49	10. 630337	630384	630432	630479	630527	630574	630622	630669	630716	630764	630811	630859	10	2. 18
50	10. 630906	630954	631001	631049	631096	631144	631191	631239	631286	631334	631381	631429	9	3. 27
51	10. 631476	631524	631571	631619	631666	631714	631761	631809	631856	631904	631952	631999	8	4. 36
52	10. 632047	632094	632142	632190	632237	632285	632332	632380	632428	632475	632523	632570	7	1 = 9
53	10. 632618	632666	632713	632761	632809	632856	632904	632952	632999	633047	633095	633142	6	2. 18
54	10. 633190	633238	633285	633333	633381	633428	633476	633524	633572	633619	633667	633715	5	3. 27
55	10. 633763	633810	633858	633906	633954	634001	634049	634097	634145	634192	634240	634288	4	4. 36
56	10. 634336	634384	634431	634479	634527	634575	634623	634671	634718	634766	634814	634862	3	1 = 9
57	10. 634910	634958	635006	635053	635101	635149	635197	635245	635293	635341	635389	635437	2	2. 18
58	10. 635484	635532	635580	635628	635676	635724	635772	635820	635868	635916	635964	636012	1	3. 27
59	10. 636060	636108	636156	636204	636252	636300	636348	636396	636444	636492	636540	636588	0	4. 36
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proportional parts
	Co-tangent of 13 degrees, or Tangent of 103 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 77 degrees, or Co-tangent of 167 degrees. 0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	Minutes	Propor. parts.
0	10. 636636	636684	636732	636780	636828	636876	636924	636972	637020	637068	637116	637164	59	1″ = 10
1	10. 637213	637261	637309	637357	637405	637453	637501	637549	637597	637646	637694	637742	58	2. 19
2	10. 637790	637838	637886	637934	637983	638031	638079	638127	638175	638223	638272	638320	57	3. 29
3	10. 638368	638416	638464	638513	638561	638609	638657	638706	638754	638802	638850	638899	56	4. 39
4	10. 638947	638995	639043	639092	639140	639188	639236	639285	639333	639381	639430	639478	55	1 = 10
5	10. 639526	639575	639623	639671	639720	639768	639816	639865	639913	639961	640010	640058	54	2. 19
6	10. 640106	640155	640203	640252	640300	640348	640397	640445	640494	640542	640591	640639	53	3. 29
7	10. 640687	640736	640784	640833	640881	640930	640978	641027	641075	641123	641172	641220	52	4. 39
8	10. 641269	641317	641366	641414	641463	641511	641560	641609	641657	641706	641754	641803	51	1 = 10
9	10. 641851	641900	641948	641997	642045	642094	642143	642191	642240	642288	642337	642386	50	2. 19
10	10. 642434	642483	642531	642580	642629	642677	642726	642775	642823	642872	642921	642969	49	3. 29
11	10. 643018	643067	643115	643164	643213	643261	643310	643359	643407	643456	643505	643554	48	4. 39
12	10. 643602	643651	643700	643748	643797	643846	643895	643944	643992	644041	644090	644139	47	1 = 10
13	10. 644187	644236	644285	644334	644383	644431	644480	644529	644578	644627	644676	644724	46	2. 20
14	10. 644773	644822	644871	644920	644969	645018	645066	645115	645164	645213	645262	645311	45	3. 29
15	10. 645360	645409	645458	645506	645555	645604	645653	645702	645751	645800	645849	645898	44	4. 39
16	10. 645947	645996	646045	646094	646143	646192	646241	646290	646339	646388	646437	646486	43	1 = 10
17	10. 646535	646584	646633	646682	646731	646780	646829	646878	646927	646976	647025	647075	42	2. 20
18	10. 647124	647173	647222	647271	647320	647369	647418	647467	647516	647566	647615	647664	41	3. 29
19	10. 647713	647762	647811	647861	647910	647959	648008	648057	648106	648156	648205	648254	40	4. 39
20	10. 648303	648352	648402	648451	648500	648549	648599	648648	648697	648746	648795	648845	39	1 = 10
21	10. 648894	648943	648993	649042	649091	649140	649190	649239	649288	649338	649387	649436	38	2. 20
22	10. 649486	649535	649584	649634	649683	649732	649782	649831	649880	649930	649979	650029	37	3. 30
23	10. 650078	650127	650177	650226	650276	650325	650374	650424	650473	650523	650572	650622	36	4. 39
24	10. 650671	650720	650770	650819	650869	650918	650968	651017	651067	651116	651166	651215	35	1 = 10
25	10. 651265	651314	651364	651413	651463	651512	651562	651611	651661	651711	651760	651810	34	2. 20
26	10. 651859	651909	651958	652008	652058	652107	652157	652206	652256	652306	652355	652405	33	3. 30
27	10. 652455	652504	652554	652603	652653	652703	652752	652802	652852	652901	652951	653001	32	4. 40
28	10. 653051	653100	653150	653200	653249	653299	653349	653399	653448	653498	653548	653597	31	1 = 10
29	10. 653647	653697	653747	653797	653846	653896	653946	653996	654045	654095	654145	654195	30	2. 20
30	10. 654245	654295	654344	654394	654444	654494	654544	654594	654643	654693	654743	654793	29	3. 30
31	10. 654843	654893	654943	654993	655043	655092	655142	655192	655242	655292	655342	655392	28	4. 40
32	10. 655442	655492	655542	655592	655642	655692	655742	655792	655842	655892	655942	655992	27	1 = 10
33	10. 656042	656092	656142	656192	656242	656292	656342	656392	656442	656492	656542	656592	26	2. 20
34	10. 656642	656692	656742	656792	656842	656893	656943	656993	657043	657093	657143	657193	25	3. 30
35	10. 657243	657293	657344	657394	657444	657494	657544	657594	657645	657695	657745	657795	24	4. 40
36	10. 657845	657896	657946	657996	658046	658096	658147	658197	658247	658297	658348	658398	23	1 = 10
37	10. 658448	658498	658549	658599	658649	658699	658750	658800	658850	658901	658951	659001	22	2. 20
38	10. 659052	659102	659152	659203	659253	659303	659354	659404	659454	659505	659555	659605	21	3. 30
39	10. 659656	659706	659757	659807	659857	659908	659958	660009	660059	660110	660160	660210	20	4. 40
40	10. 660261	660311	660362	660412	660463	660513	660564	660614	660665	660715	660766	660816	19	1 = 10
41	10. 660867	660917	660968	661018	661069	661119	661170	661220	661271	661322	661372	661423	18	2. 20
42	10. 661473	661524	661574	661625	661676	661726	661777	661827	661878	661929	661979	662030	17	3. 30
43	10. 662081	662131	662182	662233	662283	662334	662385	662435	662486	662537	662587	662638	16	4. 40
44	10. 662689	662739	662790	662841	662892	662942	662993	663044	663095	663145	663196	663247	15	1 = 10
45	10. 663298	663348	663399	663450	663501	663551	663602	663653	663704	663755	663806	663856	14	2. 20
46	10. 663907	663958	664009	664060	664111	664161	664212	664263	664314	664365	664416	664467	13	3. 31
47	10. 664518	664569	664619	664670	664721	664772	664823	664874	664925	664976	665027	665078	12	4. 41
48	10. 665129	665180	665231	665282	665333	665384	665435	665486	665537	665588	665639	665690	11	1 = 10
49	10. 665741	665792	665843	665894	665945	665996	666047	666098	666149	666200	666252	666303	10	2. 20
50	10. 666354	666405	666456	666507	666558	666609	666660	666712	666763	666814	666865	666916	9	3. 31
51	10. 666967	667018	667070	667121	667172	667223	667274	667326	667377	667428	667479	667530	8	4. 41
52	10. 667582	667633	667684	667735	667787	667838	667889	667940	667992	668043	668094	668146	7	1 = 10
53	10. 668197	668248	668299	668351	668402	668453	668505	668556	668607	668659	668710	668761	6	2. 21
54	10. 668813	668864	668916	668967	669018	669070	669121	669172	669224	669275	669327	669378	5	3. 31
55	10. 669430	669481	669533	669584	669635	669687	669738	669790	669841	669893	669944	669996	4	4. 41
56	10. 670047	670099	670150	670202	670253	670305	670356	670408	670459	670511	670562	670614	3	1 = 10
57	10. 670665	670717	670769	670820	670872	670923	670975	671027	671078	671130	671181	671233	2	2. 21
58	10. 671285	671336	671388	671440	671491	671543	671595	671646	671698	671750	671801	671853	1	3. 31
59	10. 671905	671956	672008	672060	672111	672163	672215	672267	672318	672370	672422	672474	0	4. 41
	60	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor. parts.
	Co-tangent of 12 degrees, or Tangent of 102 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 78 degrees, or Co-tangent of 168 degrees.												Minutes	Proper. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 672525	672577	672629	672681	672733	672784	672836	672888	672940	672992	673043	673095	59	1″=10
1	10. 673147	673199	673251	673303	673354	673406	673458	673510	673562	673614	673666	673718	58	2. 21
2	10. 673769	673821	673873	673925	673977	674029	674081	674133	674185	674237	674289	674341	57	3. 31
3	10. 674393	674445	674497	674549	674601	674653	674705	674757	674809	674861	674913	674965	56	4. 42
4	10. 675017	675069	675121	675173	675225	675277	675329	675381	675433	675485	675537	675589	55	1 =10
5	10. 675642	675694	675746	675798	675850	675902	675954	676006	676059	676111	676163	676215	54	2. 21
6	10. 676267	676319	676372	676424	676476	676528	676580	676633	676685	676737	676789	676842	53	3. 31
7	10. 676894	676946	676998	677051	677103	677155	677207	677260	677312	677364	677417	677469	52	4. 42
8	10. 677521	677573	677626	677678	677730	677783	677835	677887	677940	677992	678045	678097	51	1 =10
9	10. 678149	678202	678254	678307	678359	678411	678464	678516	678569	678621	678673	678726	50	2. 21
10	10. 678778	678831	678883	678936	678988	679041	679093	679146	679198	679251	679303	679356	49	3. 31
11	10. 679408	679461	679513	679566	679618	679671	679723	679776	679829	679881	679934	679986	48	4. 42
12	10. 680039	680091	680144	680197	680249	680302	680355	680407	680460	680512	680565	680618	47	1 =11
13	10. 680670	680723	680776	680828	680881	680934	680986	681039	681092	681145	681197	681250	46	2. 21
14	10. 681303	681356	681408	681461	681514	681567	681619	681672	681725	681778	681830	681883	45	3. 32
15	10. 681936	681989	682042	682094	682147	682200	682253	682306	682359	682411	682464	682517	44	4. 42
16	10. 682570	682623	682676	682729	682782	682834	682887	682940	682993	683046	683099	683152	43	1 =11
17	10. 683205	683258	683311	683364	683417	683470	683523	683576	683629	683682	683735	683788	42	2. 21
18	10. 683841	683894	683947	684000	684053	684106	684159	684212	684265	684318	684371	684424	41	3. 32
19	10. 684477	684530	684584	684637	684690	684743	684796	684849	684902	684955	685009	685062	40	4. 42
20	10. 685115	685168	685221	685274	685328	685381	685434	685487	685540	685593	685647	685700	39	1 =11
21	10. 685753	685806	685860	685913	685966	686019	686073	686126	686179	686232	686286	686339	38	2. 22
22	10. 686392	686446	686499	686552	686606	686659	686712	686766	686819	686872	686926	686979	37	3. 32
23	10. 687032	687086	687139	687193	687246	687299	687353	687406	687460	687513	687566	687620	36	4. 43
24	10. 687673	687727	687780	687834	687887	687941	687994	688048	688101	688155	688208	688262	35	1 =11
25	10. 688315	688369	688422	688476	688529	688583	688636	688690	688744	688797	688851	688904	34	2. 22
26	10. 688958	689011	689065	689119	689172	689226	689280	689333	689387	689440	689494	689548	33	3. 32
27	10. 689601	689655	689709	689762	689816	689870	689924	689977	690031	690085	690138	690192	32	4. 43
28	10. 690246	690300	690353	690407	690461	690515	690568	690622	690676	690730	690784	690837	31	1 =11
29	10. 690891	690945	690999	691053	691106	691160	691214	691268	691322	691376	691430	691483	30	2. 22
30	10. 691537	691591	691645	691699	691753	691807	691861	691915	691969	692023	692077	692130	29	3. 32
31	10. 692184	692238	692292	692346	692400	692454	692508	692562	692616	692670	692724	692778	28	4. 43
32	10. 692832	692886	692940	692995	693049	693103	693157	693211	693265	693319	693373	693427	27	1 =11
33	10. 693481	693535	693589	693644	693698	693752	693806	693860	693914	693969	694023	694077	26	2. 22
34	10. 694131	694185	694239	694294	694348	694402	694456	694510	694565	694619	694673	694727	25	3. 32
35	10. 694782	694836	694890	694944	694999	695053	695107	695162	695216	695270	695325	695379	24	4. 43
36	10. 695433	695488	695542	695596	695651	695705	695759	695814	695868	695922	695977	696031	23	1 =11
37	10. 696086	696140	696195	696249	696303	696358	696412	696467	696521	696576	696630	696685	22	2. 22
38	10. 696739	696794	696848	696903	696957	697012	697066	697121	697175	697230	697284	697339	21	3. 33
39	10. 697393	697448	697502	697557	697612	697666	697721	697775	697830	697885	697939	697994	20	4. 44
40	10. 698049	698103	698158	698212	698267	698322	698376	698431	698486	698540	698595	698650	19	1 =11
41	10. 698705	698759	698814	698869	698924	698978	699033	699088	699143	699197	699252	699307	18	2. 22
42	10. 699362	699416	699471	699526	699581	699636	699690	699745	699800	699855	699910	699965	17	3. 33
43	10. 700020	700074	700129	700184	700239	700294	700349	700404	700459	700514	700569	700623	16	4. 44
44	10. 700678	700733	700788	700843	700898	700953	701008	701063	701118	701173	701228	701283	15	1 =11
45	10. 701338	701393	701448	701503	701558	701613	701668	701723	701779	701834	701889	701944	14	2. 22
46	10. 701999	702054	702109	702164	702219	702274	702330	702385	702440	702495	702550	702605	13	3. 33
47	10. 702660	702716	702771	702826	702881	702936	702992	703047	703102	703157	703213	703268	12	4. 44
48	10. 703323	703378	703434	703489	703544	703599	703655	703710	703765	703821	703876	703931	11	1 =11
49	10. 703987	704042	704097	704153	704208	704263	704319	704374	704429	704485	704540	704596	10	2. 22
50	10. 704651	704706	704762	704817	704873	704928	704984	705039	705094	705150	705205	705261	9	3. 33
51	10. 705316	705372	705427	705483	705538	705594	705649	705705	705761	705816	705872	705927	8	4. 44
52	10. 705983	706038	706094	706149	706205	706261	706316	706372	706427	706483	706539	706594	7	1 =11
53	10. 706650	706706	706761	706817	706873	706928	706984	707040	707095	707151	707207	707262	6	2. 22
54	10. 707318	707374	707430	707485	707541	707597	707653	707708	707764	707820	707876	707932	5	3. 33
55	10. 707987	708043	708099	708155	708211	708266	708322	708378	708434	708490	708546	708602	4	4. 45
56	10. 708658	708713	708769	708825	708881	708937	708993	709049	709105	709161	709217	709273	3	1 =11
57	10. 709329	709385	709441	709497	709553	709609	709665	709721	709777	709833	709889	709945	2	2. 22
58	10. 710001	710057	710113	710169	710225	710281	710337	710393	710449	710505	710561	710618	1	3. 34
59	10. 710674	710730	710786	710842	710898	710954	711011	711067	711123	711179	711235	711291	0	4. 45
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Proper. parts.
	Co-tangent of 11 degrees, or Tangent of 101 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Tangent of 79 degrees, or Co-tangent of 169 degrees.												Minutes	Propor. parts.
	0″	5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″		
0	10. 711348	711404	711460	711516	711573	711629	711685	711741	711798	711854	711910	711966	59	1″ =
1	10. 712023	712079	712135	712192	712248	712304	712360	712417	712473	712530	712586	712642	58	2.
2	10. 712699	712755	712811	712868	712924	712981	713037	713093	713150	713206	713263	713319	57	3.
3	10. 713375	713432	713488	713545	713601	713658	713714	713771	713827	713884	713940	713997	56	4.
4	10. 714053	714110	714166	714223	714280	714336	714393	714449	714506	714562	714619	714676	55	1 =
5	10. 714732	714789	714845	714902	714959	715015	715072	715129	715185	715242	715299	715355	54	2.
6	10. 715412	715469	715526	715582	715639	715696	715752	715809	715866	715923	715979	716036	53	3.
7	10. 716093	716150	716207	716263	716320	716377	716434	716491	716547	716604	716661	716718	52	4.
8	10. 716775	716832	716889	716945	717002	717059	717116	717173	717230	717287	717344	717401	51	1 =
9	10. 717458	717515	717572	717629	717685	717742	717799	717856	717913	717970	718027	718084	50	2.
10	10. 718141	718199	718256	718313	718370	718427	718484	718541	718598	718655	718712	718769	49	3.
11	10. 718826	718883	718941	718998	719055	719112	719169	719226	719283	719341	719398	719455	48	4.
12	10. 719512	719569	719627	719684	719741	719798	719855	719913	719970	720027	720084	720142	47	1 =
13	10. 720199	720256	720314	720371	720428	720486	720543	720600	720657	720715	720772	720830	46	2.
14	10. 720887	720944	721002	721059	721116	721174	721231	721289	721346	721403	721461	721518	45	3.
15	10. 721576	721633	721691	721748	721806	721863	721921	721978	722036	722093	722151	722208	44	4.
16	10. 722266	722323	722381	722438	722496	722553	722611	722669	722726	722784	722841	722899	43	1 =
17	10. 722957	723014	723072	723129	723187	723245	723302	723360	723418	723475	723533	723591	42	2.
18	10. 723649	723706	723764	723822	723879	723937	723995	724053	724110	724168	724226	724284	41	3.
19	10. 724342	724399	724457	724515	724573	724631	724688	724746	724804	724862	724920	724978	40	4.
20	10. 725036	725093	725151	725209	725267	725325	725383	725441	725499	725557	725615	725673	39	1 =
21	10. 725731	725789	725847	725904	725962	726020	726078	726136	726194	726253	726311	726369	38	2.
22	10. 726427	726485	726543	726601	726659	726717	726775	726833	726891	726949	727008	727066	37	3.
23	10. 727124	727182	727240	727298	727356	727415	727473	727531	727589	727647	727705	727764	36	4.
24	10. 727822	727880	727938	727997	728055	728113	728171	728230	728288	728346	728405	728463	35	1 =
25	10. 728521	728579	728638	728696	728754	728813	728871	728929	728988	729046	729105	729163	34	2.
26	10. 729221	729280	729338	729397	729455	729513	729572	729630	729689	729747	729806	729864	33	3.
27	10. 729923	729981	730040	730098	730157	730215	730274	730332	730391	730449	730508	730567	32	4.
28	10. 730625	730684	730742	730801	730859	730918	730977	731035	731094	731153	731211	731270	31	1 =
29	10. 731329	731387	731446	731505	731563	731622	731681	731739	731798	731857	731916	731974	30	2.
30	10. 732033	732092	732151	732209	732268	732327	732386	732444	732503	732562	732621	732680	29	3.
31	10. 732739	732797	732856	732915	732974	733033	733092	733151	733210	733268	733327	733386	28	4.
32	10. 733445	733504	733563	733622	733681	733740	733799	733858	733917	733976	734035	734094	27	1 =
33	10. 734153	734212	734271	734330	734389	734448	734507	734566	734625	734684	734744	734803	26	2.
34	10. 734862	734921	734980	735039	735098	735157	735217	735276	735335	735394	735453	735512	25	3.
35	10. 735572	735631	735690	735749	735809	735868	735927	735986	736045	736105	736164	736223	24	4.
36	10. 736283	736342	736401	736461	736520	736579	736638	736698	736757	736817	736876	736935	23	1 =
37	10. 736995	737054	737113	737173	737232	737292	737351	737411	737470	737529	737589	737648	22	2.
38	10. 737708	737767	737827	737886	737946	738005	738065	738124	738184	738243	738303	738362	21	3.
39	10. 738422	738482	738541	738601	738660	738720	738780	738839	738899	738958	739018	739078	20	4.
40	10. 739137	739197	739257	739316	739376	739436	739495	739555	739615	739675	739734	739794	19	1 =
41	10. 739854	739914	739973	740033	740093	740153	740212	740272	740332	740392	740452	740512	18	2.
42	10. 740571	740631	740691	740751	740811	740871	740931	740991	741050	741110	741170	741230	17	3.
43	10. 741290	741350	741410	741470	741530	741590	741650	741710	741770	741830	741890	741950	16	4.
44	10. 742010	742070	742130	742190	742250	742310	742370	742430	742490	742550	742611	742671	15	1 =
45	10. 742731	742791	742851	742911	742971	743031	743092	743152	743212	743272	743332	743393	14	2.
46	10. 743453	743513	743573	743633	743694	743754	743814	743874	743935	743995	744055	744116	13	3.
47	10. 744176	744236	744297	744357	744417	744478	744538	744598	744659	744719	744779	744840	12	4.
48	10. 744900	744961	745021	745081	745142	745202	745263	745323	745384	745444	745505	745565	11	1 =
49	10. 745626	745686	745747	745807	745868	745928	745989	746049	746110	746170	746231	746292	10	2.
50	10. 746352	746413	746473	746534	746595	746655	746716	746777	746837	746898	746959	747019	9	3.
51	10. 747080	747141	747201	747262	747323	747383	747444	747505	747566	747626	747687	747748	8	4.
52	10. 747809	747870	747930	747991	748052	748113	748174	748234	748295	748356	748417	748478	7	1 =
53	10. 748539	748600	748661	748721	748782	748843	748904	748965	749026	749087	749148	749209	6	2.
54	10. 749270	749331	749392	749453	749514	749575	749636	749697	749758	749819	749880	749941	5	3.
55	10. 750002	750063	750124	750185	750247	750308	750369	750430	750491	750552	750613	750674	4	4.
56	10. 750736	750797	750858	750919	750980	751042	751103	751164	751225	751287	751348	751409	3	1 =
57	10. 751470	751532	751593	751654	751715	751777	751838	751899	751961	752022	752083	752145	2	2.
58	10. 752206	752267	752329	752390	752452	752513	752574	752636	752697	752759	752820	752882	1	3.
59	10. 752943	753005	753066	753127	753189	753250	753312	753373	753435	753497	753558	753620	0	4.
Minutes	60″	55″	50″	45″	40″	35″	30″	25″	20″	15″	10″	5″	Minutes	Propor.
	Co-tangent of 10 degrees, or Tangent of 100 degrees.													

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
0	0	10. 753681	10. 753743	10. 753804	45		1″ = 12
	15	10. 753866	10. 753927	10. 753989	30		2. 25
	30	10. 754051	10. 754112	10. 754174	15		3. 37
	45	10. 754236	10. 754297	10. 754359	0	59	4. 49
1	0	10. 754421	10. 754482	10. 754544	45		1 = 12
	15	10. 754606	10. 754667	10. 754729	30		2. 25
	30	10. 754791	10. 754852	10. 754914	15		3. 37
	45	10. 754976	10. 755038	10. 755099	0	58	4. 49
2	0	10. 755161	10. 755223	10. 755285	45		1 = 12
	15	10. 755346	10. 755408	10. 755470	30		2. 25
	30	10. 755532	10. 755594	10. 755655	15		3. 37
	45	10. 755717	10. 755779	10. 755841	0	57	4. 49
3	0	10. 755903	10. 755965	10. 756026	45		1 = 12
	15	10. 756088	10. 756150	10. 756212	30		2. 25
	30	10. 756274	10. 756336	10. 756398	15		3. 37
	45	10. 756460	10. 756522	10. 756584	0	56	4. 50
4	0	10. 756646	10. 756708	10. 756770	45		1 = 12
	15	10. 756832	10. 756894	10. 756956	30		2. 25
	30	10. 757018	10. 757080	10. 757142	15		3. 37
	45	10. 757204	10. 757266	10. 757328	0	55	4. 50
5	0	10. 757390	10. 757452	10. 757514	45		1 = 12
	15	10. 757576	10. 757638	10. 757700	30		2. 25
	30	10. 757762	10. 757824	10. 757886	15		3. 37
	45	10. 757949	10. 758011	10. 758073	0	54	4. 50
6	0	10. 758135	10. 758197	10. 758259	45		1 = 12
	15	10. 758322	10. 758384	10. 758446	30		2. 25
	30	10. 758508	10. 758570	10. 758633	15		3. 37
	45	10. 758695	10. 758757	10. 758819	0	53	4. 50
7	0	10. 758881	10. 758944	10. 759006	45		1 = 12
	15	10. 759068	10. 759131	10. 759193	30		2. 25
	30	10. 759255	10. 759318	10. 759380	15		3. 37
	45	10. 759442	10. 759504	10. 759567	0	52	4. 50
8	0	10. 759629	10. 759692	10. 759754	45		1 = 12
	15	10. 759816	10. 759879	10. 759941	30		2. 25
	30	10. 760004	10. 760066	10. 760128	15		3. 37
	45	10. 760191	10. 760253	10. 760316	0	51	4. 50
9	0	10. 760378	10. 760441	10. 760503	45		1 = 13
	15	10. 760566	10. 760628	10. 760691	30		2. 25
	30	10. 760753	10. 760816	10. 760878	15		3. 38
	45	10. 760941	10. 761003	10. 761066	0	50	4. 50
10	0	10. 761128	10. 761191	10. 761253	45		1 = 13
	15	10. 761316	10. 761379	10. 761441	30		2. 25
	30	10. 761504	10. 761566	10. 761629	15		3. 38
	45	10. 761692	10. 761754	10. 761817	0	49	4. 50
11	0	10. 761880	10. 761942	10. 762005	45		1 = 13
	15	10. 762068	10. 762130	10. 762193	30		2. 25
	30	10. 762256	10. 762318	10. 762381	15		3. 38
	45	10. 762444	10. 762507	10. 762569	0	48	4. 50
12	0	10. 762632	10. 762695	10. 762758	45		1 = 13
	15	10. 762821	10. 762883	10. 762946	30		2. 25
	30	10. 763009	10. 763072	10. 763135	15		3. 38
	45	10. 763197	10. 763260	10. 763323	0	47	4. 50
13	0	10. 763386	10. 763449	10. 763512	45		1 = 13
	15	10. 763575	10. 763638	10. 763700	30		2. 25
	30	10. 763763	10. 763826	10. 763889	15		3. 38
	45	10. 763952	10. 764015	10. 764078	0	46	4. 50
14	0	10. 764141	10. 764204	10. 764267	45		1 = 13
	15	10. 764330	10. 764393	10. 764456	30		2. 25
	30	10. 764519	10. 764582	10. 764645	15		3. 38
	45	10. 764708	10. 764771	10. 764834	0	45	4. 50
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Proper. parts.
15	0	10. 764897	10. 764960	10. 765024	45		1″ = 13
	15	10. 765087	10. 765150	10. 765213	30		2. 25
	30	10. 765276	10. 765339	10. 765402	15		3. 38
	45	10. 765465	10. 765529	10. 765592	0	44	4. 50
16	0	10. 765655	10. 765718	10. 765781	45		1 = 13
	15	10. 765844	10. 765908	10. 765971	30		2. 25
	30	10. 766034	10. 766097	10. 766161	15		3. 38
	45	10. 766224	10. 766287	10. 766350	0	43	4. 51
17	0	10. 766414	10. 766477	10. 766540	45		1 = 13
	15	10. 766604	10. 766667	10. 766730	30		2. 25
	30	10. 766794	10. 766857	10. 766920	15		3. 38
	45	10. 766984	10. 767047	10. 767110	0	42	4. 51
18	0	10. 767174	10. 767237	10. 767300	45		1 = 13
	15	10. 767364	10. 767427	10. 767491	30		2. 25
	30	10. 767554	10. 767618	10. 767681	15		3. 38
	45	10. 767745	10. 767808	10. 767872	0	41	4. 51
19	0	10. 767935	10. 767998	10. 768062	45		1 = 13
	15	10. 768126	10. 768189	10. 768253	30		2. 25
	30	10. 768316	10. 768380	10. 768443	15		3. 38
	45	10. 768507	10. 768570	10. 768634	0	40	4. 51
20	0	10. 768698	10. 768761	10. 768825	45		1 = 13
	15	10. 768888	10. 768952	10. 769016	30		2. 25
	30	10. 769079	10. 769143	10. 769207	15		3. 38
	45	10. 769270	10. 769334	10. 769398	0	39	4. 51
21	0	10. 769461	10. 769525	10. 769589	45		1 = 13
	15	10. 769653	10. 769716	10. 769780	30		2. 25
	30	10. 769844	10. 769908	10. 769971	15		3. 38
	45	10. 770035	10. 770099	10. 770163	0	38	4. 51
22	0	10. 770226	10. 770290	10. 770354	45		1 = 13
	15	10. 770418	10. 770482	10. 770546	30		2. 25
	30	10. 770609	10. 770673	10. 770737	15		3. 38
	45	10. 770801	10. 770865	10. 770929	0	37	4. 51
23	0	10. 770993	10. 771057	10. 771121	45		1 = 13
	15	10. 771185	10. 771249	10. 771313	30		2. 25
	30	10. 771376	10. 771440	10. 771504	15		3. 38
	45	10. 771568	10. 771632	10. 771696	0	36	4. 51
24	0	10. 771760	10. 771824	10. 771889	45		1 = 13
	15	10. 771953	10. 772017	10. 772081	30		2. 25
	30	10. 772145	10. 772209	10. 772273	15		3. 38
	45	10. 772337	10. 772401	10. 772465	0	35	4. 51
25	0	10. 772529	10. 772594	10. 772658	45		1 = 13
	15	10. 772722	10. 772786	10. 772850	30		2. 25
	30	10. 772914	10. 772979	10. 773043	15		3. 38
	45	10. 773107	10. 773171	10. 773235	0	34	4. 51
26	0	10. 773300	10. 773364	10. 773428	45		1 = 13
	15	10. 773492	10. 773557	10. 773621	30		2. 25
	30	10. 773685	10. 773749	10. 773814	15		3. 38
	45	10. 773878	10. 773942	10. 774007	0	33	4. 51
27	0	10. 774071	10. 774135	10. 774200	45		1 = 13
	15	10. 774264	10. 774329	10. 774393	30		2. 25
	30	10. 774457	10. 774522	10. 774586	15		3. 38
	45	10. 774651	10. 774715	10. 774779	0	32	4. 51
28	0	10. 774844	10. 774908	10. 774973	45		1 = 13
	15	10. 775037	10. 775102	10. 775166	30		2. 25
	30	10. 775231	10. 775295	10. 775360	15		3. 38
	45	10. 775424	10. 775489	10. 775553	0	31	4. 51
29	0	10. 775618	10. 775683	10. 775747	45		1 = 13
	15	10. 775812	10. 775876	10. 775941	30		2. 25
	30	10. 776006	10. 776070	10. 776135	15		3. 38
	45	10. 776199	10. 776264	10. 776329	0	30	4. 51
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Proper. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10. 776393	10. 776458	10. 776523	45		1″ = 13
	15	10. 776587	10. 776652	10. 776717	30		2. 26
	30	10. 776782	10. 776846	10. 776911	15		3. 39
	45	10. 776976	10. 777041	10. 777105	0	29	4. 52
31	0	10. 777170	10. 777235	10. 777300	45		1 = 13
	15	10. 777365	10. 777429	10. 777494	30		2. 26
	30	10. 777559	10. 777624	10. 777689	15		3. 39
	45	10. 777754	10. 777818	10. 777883	0	28	4. 52
32	0	10. 777948	10. 778013	10. 778078	45		1 = 13
	15	10. 778143	10. 778208	10. 778273	30		2. 26
	30	10. 778338	10. 778403	10. 778468	15		3. 39
	45	10. 778533	10. 778598	10. 778663	0	27	4. 52
33	0	10. 778728	10. 778793	10. 778858	45		1 = 13
	15	10. 778923	10. 778988	10. 779053	30		2. 26
	30	10. 779118	10. 779183	10. 779248	15		3. 39
	45	10. 779313	10. 779378	10. 779443	0	26	4. 52
34	0	10. 779508	10. 779573	10. 779638	45		1 = 13
	15	10. 779704	10. 779769	10. 779834	30		2. 26
	30	10. 779899	10. 779964	10. 780029	15		3. 39
	45	10. 780095	10. 780160	10. 780225	0	25	4. 52
35	0	10. 780290	10. 780355	10. 780421	45		1 = 13
	15	10. 780486	10. 780551	10. 780616	30		2. 26
	30	10. 780682	10. 780747	10. 780812	15		3. 39
	45	10. 780878	10. 780943	10. 781008	0	24	4. 52
36	0	10. 781074	10. 781139	10. 781204	45		1 = 13
	15	10. 781270	10. 781335	10. 781400	30		2. 26
	30	10. 781466	10. 781531	10. 781597	15		3. 39
	45	10. 781662	10. 781727	10. 781793	0	23	4. 52
37	0	10. 781858	10. 781924	10. 781989	45		1 = 13
	15	10. 782055	10. 782120	10. 782186	30		2. 26
	30	10. 782251	10. 782317	10. 782382	15		3. 39
	45	10. 782448	10. 782513	10. 782579	0	22	4. 52
38	0	10. 782644	10. 782710	10. 782775	45		1 = 13
	15	10. 782841	10. 782907	10. 782972	30		2. 26
	30	10. 783038	10. 783103	10. 783169	15		3. 39
	45	10. 783235	10. 783300	10. 783366	0	21	4. 52
39	0	10. 783432	10. 783497	10. 783563	45		1 = 13
	15	10. 783629	10. 783694	10. 783760	30		2. 26
	30	10. 783826	10. 783892	10. 783957	15		3. 39
	45	10. 784023	10. 784089	10. 784155	0	20	4. 53
40	0	10. 784220	10. 784286	10. 784352	45		1 = 13
	15	10. 784418	10. 784484	10. 784549	30		2. 26
	30	10. 784615	10. 784681	10. 784747	15		3. 40
	45	10. 784813	10. 784879	10. 784945	0	19	4. 53
41	0	10. 785011	10. 785076	10. 785142	45		1 = 13
	15	10. 785208	10. 785274	10. 785340	30		2. 26
	30	10. 785406	10. 785472	10. 785538	15		3. 40
	45	10. 785604	10. 785670	10. 785736	0	18	4. 53
42	0	10. 785802	10. 785868	10. 785934	45		1 = 13
	15	10. 786000	10. 786066	10. 786132	30		2. 26
	30	10. 786198	10. 786264	10. 786330	15		3. 40
	45	10. 786396	10. 786463	10. 786529	0	17	4. 53
43	0	10. 786595	10. 786661	10. 786727	45		1 = 13
	15	10. 786793	10. 786859	10. 786926	30		2. 26
	30	10. 786992	10. 787058	10. 787124	15		3. 40
	45	10. 787190	10. 787257	10. 787323	0	16	4. 53
44	0	10. 787389	10. 787455	10. 787522	45		1 = 13
	15	10. 787588	10. 787654	10. 787720	30		2. 27
	30	10. 787787	10. 787853	10. 787919	15		3. 40
	45	10. 787986	10. 788052	10. 788118	0	15	4. 53
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 788185	10. 788251	10. 788317	45		1″ = 13
	15	10. 788384	10. 788450	10. 788517	30		2. 27
	30	10. 788583	10. 788649	10. 788716	15		3. 40
	45	10. 788782	10. 788849	10. 788915	0	14	4. 53
46	0	10. 788982	10. 789048	10. 789115	45		1 = 13
	15	10. 789181	10. 789248	10. 789314	30		2. 27
	30	10. 789381	10. 789447	10. 789514	15		3. 40
	45	10. 789580	10. 789647	10. 789713	0	13	4. 53
47	0	10. 789780	10. 789847	10. 789913	45		1 = 13
	15	10. 789980	10. 790046	10. 790113	30		2. 27
	30	10. 790180	10. 790246	10. 790313	15		3. 40
	45	10. 790380	10. 790446	10. 790513	0	12	4. 53
48	0	10. 790580	10. 790646	10. 790713	45		1 = 13
	15	10. 790780	10. 790847	10. 790913	30		2. 27
	30	10. 790980	10. 791047	10. 791114	15		3. 40
	45	10. 791180	10. 791247	10. 791314	0	11	4. 53
49	0	10. 791381	10. 791448	10. 791515	45		1 = 13
	15	10. 791581	10. 791648	10. 791715	30		2. 27
	30	10. 791782	10. 791849	10. 791916	15		3. 40
	45	10. 791983	10. 792050	10. 792116	0	10	4. 53
50	0	10. 792183	10. 792250	10. 792317	45		1 = 13
	15	10. 792384	10. 792451	10. 792518	30		2. 27
	30	10. 792585	10. 792652	10. 792719	15		3. 40
	45	10. 792786	10. 792853	10. 792920	0	9	4. 54
51	0	10. 792987	10. 793054	10. 793122	45		1 = 13
	15	10. 793189	10. 793256	10. 793323	30		2. 27
	30	10. 793390	10. 793457	10. 793524	15		3. 40
	45	10. 793591	10. 793658	10. 793726	0	8	4. 54
52	0	10. 793793	10. 793860	10. 793927	45		1 = 13
	15	10. 793994	10. 794062	10. 794129	30		2. 27
	30	10. 794196	10. 794263	10. 794330	15		3. 40
	45	10. 794398	10. 794465	10. 794532	0	7	4. 54
53	0	10. 794600	10. 794667	10. 794734	45		1 = 13
	15	10. 794801	10. 794869	10. 794936	30		2. 27
	30	10. 795004	10. 795071	10. 795138	15		3. 40
	45	10. 795206	10. 795273	10. 795340	0	6	4. 54
54	0	10. 795408	10. 795475	10. 795543	45		1 = 13
	15	10. 795610	10. 795678	10. 795745	30		2. 27
	30	10. 795812	10. 795880	10. 795947	15		3. 40
	45	10. 796015	10. 796082	10. 796150	0	5	4. 54
55	0	10. 796217	10. 796285	10. 796353	45		1 = 14
	15	10. 796420	10. 796488	10. 796555	30		2. 27
	30	10. 796623	10. 796690	10. 796758	15		3. 41
	45	10. 796826	10. 796893	10. 796961	0	4	4. 54
56	0	10. 797029	10. 797096	10. 797164	45		1 = 14
	15	10. 797232	10. 797299	10. 797367	30		2. 27
	30	10. 797435	10. 797502	10. 797570	15		3. 41
	45	10. 797638	10. 797706	10. 797773	0	3	4. 54
57	0	10. 797841	10. 797909	10. 797977	45		1 = 14
	15	10. 798044	10. 798112	10. 798180	30		2. 27
	30	10. 798248	10. 798316	10. 798384	15		3. 41
	45	10. 798451	10. 798519	10. 798587	0	2	4. 54
58	0	10. 798655	10. 798723	10. 798791	45		1 = 14
	15	10. 798859	10. 798927	10. 798995	30		2. 27
	30	10. 799063	10. 799131	10. 799199	15		3. 41
	45	10. 799267	10. 799335	10. 799403	0	1	4. 54
59	0	10. 799471	10. 799539	10. 799607	45		1 = 14
	15	10. 799675	10. 799743	10. 799811	30		2. 27
	30	10. 799879	10. 799947	10. 800015	15		3. 41
	45	10. 800083	10. 800151	10. 800219	0	0	4. 54
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 800287	10. 800356	10. 800424	45		1″ = 14
	15	10. 800492	10. 800560	10. 800628	30		2. 27
	30	10. 800696	10. 800765	10. 800833	15		3. 41
	45	10. 800901	10. 800969	10. 801038	0	59	4. 55
1	0	10. 801106	10. 801174	10. 801242	45		1″ = 14
	15	10. 801311	10. 801379	10. 801447	30		2. 27
	30	10. 801516	10. 801584	10. 801652	15		3. 41
	45	10. 801721	10. 801789	10. 801857	0	58	4. 55
2	0	10. 801926	10. 801994	10. 802062	45		1″ = 14
	15	10. 802131	10. 802199	10. 802268	30		2. 27
	30	10. 802336	10. 802405	10. 802473	15		3. 41
	45	10. 802541	10. 802610	10. 802678	0	57	4. 55
3	0	10. 802747	10. 802815	10. 802884	45		1″ = 14
	15	10. 802953	10. 803021	10. 803090	30		2. 27
	30	10. 803158	10. 803227	10. 803295	15		3. 41
	45	10. 803364	10. 803433	10. 803501	0	56	4. 55
4	0	10. 803570	10. 803638	10. 803707	45		1″ = 14
	15	10. 803776	10. 803844	10. 803913	30		2. 27
	30	10. 803982	10. 804050	10. 804119	15		3. 41
	45	10. 804188	10. 804257	10. 804325	0	55	4. 55
5	0	10. 804394	10. 804463	10. 804532	45		1″ = 14
	15	10. 804600	10. 804669	10. 804738	30		2. 28
	30	10. 804807	10. 804876	10. 804944	15		3. 41
	45	10. 805013	10. 805082	10. 805151	0	54	4. 55
6	0	10. 805220	10. 805289	10. 805358	45		1″ = 14
	15	10. 805426	10. 805495	10. 805564	30		2. 28
	30	10. 805633	10. 805702	10. 805771	15		3. 41
	45	10. 805840	10. 805909	10. 805978	0	53	4. 55
7	0	10. 806047	10. 806116	10. 806185	45		1″ = 14
	15	10. 806254	10. 806323	10. 806392	30		2. 28
	30	10. 806461	10. 806530	10. 806599	15		3. 41
	45	10. 806668	10. 806738	10. 806807	0	52	4. 55
8	0	10. 806876	10. 806945	10. 807014	45		1″ = 14
	15	10. 807083	10. 807152	10. 807222	30		2. 28
	30	10. 807291	10. 807360	10. 807429	15		3. 41
	45	10. 807498	10. 807568	10. 807637	0	51	4. 55
9	0	10. 807706	10. 807775	10. 807845	45		1″ = 14
	15	10. 807914	10. 807983	10. 808052	30		2. 28
	30	10. 808122	10. 808191	10. 808260	15		3. 42
	45	10. 808330	10. 808399	10. 808469	0	50	4. 55
10	0	10. 808538	10. 808607	10. 808677	45		1″ = 14
	15	10. 808746	10. 808815	10. 808885	30		2. 28
	30	10. 808954	10. 809024	10. 809093	15		3. 42
	45	10. 809163	10. 809232	10. 809302	0	49	4. 56
11	0	10. 809371	10. 809441	10. 809510	45		1″ = 14
	15	10. 809580	10. 809649	10. 809719	30		2. 28
	30	10. 809788	10. 809858	10. 809928	15		3. 42
	45	10. 809997	10. 810067	10. 810136	0	48	4. 56
12	0	10. 810206	10. 810276	10. 810345	45		1″ = 14
	15	10. 810415	10. 810485	10. 810554	30		2. 28
	30	10. 810624	10. 810694	10. 810763	15		3. 42
	45	10. 810833	10. 810903	10. 810973	0	47	4. 56
13	0	10. 811042	10. 811112	10. 811182	45		1″ = 14
	15	10. 811252	10. 811322	10. 811391	30		2. 28
	30	10. 811461	10. 811531	10. 811601	15		3. 42
	45	10. 811671	10. 811741	10. 811810	0	46	4. 56
14	0	10. 811880	10. 811950	10. 812020	45		1″ = 14
	15	10. 812090	10. 812160	10. 812230	30		2. 28
	30	10. 812300	10. 812370	10. 812440	15		3. 42
	45	10. 812510	10. 812580	10. 812650	0	45	4. 56
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 8 degrees, or Tangent of 98 degrees.					

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 812720	10. 812790	10. 812860	45		1″ = 14
	15	10. 812930	10. 813000	10. 813070	30		2. 28
	30	10. 813140	10. 813210	10. 813280	15		3. 42
	45	10. 813350	10. 813421	10. 813491	0	44	4. 56
16	0	10. 813561	10. 813631	10. 813701	45		1″ = 14
	15	10. 813771	10. 813841	10. 813912	30		2. 28
	30	10. 813982	10. 814052	10. 814122	15		3. 42
	45	10. 814193	10. 814263	10. 814333	0	43	4. 56
17	0	10. 814403	10. 814474	10. 814544	45		1″ = 14
	15	10. 814614	10. 814685	10. 814755	30		2. 28
	30	10. 814825	10. 814896	10. 814966	15		3. 42
	45	10. 815036	10. 815107	10. 815177	0	42	4. 56
18	0	10. 815247	10. 815318	10. 815388	45		1″ = 14
	15	10. 815459	10. 815529	10. 815600	30		2. 28
	30	10. 815670	10. 815741	10. 815811	15		3. 42
	45	10. 815882	10. 815952	10. 816023	0	41	4. 56
19	0	10. 816093	10. 816164	10. 816234	45		1″ = 14
	15	10. 816305	10. 816375	10. 816446	30		2. 28
	30	10. 816517	10. 816587	10. 816658	15		3. 42
	45	10. 816728	10. 816799	10. 816870	0	40	4. 56
20	0	10. 816940	10. 817011	10. 817082	45		1″ = 14
	15	10. 817153	10. 817223	10. 817294	30		2. 28
	30	10. 817365	10. 817435	10. 817506	15		3. 42
	45	10. 817577	10. 817648	10. 817719	0	39	4. 57
21	0	10. 817789	10. 817860	10. 817931	45		1″ = 14
	15	10. 818002	10. 818073	10. 818143	30		2. 28
	30	10. 818214	10. 818285	10. 818356	15		3. 42
	45	10. 818427	10. 818498	10. 818569	0	38	4. 57
22	0	10. 818640	10. 818711	10. 818782	45		1″ = 14
	15	10. 818853	10. 818924	10. 818995	30		2. 28
	30	10. 819066	10. 819137	10. 819208	15		3. 42
	45	10. 819279	10. 819350	10. 819421	0	37	4. 57
23	0	10. 819492	10. 819563	10. 819634	45		1″ = 14
	15	10. 819705	10. 819776	10. 819847	30		2. 28
	30	10. 819918	10. 819990	10. 820061	15		3. 42
	45	10. 820132	10. 820203	10. 820274	0	36	4. 57
24	0	10. 820345	10. 820417	10. 820488	45		1″ = 14
	15	10. 820559	10. 820630	10. 820702	30		2. 29
	30	10. 820773	10. 820844	10. 820915	15		3. 43
	45	10. 820987	10. 821058	10. 821129	0	35	4. 57
25	0	10. 821201	10. 821272	10. 821343	45		1″ = 14
	15	10. 821415	10. 821486	10. 821557	30		2. 29
	30	10. 821629	10. 821700	10. 821772	15		3. 43
	45	10. 821843	10. 821915	10. 821986	0	34	4. 57
26	0	10. 822057	10. 822129	10. 822200	45		1″ = 14
	15	10. 822272	10. 822343	10. 822415	30		2. 29
	30	10. 822487	10. 822558	10. 822630	15		3. 43
	45	10. 822701	10. 822773	10. 822844	0	33	4. 57
27	0	10. 822916	10. 822988	10. 823059	45		1″ = 14
	15	10. 823131	10. 823202	10. 823274	30		2. 29
	30	10. 823346	10. 823417	10. 823489	15		3. 43
	45	10. 823561	10. 823633	10. 823704	0	32	4. 57
28	0	10. 823776	10. 823848	10. 823920	45		1″ = 14
	15	10. 823991	10. 824063	10. 824135	30		2. 29
	30	10. 824207	10. 824279	10. 824350	15		3. 43
	45	10. 824422	10. 824494	10. 824566	0	31	4. 57
29	0	10. 824638	10. 824710	10. 824782	45		1″ = 14
	15	10. 824853	10. 824925	10. 824997	30		2. 29
	30	10. 825069	10. 825141	10. 825213	15		3. 43
	45	10. 825285	10. 825357	10. 825429	0	30	4. 57
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 8 degrees, or Tangent of 98 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10. 825501	10. 825573	10. 825645	45		1″ = 14
	15	10. 825717	10. 825789	10. 825861	30		2. 29
	30	10. 825933	10. 826006	10. 826078	15		3. 43
	45	10 826150	10. 826222	10. 826294	0	29	4. 58
31	0	10. 826366	10. 826438	10. 826510	45		1 = 14
	15	10. 826583	10. 826655	10. 826727	30		2. 29
	30	10. 826799	10. 826871	10. 826944	15		3. 43
	45	10. 827016	10. 827088	10. 827160	0	28	4. 58
32	0	10. 827233	10. 827305	10. 827377	45		1 = 14
	15	10. 827450	10. 827522	10. 827594	30		2. 29
	30	10. 827667	10. 827739	10. 827811	15		3. 43
	45	10. 827884	10. 827956	10. 828029	0	27	4. 58
33	0	10. 828101	10. 828174	10. 828246	45		1 = 14
	15	10. 828318	10. 828391	10. 828463	30		2. 29
	30	10. 828536	10. 828608	10. 828681	15		3. 43
	45	10. 828753	10. 828826	10. 828899	0	26	4. 58
34	0	10. 828971	10. 829044	10. 829116	45		1 = 15
	15	10. 829189	10. 829261	10. 829334	30		2. 29
	30	10. 829407	10. 829479	10. 829552	15		3. 44
	45	10. 829625	10. 829697	10. 829770	0	25	4. 58
35	0	10. 829843	10. 829915	10. 829988	45		1 = 15
	15	10. 830061	10. 830134	10. 830206	30		2. 29
	30	10. 830279	10. 830352	10. 830425	15		3. 44
	45	10. 830498	10. 830570	10. 830643	0	24	4. 58
36	0	10. 830716	10. 830789	10. 830862	45		1 = 15
	15	10. 830935	10. 831008	10. 831080	30		2. 29
	30	10. 831153	10. 831226	10. 831299	15		3. 44
	45	10. 831372	10. 831445	10. 831518	0	23	4. 58
37	0	10. 831591	10. 831664	10. 831737	45		1 = 15
	15	10. 831810	10. 831883	10. 831956	30		2. 29
	30	10. 832029	10. 832102	10. 832175	15		3. 44
	45	10. 832248	10. 832322	10. 832395	0	22	4. 58
38	0	10. 832468	10. 832541	10. 832614	45		1 = 15
	15	10. 832687	10. 832760	10. 832834	30		2. 29
	30	10. 832907	10. 832980	10. 833053	15		3. 44
	45	10. 833126	10. 833200	10. 833273	0	21	4. 59
39	0	10. 833346	10. 833419	10. 833493	45		1 = 15
	15	10. 833566	10. 833639	10. 833713	30		2. 29
	30	10. 833786	10. 833859	10. 833933	15		3. 44
	45	10. 834006	10. 834079	10. 834153	0	20	4. 59
40	0	10. 834226	10. 834300	10. 834373	45		1 = 15
	15	10. 834447	10. 834520	10. 834593	30		2. 29
	30	10. 834667	10. 834740	10. 834814	15		3. 44
	45	10. 834887	10. 834961	10. 835035	0	19	4. 59
41	0	10. 835108	10. 835182	10. 835255	45		1 = 15
	15	10. 835329	10. 835402	10. 835476	30		2. 29
	30	10. 835550	10. 835623	10. 835697	15		3. 44
	45	10. 835771	10. 835844	10. 835918	0	18	4. 59
42	0	10. 835992	10. 836065	10. 836139	45		1 = 15
	15	10. 836213	10. 836287	10. 836360	30		2. 30
	30	10. 836434	10. 836508	10. 836582	15		3. 44
	45	10. 836655	10. 836729	10. 836803	0	17	4. 59
43	0	10. 836877	10. 836951	10. 837025	45		1 = 15
	15	10. 837098	10. 837172	10. 837246	30		2. 30
	30	10. 837320	10. 837394	10. 837468	15		3. 44
	45	10. 837542	10. 837616	10. 837690	0	16	4. 59
44	0	10. 837764	10. 837838	10. 837912	45		1 = 15
	15	10. 837986	10. 838060	10. 838134	30		2. 30
	30	10. 838208	10. 838282	10. 838356	15		3. 44
	45	10. 838430	10. 838504	10. 838578	0	15	4. 59
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 8 degrees, or Tangent of 98 degrees.					

Minutes	Seconds	Tangent of 81 degrees, or Co-tangent of 171 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 838653	10. 838727	10. 838801	45		1″ = 15
	15	10. 838875	10. 838949	10. 839023	30		2. 30
	30	10. 839098	10. 839172	10. 839246	15		3. 45
	45	10. 839320	10. 839395	10. 839469	0	14	4. 59
46	0	10. 839543	10. 839617	10. 839692	45		1 = 15
	15	10. 839766	10. 839840	10. 839915	30		2. 30
	30	10. 839989	10. 840063	10. 840138	15		3. 45
	45	10. 840212	10. 840287	10. 840361	0	13	4. 59
47	0	10. 840435	10. 840510	10. 840584	45		1 = 15
	15	10. 840659	10. 840733	10. 840808	30		2. 30
	30	10. 840882	10. 840957	10. 841031	15		3. 45
	45	10. 841106	10. 841180	10. 841255	0	12	4. 60
48	0	10. 841329	10. 841404	10. 841479	45		1 = 15
	15	10. 841553	10. 841628	10. 841702	30		2. 30
	30	10. 841777	10. 841852	10. 841926	15		3. 45
	45	10. 842001	10. 842076	10. 842150	0	11	4. 60
49	0	10. 842225	10. 842300	10. 842375	45		1 = 15
	15	10. 842449	10. 842524	10. 842599	30		2. 30
	30	10. 842674	10. 842748	10. 842823	15		3. 45
	45	10. 842898	10. 842973	10. 843048	0	10	4. 60
50	0	10. 843123	10. 843198	10. 843272	45		1 = 15
	15	10. 843347	10. 843422	10. 843497	30		2. 30
	30	10. 843572	10. 843647	10. 843722	15		3. 45
	45	10. 843797	10. 843872	10. 843947	0	9	4. 60
51	0	10. 844022	10. 844097	10. 844172	45		1 = 15
	15	10. 844247	10. 844322	10. 844397	30		2. 30
	30	10. 844472	10. 844547	10. 844623	15		3. 45
	45	10. 844698	10. 844773	10. 844848	0	8	4. 60
52	0	10. 844923	10. 844998	10. 845073	45		1 = 15
	15	10. 845149	10. 845224	10. 845299	30		2. 30
	30	10. 845374	10. 845450	10. 845525	15		3. 45
	45	10. 845600	10. 845675	10. 845751	0	7	4. 60
53	0	10. 845826	10. 845901	10. 845977	45		1 = 15
	15	10. 846052	10. 846127	10. 846203	30		2. 30
	30	10. 846278	10. 846354	10. 846429	15		3. 45
	45	10. 846504	10. 846580	10. 846655	0	6	4. 60
54	0	10. 846731	10. 846806	10. 846882	45		1 = 15
	15	10. 846957	10. 847033	10. 847108	30		2. 30
	30	10. 847184	10. 847259	10. 847335	15		3. 45
	45	10. 847410	10. 847486	10. 847562	0	5	4. 60
55	0	10. 847637	10. 847713	10. 847789	45		1 = 15
	15	10. 847864	10. 847940	10. 848016	30		2. 30
	30	10. 848091	10. 848167	10. 848243	15		3. 45
	45	10. 848318	10. 848394	10. 848470	0	4	4. 61
56	0	10. 848546	10. 848621	10. 848697	45		1 = 15
	15	10. 848773	10. 848849	10. 848925	30		2. 30
	30	10. 849000	10. 849076	10. 849152	15		3. 45
	45	10. 849228	10. 849304	10. 849380	0	3	4. 61
57	0	10. 849456	10. 849532	10. 849608	45		1 = 15
	15	10. 849684	10. 849760	10. 849836	30		2. 30
	30	10. 849912	10. 849988	10. 850064	15		3. 46
	45	10. 850140	10. 850216	10. 850292	0	2	4. 61
58	0	10. 850368	10. 850444	10. 850520	45		1 = 15
	15	10. 850596	10. 850672	10. 850748	30		2. 30
	30	10. 850825	10. 850901	10. 850977	15		3. 46
	45	10. 851053	10. 851129	10. 851205	0	1	4. 61
59	0	10. 851282	10. 851358	10. 851434	45		1 = 15
	15	10. 851510	10. 851587	10. 851663	30		2. 31
	30	10. 851739	10. 851816	10. 851892	15		3. 46
	45	10. 851968	10. 852045	10. 852121	0	0	4. 61
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 8 degrees, or Tangent of 98 degrees.					

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LOGARITHMIC TANGENTS.

Minute.	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 852197	10. 852274	10. 852350	45		1″ = 15
	15	10. 852427	10. 852503	10. 852580	30		2. 31
	30	10. 852656	10. 852732	10. 852809	15		3. 46
	45	10. 852885	10. 852962	10. 853038	0	59	4. 61
1	0	10. 853115	10. 853192	10. 853268	45		1 = 15
	15	10. 853345	10. 853421	10. 853498	30		2. 31
	30	10. 853574	10. 853651	10. 853728	15		3. 46
	45	10. 853804	10. 853881	10. 853958	0	58	4. 61
2	0	10. 854034	10. 854111	10. 854188	45		1 = 15
	15	10. 854265	10. 854341	10. 854418	30		2. 31
	30	10. 854495	10. 854572	10. 854648	15		3. 46
	45	10. 854725	10. 854802	10. 854879	0	57	4. 61
3	0	10. 854956	10. 855033	10. 855110	45		1 = 15
	15	10. 855186	10. 855263	10. 855340	30		2. 31
	30	10. 855417	10. 855494	10. 855571	15		3. 46
	45	10. 855648	10. 855725	10. 855802	0	56	4. 62
4	0	10. 855879	10. 855956	10. 856033	45		1 = 15
	15	10. 856110	10. 856187	10. 856264	30		2. 31
	30	10. 856341	10. 856418	10. 856495	15		3. 46
	45	10. 856573	10. 856650	10. 856727	0	55	4. 62
5	0	10. 856804	10. 856881	10. 856958	45		1 = 15
	15	10. 857036	10. 857113	10. 857190	30		2. 31
	30	10. 857267	10. 857345	10. 857422	15		3. 46
	45	10. 857499	10. 857576	10. 857654	0	54	4. 62
6	0	10. 857731	10. 857808	10. 857886	45		1 = 15
	15	10. 857963	10. 858040	10. 858118	30		2. 31
	30	10. 858195	10. 858273	10. 858350	15		3. 46
	45	10. 858428	10. 858505	10. 858582	0	53	4. 62
7	0	10. 858660	10. 858737	10. 858815	45		1 = 16
	15	10. 858892	10. 858970	10. 859048	30		2. 31
	30	10. 859125	10. 859203	10. 859280	15		3. 47
	45	10. 859358	10. 859436	10. 859513	0	52	4. 62
8	0	10. 859591	10. 859668	10. 859746	45		1 = 16
	15	10. 859824	10. 859901	10. 859979	30		2. 31
	30	10. 860057	10. 860135	10. 860212	15		3. 47
	45	10. 860290	10. 860368	10. 860446	0	51	4. 62
9	0	10. 860524	10. 860601	10. 860679	45		1 = 16
	15	10. 860757	10. 860835	10. 860913	30		2. 31
	30	10. 860991	10. 861069	10. 861146	15		3. 47
	45	10. 861224	10. 861302	10. 861380	0	50	4. 62
10	0	10. 861458	10. 861536	10. 861614	45		1 = 16
	15	10. 861692	10. 861770	10. 861848	30		2. 31
	30	10. 861926	10. 862004	10. 862082	15		3. 47
	45	10. 862160	10. 862239	10. 862317	0	49	4. 62
11	0	10. 862395	10. 862473	10. 862551	45		1 = 16
	15	10. 862629	10. 862707	10. 862786	30		2. 31
	30	10. 862864	10. 862942	10. 863020	15		3. 47
	45	10. 863099	10. 863177	10. 863255	0	48	4. 63
12	0	10. 863333	10. 863412	10. 863490	45		1 = 16
	15	10. 863568	10. 863647	10. 863725	30		2. 31
	30	10. 863803	10. 863882	10. 863960	15		3. 47
	45	10. 864039	10. 864117	10. 864195	0	47	4. 63
13	0	10. 864274	10. 864352	10. 864431	45		1 = 16
	15	10. 864509	10. 864588	10. 864666	30		2. 31
	30	10. 864745	10. 864823	10. 864902	15		3. 47
	45	10. 864981	10. 865059	10. 865138	0	46	4. 63
14	0	10. 865216	10. 865295	10. 865374	45		1 = 16
	15	10. 865452	10. 865531	10. 865610	30		2. 31
	30	10. 865688	10. 865767	10. 865846	15		3. 47
	45	10. 865925	10. 866003	10. 866082	0	45	4. 63
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

Minutes	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 866161	10. 866240	10. 866318	45		1″ = 16
	15	10. 866397	10. 866476	10. 866555	30		2. 32
	30	10. 866634	10. 866713	10. 866792	15		3. 47
	45	10. 866871	10. 866949	10. 867028	0	44	4. 63
16	0	10. 867107	10. 867186	10. 867265	45		1 = 16
	15	10. 867344	10. 867423	10. 867502	30		2. 32
	30	10. 867581	10. 867660	10. 867739	15		3. 47
	45	10. 867818	10. 867898	10. 867977	0	43	4. 63
17	0	10. 868056	10. 868135	10. 868214	45		1 = 16
	15	10. 868293	10. 868372	10. 868452	30		2. 32
	30	10. 868531	10. 868610	10. 868689	15		3. 48
	45	10. 868768	10. 868848	10. 868927	0	42	4. 63
18	0	10. 869006	10. 869086	10. 869165	45		1 = 16
	15	10. 869244	10. 869323	10. 869403	30		2. 32
	30	10. 869482	10. 869562	10. 869641	15		3. 48
	45	10. 869720	10. 869800	10. 869879	0	41	4. 63
19	0	10. 869959	10. 870038	10. 870118	45		1 = 16
	15	10. 870197	10. 870277	10. 870356	30		2. 32
	30	10. 870436	10. 870515	10. 870595	15		3. 48
	45	10. 870674	10. 870754	10. 870834	0	40	4. 63
20	0	10. 870913	10. 870993	10. 871072	45		1 = 16
	15	10. 871152	10. 871232	10. 871311	30		2. 32
	30	10. 871391	10. 871471	10. 871551	15		3. 48
	45	10. 871630	10. 871710	10. 871790	0	39	4. 63
21	0	10. 871870	10. 871949	10. 872029	45		1 = 16
	15	10. 872109	10. 872189	10. 872269	30		2. 32
	30	10. 872349	10. 872429	10. 872508	15		3. 48
	45	10. 872588	10. 872668	10. 872748	0	38	4. 63
22	0	10. 872828	10. 872908	10. 872988	45		1 = 16
	15	10. 873068	10. 873148	10. 873228	30		2. 32
	30	10. 873308	10. 873388	10. 873468	15		3. 48
	45	10. 873548	10. 873629	10. 873709	0	37	4. 63
23	0	10. 873789	10. 873869	10. 873949	45		1 = 16
	15	10. 874029	10. 874109	10. 874190	30		2. 32
	30	10. 874270	10. 874350	10. 874430	15		3. 48
	45	10. 874511	10. 874591	10. 874671	0	36	4. 63
24	0	10. 874751	10. 874832	10. 874912	45		1 = 16
	15	10. 874992	10. 875073	10. 875153	30		2. 32
	30	10. 875233	10. 875314	10. 875394	15		3. 48
	45	10. 875475	10. 875555	10. 875636	0	35	4. 63
25	0	10. 875716	10. 875797	10. 875877	45		1 = 16
	15	10. 875958	10. 876038	10. 876119	30		2. 32
	30	10. 876199	10. 876280	10. 876360	15		3. 48
	45	10. 876441	10. 876522	10. 876602	0	34	4. 63
26	0	10. 876683	10. 876764	10. 876844	45		1 = 16
	15	10. 876925	10. 877006	10. 877086	30		2. 32
	30	10. 877167	10. 877248	10. 877329	15		3. 48
	45	10. 877409	10. 877490	10. 877571	0	33	4. 63
27	0	10. 877652	10. 877733	10. 877813	45		1 = 16
	15	10. 877894	10. 877975	10. 878056	30		2. 32
	30	10. 878137	10. 878218	10. 878299	15		3. 48
	45	10. 878380	10. 878461	10. 878542	0	32	4. 63
28	0	10. 878623	10. 878704	10. 878785	45		1 = 16
	15	10. 878866	10. 878947	10. 879028	30		2. 32
	30	10. 879109	10. 879190	10. 879271	15		3. 48
	45	10. 879352	10. 879433	10. 879515	0	31	4. 63
29	0	10. 879596	10. 879677	10. 879758	45		1 = 16
	15	10. 879839	10. 879921	10. 880002	30		2. 32
	30	10. 880083	10. 880164	10. 880246	15		3. 48
	45	10. 880327	10. 880408	10. 880490	0	30	4. 63
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	10.880571	10.880652	10.880734	45		1″ = 16
	15	10.880815	10.880896	10.880978	30		2. 33
	30	10.881059	10.881141	10.881222	15		3. 49
	45	10.881304	10.881385	10.881467	0	29	4. 65
31	0	10.881548	10.881630	10.881711	45		1 = 16
	15	10.881793	10.881874	10.881956	30		2. 33
	30	10.882038	10.882119	10.882201	15		3. 49
	45	10.882282	10.882364	10.882446	0	28	4. 65
32	0	10.882528	10.882609	10.882691	45		1 = 16
	15	10.882773	10.882854	10.882936	30		2. 33
	30	10.883018	10.883100	10.883182	15		3. 49
	45	10.883263	10.883345	10.883427	0	27	4. 65
33	0	10.883509	10.883591	10.883673	45		1 = 16
	15	10.883755	10.883837	10.883919	30		2. 33
	30	10.884001	10.884083	10.884165	15		3. 49
	45	10.884247	10.884329	10.884411	0	26	4. 66
34	0	10.884493	10.884575	10.884657	45		1 = 16
	15	10.884739	10.884821	10.884903	30		2. 33
	30	10.884985	10.885068	10.885150	15		3. 49
	45	10.885232	10.885314	10.885396	0	25	4. 66
35	0	10.885479	10.885561	10.885643	45		1 = 16
	15	10.885725	10.885808	10.885890	30		2. 33
	30	10.885972	10.886055	10.886137	15		3. 49
	45	10.886219	10.886302	10.886384	0	24	4. 66
36	0	10.886467	10.886549	10.886632	45		1 = 17
	15	10.886714	10.886796	10.886879	30		2. 33
	30	10.886961	10.887044	10.887127	15		3. 50
	45	10.887209	10.887292	10.887374	0	23	4. 66
37	0	10.887457	10.887539	10.887622	45		1 = 17
	15	10.887705	10.887787	10.887870	30		2. 33
	30	10.887953	10.888035	10.888118	15		3. 50
	45	10.888201	10.888284	10.888366	0	22	4. 66
38	0	10.888449	10.888532	10.888615	45		1 = 17
	15	10.888698	10.888780	10.888863	30		2. 33
	30	10.888946	10.889029	10.889112	15		3. 50
	45	10.889195	10.889278	10.889361	0	21	4. 66
39	0	10.889444	10.889527	10.889610	45		1 = 17
	15	10.889693	10.889776	10.889859	30		2. 33
	30	10.889942	10.890025	10.890108	15		3. 50
	45	10.890191	10.890274	10.890357	0	20	4. 66
40	0	10.890441	10.890524	10.890607	45		1 = 17
	15	10.890690	10.890773	10.890857	30		2. 33
	30	10.890940	10.891023	10.891106	15		3. 50
	45	10.891190	10.891273	10.891356	0	19	4. 67
41	0	10.891440	10.891523	10.891606	45		1 = 17
	15	10.891690	10.891773	10.891856	30		2. 33
	30	10.891940	10.892023	10.892107	15		3. 50
	45	10.892190	10.892274	10.892357	0	18	4. 67
42	0	10.892441	10.892524	10.892608	45		1 = 17
	15	10.892691	10.892775	10.892859	30		2. 33
	30	10.892942	10.893026	10.893110	15		3. 50
	45	10.893193	10.893277	10.893361	0	17	4. 67
43	0	10.893444	10.893528	10.893612	45		1 = 17
	15	10.893695	10.893779	10.893863	30		2. 34
	30	10.893947	10.894031	10.894115	15		3. 50
	45	10.894198	10.894282	10.894366	0	16	4. 67
44	0	10.894450	10.894534	10.894618	45		1 = 17
	15	10.894702	10.894786	10.894870	30		2. 34
	30	10.894954	10.895038	10.895122	15		3. 50
	45	10.895206	10.895290	10.895374	0	15	4. 67
Seconds		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

Minutes	Seconds	Tangent of 82 degrees, or Co-tangent of 172 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10.895458	10.895542	10.895626	45		1″ = 17
	15	10.895710	10.895794	10.895879	30		2. 34
	30	10.895963	10.896047	10.896131	15		3. 51
	45	10.896215	10.896300	10.896384	0	14	4. 67
46	0	10.896468	10.896553	10.896637	45		1 = 17
	15	10.896721	10.896805	10.896890	30		2. 34
	30	10.896974	10.897059	10.897143	15		3. 51
	45	10.897227	10.897312	10.897396	0	13	4. 68
47	0	10.897481	10.897565	10.897650	45		1 = 17
	15	10.897734	10.897819	10.897903	30		2. 34
	30	10.897988	10.898072	10.898157	15		3. 51
	45	10.898242	10.898326	10.898411	0	12	4. 68
48	0	10.898496	10.898580	10.898665	45		1 = 17
	15	10.898750	10.898834	10.898919	30		2. 34
	30	10.899004	10.899089	10.899173	15		3. 51
	45	10.899258	10.899343	10.899428	0	11	4. 68
49	0	10.899513	10.899598	10.899682	45		1 = 17
	15	10.899767	10.899852	10.899937	30		2. 34
	30	10.900022	10.900107	10.900192	15		3. 51
	45	10.900277	10.900362	10.900447	0	10	4. 68
50	0	10.900532	10.900617	10.900702	45		1 = 17
	15	10.900787	10.900872	10.900958	30		2. 34
	30	10.901043	10.901128	10.901213	15		3. 51
	45	10.901298	10.901383	10.901469	0	9	4. 68
51	0	10.901554	10.901639	10.901724	45		1 = 17
	15	10.901810	10.901895	10.901980	30		2. 34
	30	10.902066	10.902151	10.902236	15		3. 51
	45	10.902322	10.902407	10.902493	0	8	4. 68
52	0	10.902578	10.902663	10.902749	45		1 = 17
	15	10.902834	10.902920	10.903005	30		2. 34
	30	10.903091	10.903176	10.903262	15		3. 51
	45	10.903348	10.903433	10.903519	0	7	4. 68
53	0	10.903604	10.903690	10.903776	45		1 = 17
	15	10.903861	10.903947	10.904033	30		2. 34
	30	10.904119	10.904204	10.904290	15		3. 51
	45	10.904376	10.904462	10.904547	0	6	4. 69
54	0	10.904633	10.904719	10.904805	45		1 = 17
	15	10.904891	10.904977	10.905063	30		2. 34
	30	10.905149	10.905234	10.905320	15		3. 52
	45	10.905406	10.905492	10.905578	0	5	4. 69
55	0	10.905664	10.905750	10.905837	45		1 = 17
	15	10.905923	10.906009	10.906095	30		2. 34
	30	10.906181	10.906267	10.906353	15		3. 52
	45	10.906439	10.906526	10.906612	0	4	4. 69
56	0	10.906698	10.906784	10.906870	45		1 = 17
	15	10.906957	10.907043	10.907129	30		2. 35
	30	10.907216	10.907302	10.907388	15		3. 52
	45	10.907475	10.907561	10.907647	0	3	4. 69
57	0	10.907734	10.907820	10.907907	45		1 = 17
	15	10.907993	10.908080	10.908166	30		2. 35
	30	10.908253	10.908339	10.908426	15		3. 52
	45	10.908512	10.908599	10.908686	0	2	4. 69
58	0	10.908772	10.908859	10.908946	45		1 = 17
	15	10.909032	10.909119	10.909206	30		2. 35
	30	10.909292	10.909379	10.909466	15		3. 52
	45	10.909553	10.909639	10.909726	0	1	4. 69
59	0	10.909813	10.909900	10.909987	45		1 = 17
	15	10.910074	10.910160	10.910247	30		2. 35
	30	10.910334	10.910421	10.910508	15		3. 52
	45	10.910595	10.910682	10.910769	0	0	4. 70
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 7 degrees, or Tangent of 97 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 910856	10. 910943	10. 911030	45		1″ = 17
	15	10. 911117	10. 911204	10. 911292	30		2. 35
	30	10. 911379	10. 911466	10. 911553	15		3. 52
	45	10. 911640	10. 911727	10. 911815	0	59	4. 70
1	0	10. 911902	10. 911989	10. 912076	45		1 = 17
	15	10. 912164	10. 912251	10. 912338	30		2. 35
	30	10. 912426	10. 912513	10. 912600	15		3. 52
	45	10. 912688	10. 912775	10. 912862	0	58	4. 70
2	0	10. 912950	10. 913037	10. 913125	45		1 = 18
	15	10. 913212	10. 913300	10. 913387	30		2. 35
	30	10. 913475	10. 913562	10. 913650	15		3. 53
	45	10. 913738	10. 913825	10. 913913	0	57	4. 70
3	0	10. 914000	10. 914088	10. 914176	45		1 = 18
	15	10. 914263	10. 914351	10. 914439	30		2. 35
	30	10. 914527	10. 914614	10. 914702	15		3. 53
	45	10. 914790	10. 914878	10. 914966	0	56	4. 70
4	0	10. 915053	10. 915141	10. 915229	45		1 = 18
	15	10. 915317	10. 915405	10. 915493	30		2. 35
	30	10. 915581	10. 915669	10. 915757	15		3. 53
	45	10. 915845	10. 915933	10. 916021	0	55	4. 70
5	0	10. 916109	10. 916197	10. 916285	45		1 = 18
	15	10. 916373	10. 916461	10. 916549	30		2. 35
	30	10. 916638	10. 916726	10. 916814	15		3. 53
	45	10. 916902	10. 916990	10. 917079	0	54	4. 71
6	0	10. 917167	10. 917255	10. 917343	45		1 = 18
	15	10. 917432	10. 917520	10. 917608	30		2. 35
	30	10. 917697	10. 917785	10. 917874	15		3. 53
	45	10. 917962	10. 918050	10. 918139	0	53	4. 71
7	0	10. 918227	10. 918316	10. 918404	45		1 = 18
	15	10. 918493	10. 918581	10. 918670	30		2. 35
	30	10. 918759	10. 918847	10. 918936	15		3. 53
	45	10. 919024	10. 919113	10. 919202	0	52	4. 71
8	0	10. 919290	10. 919379	10. 919468	45		1 = 18
	15	10. 919557	10. 919645	10. 919734	30		2. 36
	30	10. 919823	10. 919912	10. 920000	15		3. 53
	45	10. 920089	10. 920178	10. 920267	0	51	4. 71
9	0	10. 920356	10. 920445	10. 920534	45		1 = 18
	15	10. 920623	10. 920712	10. 920801	30		2. 36
	30	10. 920890	10. 920979	10. 921068	15		3. 53
	45	10. 921157	10. 921246	10. 921335	0	50	4. 71
10	0	10. 921424	10. 921513	10. 921602	45		1 = 18
	15	10. 921691	10. 921781	10. 921870	30		2. 36
	30	10. 921959	10. 922048	10. 922137	15		3. 54
	45	10. 922227	10. 922316	10. 922405	0	49	4. 71
11	0	10. 922495	10. 922584	10. 922673	45		1 = 18
	15	10. 922763	10. 922852	10. 922941	30		2. 36
	30	10. 923031	10. 923120	10. 923210	15		3. 54
	45	10. 923299	10. 923389	10. 923478	0	48	4. 72
12	0	10. 923568	10. 923657	10. 923747	45		1 = 18
	15	10. 923837	10. 923926	10. 924016	30		2. 36
	30	10. 924105	10. 924195	10. 924285	15		3. 54
	45	10. 924374	10. 924464	10. 924554	0	47	4. 72
13	0	10. 924644	10. 924733	10. 924823	45		1 = 18
	15	10. 924913	10. 925003	10. 925093	30		2. 36
	30	10. 925183	10. 925272	10. 925362	15		3. 54
	45	10. 925452	10. 925542	10. 925632	0	46	4. 72
14	0	10. 925722	10. 925812	10. 925902	45		1 = 18
	15	10. 925992	10. 926082	10. 926172	30		2. 36
	30	10. 926262	10. 926352	10. 926442	15		3. 54
	45	10. 926533	10. 926623	10. 926713	0	45	4. 72
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10. 926803	10. 926893	10. 926983	45		1″ = 18
	15	10. 927074	10. 927164	10. 927254	30		2. 36
	30	10. 927345	10. 927435	10. 927525	15		3. 54
	45	10. 927616	10. 927706	10. 927796	0	44	4. 72
16	0	10. 927887	10. 927977	10. 928068	45		1 = 18
	15	10. 928158	10. 928248	10. 928339	30		2. 36
	30	10. 928430	10. 928520	10. 928611	15		3. 54
	45	10. 928701	10. 928792	10. 928882	0	43	4. 72
17	0	10. 928973	10. 929064	10. 929154	45		1 = 18
	15	10. 929245	10. 929336	10. 929426	30		2. 36
	30	10. 929517	10. 929608	10. 929699	15		3. 54
	45	10. 929789	10. 929880	10. 929971	0	42	4. 72
18	0	10. 930062	10. 930153	10. 930244	45		1 = 18
	15	10. 930335	10. 930425	10. 930516	30		2. 36
	30	10. 930607	10. 930698	10. 930789	15		3. 54
	45	10. 930880	10. 930971	10. 931062	0	41	4. 72
19	0	10. 931153	10. 931245	10. 931336	45		1 = 18
	15	10. 931427	10. 931518	10. 931609	30		2. 36
	30	10. 931700	10. 931791	10. 931883	15		3. 54
	45	10. 931974	10. 932065	10. 932156	0	40	4. 72
20	0	10. 932248	10. 932339	10. 932430	45		1 = 18
	15	10. 932522	10. 932613	10. 932704	30		2. 36
	30	10. 932796	10. 932887	10. 932979	15		3. 54
	45	10. 933070	10. 933162	10. 933253	0	39	4. 72
21	0	10. 933345	10. 933436	10. 933528	45		1 = 18
	15	10. 933619	10. 933711	10. 933803	30		2. 36
	30	10. 933894	10. 933986	10. 934077	15		3. 54
	45	10. 934169	10. 934261	10. 934353	0	38	4. 72
22	0	10. 934444	10. 934536	10. 934628	45		1 = 18
	15	10. 934720	10. 934811	10. 934903	30		2. 36
	30	10. 934995	10. 935087	10. 935179	15		3. 54
	45	10. 935271	10. 935363	10. 935455	0	37	4. 72
23	0	10. 935547	10. 935639	10. 935731	45		1 = 18
	15	10. 935823	10. 935915	10. 936007	30		2. 36
	30	10. 936099	10. 936191	10. 936283	15		3. 54
	45	10. 936375	10. 936467	10. 936560	0	36	4. 72
24	0	10. 936652	10. 936744	10. 936836	45		1 = 18
	15	10. 936928	10. 937021	10. 937113	30		2. 36
	30	10. 937205	10. 937298	10. 937390	15		3. 54
	45	10. 937482	10. 937575	10. 937667	0	35	4. 72
25	0	10. 937760	10. 937852	10. 937945	45		1 = 18
	15	10. 938037	10. 938130	10. 938222	30		2. 36
	30	10. 938315	10. 938407	10. 938500	15		3. 54
	45	10. 938592	10. 938685	10. 938778	0	34	4. 72
26	0	10. 938870	10. 938963	10. 939056	45		1 = 18
	15	10. 939148	10. 939241	10. 939334	30		2. 36
	30	10. 939427	10. 939519	10. 939612	15		3. 54
	45	10. 939705	10. 939798	10. 939891	0	33	4. 72
27	0	10. 939984	10. 940076	10. 940169	45		1 = 18
	15	10. 940262	10. 940355	10. 940448	30		2. 36
	30	10. 940541	10. 940634	10. 940727	15		3. 54
	45	10. 940820	10. 940914	10. 941007	0	32	4. 72
28	0	10. 941100	10. 941193	10. 941286	45		1 = 18
	15	10. 941379	10. 941472	10. 941566	30		2. 36
	30	10. 941659	10. 941752	10. 941845	15		3. 54
	45	10. 941939	10. 942032	10. 942125	0	31	4. 72
29	0	10. 942219	10. 942312	10. 942405	45		1 = 18
	15	10. 942499	10. 942592	10. 942686	30		2. 36
	30	10. 942779	10. 942873	10. 942966	15		3. 54
	45	10. 943060	10. 943153	10. 943247	0	30	4. 72
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10. 943340	10. 943434	10. 943528	45		1″ = 19
	15	10. 943621	10. 943715	10. 943809	30		2. 37
	30	10. 943902	10. 943996	10. 944090	15		3. 56
	45	10. 944184	10. 944277	10. 944371	0	29	4. 75
1	0	10. 944465	10. 944559	10. 944653	45		1 = 19
	15	10. 944747	10. 944841	10. 944935	30		2. 38
	30	10. 945028	10. 945122	10. 945216	15		3. 56
	45	10. 945310	10. 945404	10. 945498	0	28	4. 75
2	0	10. 945593	10. 945687	10. 945781	45		1 = 19
	15	10. 945875	10. 945969	10. 946063	30		2. 38
	30	10. 946157	10. 946252	10. 946346	15		3. 57
	45	10. 946440	10. 946534	10. 946629	0	27	4. 75
3	0	10. 946723	10. 946817	10. 946912	45		1 = 19
	15	10. 947006	10. 947100	10. 947195	30		2. 38
	30	10. 947289	10. 947384	10. 947478	15		3. 57
	45	10. 947572	10. 947667	10. 947761	0	26	4. 76
4	0	10. 947856	10. 947951	10. 948045	45		1 = 19
	15	10. 948140	10. 948234	10. 948329	30		2. 38
	30	10. 948424	10. 948518	10. 948613	15		3. 57
	45	10. 948708	10. 948803	10. 948897	0	25	4. 76
5	0	10. 948992	10. 949087	10. 949182	45		1 = 19
	15	10. 949277	10. 949371	10. 949466	30		2. 38
	30	10. 949561	10. 949656	10. 949751	15		3. 57
	45	10. 949846	10. 949941	10. 950036	0	24	4. 76
6	0	10. 950131	10. 950226	10. 950321	45		1 = 19
	15	10. 950416	10. 950511	10. 950607	30		2. 38
	30	10. 950702	10. 950797	10. 950892	15		3. 57
	45	10. 950987	10. 951082	10. 951178	0	23	4. 76
7	0	10. 951273	10. 951368	10. 951464	45		1 = 19
	15	10. 951559	10. 951654	10. 951750	30		2. 38
	30	10. 951845	10. 951940	10. 952036	15		3. 57
	45	10. 952131	10. 952227	10. 952322	0	22	4. 76
8	0	10. 952418	10. 952513	10. 952609	45		1 = 19
	15	10. 952704	10. 952800	10. 952896	30		2. 38
	30	10. 952991	10. 953087	10. 953183	15		3. 57
	45	10. 953278	10. 953374	10. 953470	0	21	4. 77
9	0	10. 953566	10. 953661	10. 953757	45		1 = 19
	15	10. 953853	10. 953949	10. 954045	30		2. 38
	30	10. 954141	10. 954237	10. 954332	15		3. 58
	45	10. 954428	10. 954524	10. 954620	0	20	4. 77
10	0	10. 954716	10. 954812	10. 954908	45		1 = 19
	15	10. 955005	10. 955101	10. 955197	30		2. 38
	30	10. 955293	10. 955389	10. 955485	15		3. 58
	45	10. 955581	10. 955678	10. 955774	0	19	4. 77
11	0	10. 955870	10. 955966	10. 956063	45		1 = 19
	15	10. 956159	10. 956255	10. 956352	30		2. 39
	30	10. 956448	10. 956544	10. 956641	15		3. 58
	45	10. 956737	10. 956834	10. 956930	0	18	4. 77
12	0	10. 957027	10. 957123	10. 957220	45		1 = 19
	15	10. 957316	10. 957413	10. 957510	30		2. 39
	30	10. 957606	10. 957703	10. 957800	15		3. 58
	45	10. 957896	10. 957993	10. 958090	0	17	4. 77
13	0	10. 958187	10. 958283	10. 958380	45		1 = 19
	15	10. 958477	10. 958574	10. 958671	30		2. 39
	30	10. 958768	10. 958865	10. 958961	15		3. 58
	45	10. 959058	10. 959155	10. 959252	0	16	4. 77
14	0	10. 959349	10. 959446	10. 959543	45		1 = 19
	15	10. 959641	10. 959738	10. 959835	30		2. 39
	30	10. 959932	10. 960029	10. 960126	15		3. 58
	45	10. 960223	10. 960321	10. 960418	0	15	4. 78
Seconds		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

Minutes	Seconds	Tangent of 83 degrees, or Co-tangent of 173 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	10. 960515	10. 960612	10. 960710	45		1″ = 19
	15	10. 960807	10. 960904	10. 961002	30		2. 39
	30	10. 961099	10. 961197	10. 961294	15		3. 58
	45	10. 961392	10. 961489	10. 961587	0	14	4. 78
46	0	10. 961684	10. 961782	10. 961879	45		1 = 20
	15	10. 961977	10. 962074	10. 962172	30		2. 39
	30	10. 962270	10. 962367	10. 962465	15		3. 59
	45	10. 962563	10. 962661	10. 962758	0	13	4. 78
47	0	10. 962856	10. 962954	10. 963052	45		1 = 20
	15	10. 963150	10. 963247	10. 963345	30		2. 39
	30	10. 963443	10. 963541	10. 963639	15		3. 59
	45	10. 963737	10. 963835	10. 963933	0	12	4. 78
48	0	10. 964031	10. 964129	10. 964227	45		1 = 20
	15	10. 964325	10. 964424	10. 964522	30		2. 39
	30	10. 964620	10. 964718	10. 964816	15		3. 59
	45	10. 964914	10. 965013	10. 965111	0	11	4. 79
49	0	10. 965209	10. 965308	10. 965406	45		1 = 20
	15	10. 965504	10. 965603	10. 965701	30		2. 39
	30	10. 965800	10. 965898	10. 965996	15		3. 59
	45	10. 966095	10. 966194	10. 966292	0	10	4. 79
50	0	10. 966391	10. 966489	10. 966588	45		1 = 20
	15	10. 966686	10 966785	10. 966884	30		2. 39
	30	10. 966982	10. 967081	10. 967180	15		3. 59
	45	10. 967279	10. 967377	10. 967476	0	9	4. 79
51	0	10. 967575	10. 967674	10. 967773	45		1 = 20
	15	10. 967872	10. 967971	10. 968070	30		2. 40
	30	10. 968168	10. 968267	10. 968366	15		3. 59
	45	10. 968465	10. 968565	10. 968664	0	8	4. 79
52	0	10. 968763	10. 968862	10. 968961	45		1 = 20
	15	10. 969060	10. 969159	10. 969258	30		2. 40
	30	10. 969358	10. 969457	10. 969556	15		3. 60
	45	10. 969656	10. 969755	10. 969854	0	7	4. 79
53	0	10. 969954	10. 970053	10. 970152	45		1 = 20
	15	10. 970252	10. 970351	10. 970451	30		2. 40
	30	10. 970550	10. 970650	10. 970749	15		3. 60
	45	10. 970849	10. 970948	10. 971048	0	6	4. 80
54	0	10. 971148	10. 971247	10. 971347	45		1 = 20
	15	10. 971447	10. 971546	10. 971646	30		2. 40
	30	10. 971746	10. 971845	10. 971945	15		3. 60
	45	10. 972045	10. 972145	10. 972245	0	5	4. 80
55	0	10. 972345	10. 972445	10. 972545	45		1 = 20
	15	10. 972645	10. 972745	10. 972845	30		2. 40
	30	10. 972945	10. 973045	10. 973145	15		3. 60
	45	10. 973245	10. 973345	10. 973445	0	4	4. 80
56	0	10. 973545	10. 973645	10. 973746	45		1 = 20
	15	10. 973846	10. 973946	10. 974046	30		2. 40
	30	10. 974147	10. 974247	10. 974347	15		3. 60
	45	10. 974448	10. 974548	10. 974648	0	3	4. 80
57	0	10. 974749	10. 974849	10. 974950	45		1 = 20
	15	10. 975050	10. 975151	10. 975251	30		2. 40
	30	10. 975352	10. 975453	10. 975553	15		3. 60
	45	10. 975654	10. 975754	10. 975855	0	2	4. 80
58	0	10. 975956	10. 976057	10. 976157	45		1 = 20
	15	10. 976258	10. 976359	10. 976460	30		2. 40
	30	10. 976561	10. 976661	10. 976762	15		3. 60
	45	10. 976863	10. 976964	10. 977065	0	1	4. 81
59	0	10. 977166	10. 977267	10. 977368	45		1 = 20
	15	10. 977469	10. 977570	10. 977671	30		2. 40
	30	10. 977773	10. 977874	10. 977975	15		3. 60
	45	10. 978076	10. 978177	10. 978278	0	0	4. 81
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 84 degrees, or Co-tangent of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	10.978380	10.978481	10.978582	45		1″ = 20
	15	10.978684	10.978785	10.978886	30		2. 41
	30	10.978988	10.979089	10.979191	15		3. 61
	45	10.979292	10.979394	10.979495	0	59	4. 81
1	0	10.979597	10.979698	10.979800	45		1 = 20
	15	10.979901	10.980003	10.980105	30		2. 41
	30	10.980206	10.980308	10.980410	15		3. 61
	45	10.980512	10.980613	10.980715	0	58	4. 81
2	0	10.980817	10.980919	10.981021	45		1 = 20
	15	10.981122	10.981224	10.981326	30		2. 41
	30	10.981428	10.981530	10.981632	15		3. 61
	45	10.981734	10.981836	10.981938	0	57	4. 82
3	0	10.982041	10.982143	10.982245	45		1 = 20
	15	10.982347	10.982449	10.982551	30		2. 41
	30	10.982654	10.982756	10.982858	15		3. 61
	45	10.982960	10.983063	10.983165	0	56	4. 82
4	0	10.983267	10.983370	10.983472	45		1 = 21
	15	10.983575	10.983677	10.983780	30		2. 41
	30	10.983882	10.983985	10.984087	15		3. 62
	45	10.984190	10.984293	10.984395	0	55	4. 82
5	0	10.984498	10.984601	10.984703	45		1 = 21
	15	10.984806	10.984909	10.985012	30		2. 41
	30	10.985114	10.985217	10.985320	15		3. 62
	45	10.985423	10.985526	10.985629	0	54	4. 82
6	0	10.985732	10.985835	10.985938	45		1 = 21
	15	10.986041	10.986144	10.986247	30		2. 41
	30	10.986350	10.986453	10.986556	15		3. 62
	45	10.986659	10.986763	10.986866	0	53	4. 82
7	0	10.986969	10.987072	10.987176	45		1 = 21
	15	10.987279	10.987382	10.987486	30		2. 41
	30	10.987589	10.987692	10.987796	15		3. 62
	45	10.987899	10.988003	10.988106	0	52	4. 83
8	0	10.988210	10.988313	10.988417	45		1 = 21
	15	10.988520	10.988624	10.988728	30		2. 41
	30	10.988831	10.988935	10.989039	15		3. 62
	45	10.989143	10 989246	10.989350	0	51	4. 83
9	0	10.989454	10.989558	10.989662	45		1 = 21
	15	10.989765	10.989869	10.989973	30		2. 42
	30	10.990077	10.990181	10.990285	15		3. 62
	45	10.990389	10.990493	10.990597	0	50	4. 83
10	0	10.990702	10.990806	10.990910	45		1 = 21
	15	10.991014	10.991118	10.991223	30		2. 42
	30	10.991327	10.991431	10.991535	15		3. 63
	45	10.991640	10.991744	10.991848	0	49	4. 83
11	0	10.991953	10.992057	10.992162	45		1 = 21
	15	10.992266	10.992371	10.992475	30		2. 42
	30	10.992580	10.992684	10.992789	15		3. 63
	45	10.992894	10.992998	10.993103	0	48	4. 84
12	0	10.993208	10.993312	10.993417	45		1 = 21
	15	10.993522	10.993627	10.993731	30		2. 42
	30	10.993836	10.993941	10.994046	15		3. 63
	45	10.994151	10.994256	10.994361	0	47	4. 84
13	0	10.994466	10.994571	10.994676	45		1 = 21
	15	10.994781	10.994886	10.994991	30		2. 42
	30	10.995096	10.995202	10.995307	15		3. 63
	45	10.995412	10.995517	10.995623	0	46	4. 84
14	0	10.995728	10.995833	10.995938	45		1 = 21
	15	10.996044	10.996149	10.996255	30		2. 42
	30	10.996360	10.996466	10.996571	15		3. 63
	45	10.996677	10.996782	10.996888	0	45	4. 84
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 5 degrees, or Tangent of 95 degrees.					

Minutes	Seconds	Tangent of 84 degrees, or Co-tangent of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	10.996993	10.997099	10.997205	45		1″ =
	15	10.997310	10.997416	10.997522	30		2.
	30	10.997627	10.997733	10.997839	15		3.
	45	10.997945	10.998051	10.998157	0	44	4.
16	0	10.998262	10.998368	10.998474	45		1 =
	15	10.998580	10.998686	10.998792	30		2.
	30	10.998898	10.999004	10.999111	15		3.
	45	10.999217	10.999323	10.999429	0	43	4.
17	0	10.999535	10.999641	10.999748	45		1 =
	15	10.999854	10.999960	11.000067	30		2.
	30	11.000173	11.000279	11.000386	15		3.
	45	11.000492	11.000599	11.000705	0	42	4.
18	0	11.000812	11.000918	11.001025	45		1 =
	15	11.001131	11.001238	11.001345	30		2.
	30	11.001451	11.001558	11.001665	15		3.
	45	11.001771	11.001878	11.001985	0	41	4.
19	0	11.002092	11.002199	11.002306	45		1 =
	15	11.002412	11.002519	11.002626	30		2.
	30	11.002733	11.002840	11.002947	15		3.
	45	11.003054	11.003161	11.003269	0	40	4.
20	0	11.003376	11.003483	11.003590	45		1 =
	15	11.003697	11.003804	11.003912	30		2.
	30	11.004019	11.004126	11.004234	15		3.
	45	11.004341	11.004448	11.004556	0	39	4.
21	0	11.004663	11.004771	11.004878	45		1 =
	15	11.004986	11.005093	11.005201	30		2.
	30	11.005308	11.005416	11.005524	15		3.
	45	11.005631	11.005739	11.005847	0	38	4.
22	0	11.005955	11.006062	11.006170	45		1 =
	15	11.006278	11.006386	11.006494	30		2.
	30	11.006602	11.006710	11.006818	15		3.
	45	11.006926	11.007034	11.007142	0	37	4.
23	0	11.007250	11.007358	11.007466	45		1 =
	15	11.007574	11.007682	11.007790	30		2.
	30	11.007899	11.008007	11.008115	15		3.
	45	11.008223	11.008332	11.008440	0	36	4.
24	0	11.008549	11.008657	11.008765	45		1 =
	15	11.008874	11.008982	11.009091	30		2.
	30	11.009199	11.009308	11.009417	15		3.
	45	11.009525	11.009634	11.009743	0	35	4.
25	0	11.009851	11.009960	11.010069	45		1 =
	15	11.010178	11.010286	11.010395	30		2.
	30	11.010504	11.010613	11.010722	15		3.
	45	11.010831	11.010940	11.011049	0	34	4.
26	0	11.011158	11.011267	11.011376	45		1 =
	15	11.011485	11.011594	11.011703	30		2.
	30	11.011813	11.011922	11.012031	15		3.
	45	11.012140	11.012250	11.012359	0	33	4.
27	0	11.012468	11.012578	11.012687	45		1 =
	15	11.012797	11.012906	11.013015	30		2.
	30	11.013125	11.013235	11.013344	15		3.
	45	11.013454	11.013563	11.013673	0	32	4.
28	0	11.013783	11.013892	11.014002	45		1 =
	15	11.014112	11.014222	11.014331	30		2.
	30	11.014441	11.014551	11.014661	15		3.
	45	11.014771	11.014881	11.014991	0	31	4.
29	0	11.015101	11.015211	11.015321	45		1 =
	15	11.015431	11.015541	11.015651	30		2.
	30	11.015761	11.015872	11.015982	15		3.
	45	11.016092	11.016202	11.016313	0	30	4.
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 5 degrees, or Tangent of 95 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 84 degrees, or Co-tangent of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
30	0	11.016423	11.016533	11.016644	45		1″ = 22
	15	11.016754	11.016865	11.016975	30		2. 44
	30	11.017086	11.017196	11.017307	15		3. 66
	45	11.017417	11.017528	11.017639	0	29	4. 88
31	0	11.017749	11.017860	11.017971	45		1 = 22
	15	11.018081	11.018192	11.018303	30		2. 44
	30	11.018414	11.018525	11.018636	15		3. 66
	45	11.018746	11.018857	11.018968	0	28	4. 89
32	0	11.019079	11.019190	11.019301	45		1 = 22
	15	11.019413	11.019524	11.019635	30		2. 44
	30	11.019746	11.019857	11.019968	15		3 67
	45	11.020080	11.020191	11.020302	0	27	4. 89
33	0	11.020413	11.020525	11.020636	45		1 = 22
	15	11.020748	11.020859	11.020971	30		2. 45
	30	11.021082	11.021194	11.021305	15		3. 67
	45	11.021417	11.021528	11.021640	0	26	4. 89
34	0	11.021752	11.021863	11.021975	45		1 = 22
	15	11.022087	11.022199	11.022310	30		2. 45
	30	11.022422	11.022534	11.022646	15		3. 67
	45	11.022758	11.022870	11.022982	0	25	4. 89
35	0	11.023094	11.023206	11.023318	45		1 = 22
	15	11.023430	11.023542	11.023654	30		2. 45
	30	11.023767	11.023879	11.023991	15		3. 67
	45	11.024103	11.024216	11.024328	0	24	4. 90
36	0	11.024440	11.024553	11.024665	45		1 = 23
	15	11.024777	11.024890	11.025002	30		2. 45
	30	11.025115	11.025228	11.025340	15		3. 68
	45	11.025453	11.025565	11.025678	0	23	4. 90
37	0	11.025791	11.025903	11.026016	45		1 = 23
	15	11.026129	11.026242	11.026355	30		2. 45
	30	11.026467	11.026580	11.026693	15		3. 68
	45	11.026806	11.026919	11.027032	0	22	4. 90
38	0	11.027145	11.027258	11.027371	45		1 = 23
	15	11.027485	11.027598	11.027711	30		2. 45
	30	11.027824	11.027937	11.028051	15		3. 68
	45	11.028164	11.028277	11.028391	0	21	4. 91
39	0	11.028504	11.028617	11.028731	45		1 = 23
	15	11.028844	11.028958	11.029071	30		2. 45
	30	11.029185	11.029299	11.029412	15		3. 68
	45	11.029526	11.029640	11.029753	0	20	4. 91
40	0	11.029867	11.029981	11.030095	45		1 = 23
	15	11.030208	11.030322	11.030436	30		2. 46
	30	11.030550	11.030664	11.030778	15		3. 68
	45	11.030892	11.031006	11.031120	0	19	4. 91
41	0	11.031234	11.031348	11.031462	45		1 = 23
	15	11.031577	11.031691	11.031805	30		2. 46
	30	11.031919	11.032034	11.032148	15		3. 69
	45	11.032262	11.032377	11.032491	0	18	4. 91
42	0	11.032606	11.032720	11.032835	45		1 = 23
	15	11.032949	11.033064	11.033178	30		2. 46
	30	11.033293	11.033407	11.033522	15		3. 69
	45	11.033637	11.033752	11.033866	0	17	4. 92
43	0	11.033981	11.034096	11.034211	45		1 = 23
	15	11.034326	11.034441	11.034556	30		2. 46
	30	11.034671	11.034786	11.034901	15		3. 69
	45	11.035016	11.035131	11.035246	0	16	4. 92
44	0	11.035361	11.035476	11.035592	45		1 = 23
	15	11.035707	11.035822	11.035937	30		2. 46
	30	11.036053	11.036168	11.036284	15		3. 69
	45	11.036399	11.036514	11.036630	0	15	4. 92
Seconds		15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 5 degrees, or Tangent of 95 degrees.					

Minutes	Seconds	Tangent of 84 degrees, or Co-tangent of 174 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.036745	11.036861	11.036977	45		1″ = 23
	15	11.037092	11.037208	11.037324	30		2. 46
	30	11.037439	11.037555	11.037671	15		3. 69
	45	11.037787	11.037902	11.038018	0	14	4. 93
46	0	11.038134	11.038250	11.038366	45		1 = 23
	15	11.038482	11.038598	11.038714	30		2. 46
	30	11.038830	11.038946	11.039062	15		3. 70
	45	11.039178	11.039295	11.039411	0	13	4. 93
47	0	11.039527	11.039643	11.039760	45		1 = 23
	15	11.039876	11.039992	11.040109	30		2. 47
	30	11.040225	11.040342	11.040458	15		3. 70
	45	11.040575	11.040691	11.040808	0	12	4. 93
48	0	11.040925	11.041041	11.041158	45		1 = 23
	15	11.041275	11.041391	11.041508	30		2. 47
	30	11.041625	11.041742	11.041859	15		3. 70
	45	11.041976	11.042092	11.042209	0	11	4. 93
49	0	11.042326	11.042443	11.042560	45		1 = 23
	15	11.042678	11.042795	11.042912	30		2. 47
	30	11.043029	11.043146	11.043263	15		3. 70
	45	11.043381	11.043498	11.043615	0	10	4. 94
50	0	11.043733	11.043850	11.043968	45		1 = 24
	15	11.044085	11.044203	11.044320	30		2. 47
	30	11.044438	11.044555	11.044673	15		3. 71
	45	11.044790	11.044908	11.045026	0	9	4. 94
51	0	11.045144	11.045261	11.045379	45		1 = 24
	15	11.045497	11.045615	11.045733	30		2. 47
	30	11.045851	11.045969	11.046087	15		3. 71
	45	11.046205	11.046323	11.046441	0	8	4. 94
52	0	11.046559	11.046677	11.046795	45		1 = 24
	15	11.046913	11.047032	11.047150	30		2. 47
	30	11.047268	11.047387	11.047505	15		3. 71
	45	11.047623	11.047742	11.047860	0	7	4. 95
53	0	11.047979	11.048097	11.048216	45		1 = 24
	15	11.048335	11.048453	11.048572	30		2. 47
	30	11.048690	11.048809	11.048928	15		3. 71
	45	11.049047	11.049166	11.049284	0	6	4. 95
54	0	11.049403	11.049522	11.049641	45		1 = 24
	15	11.049760	11.049879	11.049998	30		2. 48
	30	11.050117	11.050236	11.050356	15		3. 71
	45	11.050475	11.050594	11.050713	0	5	4. 95
55	0	11.050832	11.050952	11.051071	45		1 = 24
	15	11.051190	11.051310	11.051429	30		2. 48
	30	11.051549	11.051668	11.051788	15		3. 72
	45	11.051907	11.052027	11.052146	0	4	4. 96
56	0	11.052266	11.052386	11.052506	45		1 = 24
	15	11.052625	11.052745	11.052865	30		2. 48
	30	11.052985	11.053105	11.053225	15		3. 72
	45	11.053345	11.053464	11.053585	0	3	4. 96
57	0	11.053705	11.053825	11.053945	45		1 = 24
	15	11.054065	11.054185	11.054305	30		2. 48
	30	11.054426	11.054546	11.054666	15		3. 72
	45	11.054786	11.054907	11.055027	0	2	4. 96
58	0	11.055148	11.055268	11.055389	45		1 = 24
	15	11.055509	11.055630	11.055750	30		2. 48
	30	11.055871	11.055992	11.056112	15		3. 72
	45	11.056233	11.056354	11.056475	0	1	4. 97
59	0	11.056596	11.056716	11.056837	45		1 = 24
	15	11.056958	11.057079	11.057200	30		2. 48
	30	11.057321	11.057442	11.057563	15		3. 73
	45	11.057685	11.057806	11.057927	0	0	4. 97
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 5 degrees, or Tangent of 95 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 85 degrees, or Co-tangent of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11.058048	11.058169	11.058291	45		1″ = 24
	15	11.058412	11.058533	11.058655	30		2. 49
	30	11.058776	11.058898	11.059019	15		3. 73
	45	11.059141	11.059262	11.059384	0	59	4. 97
1	0	11.059506	11.059627	11.059749	45		1 = 24
	15	11.059871	11.059992	11.060114	30		2. 49
	30	11.060236	11.060358	11.060480	15		3. 73
	45	11.060602	11.060724	11.060846	0	58	4. 97
2	0	11.060968	11.061090	11.061212	45		1 = 24
	15	11.061334	11.061456	11.061579	30		2. 49
	30	11.061701	11.061823	11.061945	15		3. 73
	45	11.062068	11.062190	11.062313	0	57	4. 98
3	0	11.062435	11.062557	11.062680	45		1 = 25
	15	11.062803	11.062925	11.063048	30		2. 49
	30	11.063170	11.063293	11.063416	15		3. 74
	45	11.063539	11.063661	11.063784	0	56	4. 98
4	0	11.063907	11.064030	11.064153	45		1 = 25
	15	11.064276	11.064399	11.064522	30		2. 49
	30	11.064645	11.064768	11.064891	15		3. 74
	45	11.065014	11.065137	11.065261	0	55	4. 98
5	0	11.065384	11.065507	11.065631	45		1 = 25
	15	11.065754	11.065877	11.066001	30		2. 49
	30	11.066124	11.066248	11.066371	15		3. 74
	45	11.066495	11.066619	11.066742	0	54	4. 99
6	0	11.066866	11.066990	11.067113	45		1 = 25
	15	11.067237	11.067361	11.067485	30		2. 50
	30	11.067609	11.067733	11.067857	15		3. 74
	45	11.067981	11.068105	11.068229	0	53	4. 99
7	0	11.068353	11.068477	11.068601	45		1 = 25
	15	11.068725	11.068850	11.068974	30		2. 50
	30	11.069098	11.069223	11.069347	15		3. 75
	45	11.069471	11.069596	11.069720	0	52	4. 99
8	0	11.069845	11.069969	11.070094	45		1 = 25
	15	11.070219	11.070343	11.070468	30		2. 50
	30	11.070593	11.070717	11.070842	15		3. 75
	45	11.070967	11.071092	11.071217	0	51	4. 100
9	0	11.071342	11.071467	11.071592	45		1 = 25
	15	11.071717	11.071842	11.071967	30		2. 50
	30	11.072092	11.072217	11.072343	15		3. 75
	45	11.072468	11.072593	11.072719	0	50	4. 100
10	0	11.072844	11.072969	11.073095	45		1 = 25
	15	11.073220	11.073346	11.073471	30		2. 50
	30	11.073597	11.073723	11.073848	15		3. 75
	45	11.073974	11.074100	11.074225	0	49	4. 100
11	0	11.074351	11.074477	11.074603	45		1 = 25
	15	11.074729	11.074855	11.074981	30		2. 50
	30	11.075107	11.075233	11.075359	15		3. 76
	45	11.075485	11.075611	11.075737	0	48	4. 101
12	0	11.075864	11.075990	11.076116	45		1 = 25
	15	11.076243	11.076369	11.076495	30		2. 51
	30	11.076622	11.076748	11.076875	15		3. 76
	45	11.077001	11.077128	11.077255	0	47	4. 101
13	0	11.077381	11.077508	11.077635	45		1 = 25
	15	11.077762	11.077888	11.078015	30		2. 51
	30	11.078142	11.078269	11.078396	15		3. 76
	45	11.078523	11.078650	11.078777	0	46	4. 102
14	0	11.078904	11.079031	11.079159	45		1 = 25
	15	11.079286	11.079413	11.079540	30		2. 51
	30	11.079668	11.079795	11.079922	15		3. 76
	45	11.080050	11.080177	11.080305	0	45	4. 102
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 4 degrees, or Tangent of 94 degrees.					

Minutes	Seconds	Tangent of 85 degrees, or Co-tangent of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11.080432	11.080560	11.080688	45		1″ = [illegible]
	15	11.080815	11.080943	11.081071	30		2. [illegible]
	30	11.081199	11.081326	11.081454	15		3. [illegible]
	45	11.081582	11.081710	11.081838	0	44	4. [illegible]
16	0	11.081966	11.082094	11.082222	45		1 = [illegible]
	15	11.082350	11.082478	11.082606	30		2. [illegible]
	30	11.082735	11.082863	11.082991	15		3. [illegible]
	45	11.083120	11.083248	11.083376	0	43	4. [illegible]
17	0	11.083505	11.083633	11.083762	45		1 = [illegible]
	15	11.083890	11.084019	11.084148	30		2. [illegible]
	30	11.084276	11.084405	11.084534	15		3. [illegible]
	45	11.084662	11.084791	11.084920	0	42	4. [illegible]
18	0	11.085049	11.085178	11.085307	45		1 = [illegible]
	15	11.085436	11.085565	11.085694	30		2. [illegible]
	30	11.085823	11.085952	11.086082	15		3. [illegible]
	45	11.086211	11.086340	11.086469	0	41	4. [illegible]
19	0	11.086599	11.086728	11.086858	45		1 = [illegible]
	15	11.086987	11.087117	11.087246	30		2. [illegible]
	30	11.087376	11.087505	11.087635	15		3. [illegible]
	45	11.087765	11.087894	11.088024	0	40	4. [illegible]
20	0	11.088154	11.088284	11.088414	45		1 = [illegible]
	15	11.088544	11.088674	11.088804	30		2. [illegible]
	30	11.088934	11.089064	11.089194	15		3. [illegible]
	45	11.089324	11.089454	11.089584	0	39	4. [illegible]
21	0	11.089715	11.089845	11.089975	45		1 = [illegible]
	15	11.090106	11.090236	11.090367	30		2. [illegible]
	30	11.090497	11.090628	11.090758	15		3. [illegible]
	45	11.090889	11.091019	11.091150	0	38	4. [illegible]
22	0	11.091281	11.091412	11.091542	45		1 = [illegible]
	15	11.091673	11.091804	11.091935	30		2. [illegible]
	30	11.092066	11.092197	11.092328	15		3. [illegible]
	45	11.092459	11.092590	11.092722	0	37	4. [illegible]
23	0	11.092853	11.092984	11.093115	45		1 = [illegible]
	15	11.093247	11.093378	11.093509	30		2. [illegible]
	30	11.093641	11.093772	11.093904	15		3. [illegible]
	45	11.094035	11.094167	11.094299	0	36	4. [illegible]
24	0	11.094430	11.094562	11.094694	45		1 = [illegible]
	15	11.094825	11.094957	11.095089	30		2. [illegible]
	30	11.095221	11.095353	11.095485	15		3. [illegible]
	45	11.095617	11.095749	11.095881	0	35	4. [illegible]
25	0	11.096013	11.096146	11.096278	45		1 = [illegible]
	15	11.096410	11.096542	11.096675	30		2. [illegible]
	30	11.096807	11.096940	11.097072	15		3. [illegible]
	45	11.097205	11.097337	11.097470	0	34	4. [illegible]
26	0	11.097602	11.097735	11.097868	45		1 = [illegible]
	15	11.098000	11.098133	11.098266	30		2. [illegible]
	30	11.098399	11.098532	11.098665	15		3. [illegible]
	45	11.098798	11.098931	11.099064	0	33	4. [illegible]
27	0	11.099197	11.099330	11.099463	45		1 = [illegible]
	15	11.099596	11.099730	11.099863	30		2. [illegible]
	30	11.099996	11.100130	11.100263	15		3. [illegible]
	45	11.100397	11.100530	11.100664	0	32	4. [illegible]
28	0	11.100797	11.100931	11.101065	45		1 = [illegible]
	15	11.101198	11.101332	11.101466	30		2. [illegible]
	30	11.101600	11.101734	11.101868	15		3. [illegible]
	45	11.102002	11.102136	11.102270	0	31	4. [illegible]
29	0	11.102404	11.102538	11.102672	45		1 = [illegible]
	15	11.102806	11.102940	11.103075	30		2. [illegible]
	30	11.103209	11.103343	11.103478	15		3. [illegible]
	45	11.103612	11.103747	11.103881	0	30	4. [illegible]
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 4 degrees, or Tangent of 94 degrees.					

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LOGARITHMIC TANGENTS.

Seconds	Tangent of 85 degrees, or Co-tangent of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	11. 104016	11. 104150	11. 104285	45		1″ = 27
15	11. 104420	11. 104555	11. 104689	30		2. 54
30	11. 104824	11. 104959	11. 105094	15		3. 81
45	11. 105229	11. 105364	11. 105499	0	29	4. 108
0	11. 105634	11. 105769	11. 105904	45		1 = 27
15	11. 106039	11. 106175	11. 106310	30		2. 54
30	11. 106445	11. 106581	11. 106716	15		3. 81
45	11. 106851	11. 106987	11. 107122	0	28	4. 108
0	11. 107258	11. 107394	11. 107529	45		1 = 27
15	11. 107665	11. 107801	11. 107936	30		2. 54
30	11. 108072	11. 108208	11. 108344	15		3. 81
45	11. 108480	11. 108616	11. 108752	0	27	4. 109
0	11. 108888	11. 109024	11. 109160	45		1 = 27
15	11. 109297	11. 109433	11. 109569	30		2. 55
30	11. 109705	11. 109842	11. 109978	15		3. 82
45	11. 110115	11. 110251	11. 110388	0	26	4. 109
0	11. 110524	11. 110661	11. 110798	45		1 = 27
15	11. 110934	11. 111071	11. 111208	30		2. 55
30	11. 111345	11. 111482	11. 111618	15		3. 82
45	11. 111755	11. 111892	11. 112029	0	25	4. 109
0	11. 112167	11. 112304	11. 112441	45		1 = 27
15	11. 112578	11. 112715	11. 112853	30		2. 55
30	11. 112990	11. 113127	11. 113265	15		3. 82
45	11. 113402	11. 113540	11. 113677	0	24	4. 110
0	11. 113815	11. 113953	11. 114090	45		1 = 28
15	11. 114228	11. 114366	11. 114504	30		2. 55
30	11. 114642	11. 114779	11. 114917	15		3. 83
45	11. 115055	11. 115193	11. 115332	0	23	4. 110
0	11. 115470	11. 115608	11. 115746	45		1 = 28
15	11. 115884	11. 116023	11. 116161	30		2. 55
30	11. 116299	11. 116438	11. 116576	15		3. 83
45	11. 116715	11. 116853	11. 116992	0	22	4. 111
0	11. 117131	11. 117269	11. 117408	45		1 = 28
15	11. 117547	11. 117686	11. 117824	30		2. 56
30	11. 117963	11. 118102	11. 118241	15		3. 83
45	11. 118380	11. 118519	11. 118659	0	21	4. 111
0	11. 118798	11. 118937	11. 119076	45		1 = 28
15	11. 119216	11. 119355	11. 119494	30		2. 56
30	11. 119634	11. 119773	11. 119913	15		3. 84
45	11. 120052	11. 120192	11. 120332	0	20	4. 112
0	11. 120471	11. 120611	11. 120751	45		1 = 28
15	11. 120891	11. 121031	11. 121171	30		2. 56
30	11. 121310	11. 121451	11. 121591	15		3. 84
45	11. 121731	11. 121871	11. 122011	0	19	4. 112
0	11. 122151	11. 122292	11. 122432	45		1 = 28
15	11. 122572	11. 122713	11. 122853	30		2. 56
30	11. 122994	11. 123134	11. 123275	15		3. 84
45	11. 123415	11. 123556	11. 123697	0	18	4. 112
0	11. 123838	11. 123979	11. 124119	45		1 = 28
15	11. 124260	11. 124401	11. 124542	30		2. 56
30	11. 124683	11. 124824	11. 124966	15		3. 85
45	11. 125107	11. 125248	11. 125389	0	17	4. 113
0	11. 125531	11. 125672	11. 125813	45		1 = 28
15	11. 125955	11. 126096	11. 126238	30		2. 57
30	11. 126379	11. 126521	11. 126663	15		3. 85
45	11. 126805	11. 126946	11. 127088	0	16	4. 113
0	11. 127230	11. 127372	11. 127514	45		1 = 28
15	11. 127656	11. 127798	11. 127940	30		2. 57
30	11. 128082	11. 128224	11. 128367	15		3. 85
45	11. 128509	11. 128651	11. 128794	0	15	4. 114
Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
	Co-tangent of 4 degrees, or Tangent of 94 degrees.					

Minutes	Seconds	Tangent of 85 degrees, or Co-tangent of 175 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11. 128936	11. 129079	11. 129221	45		1″ = 29
	15	11. 129364	11. 129506	11. 129649	30		2. 57
	30	11. 129792	11. 129934	11. 130077	15		3. 86
	45	11. 130220	11. 130363	11. 130506	0	14	4. 114
46	0	11. 130649	11. 130792	11. 130935	45		1 = 29
	15	11. 131078	11. 131221	11. 131364	30		2. 57
	30	11. 131508	11. 131651	11. 131794	15		3. 86
	45	11. 131938	11. 132081	11. 132225	0	13	4. 115
47	0	11. 132368	11. 132512	11. 132655	45		1 = 29
	15	11. 132799	11. 132943	11. 133087	30		2. 58
	30	11. 133230	11. 133374	11. 133518	15		3. 86
	45	11. 133662	11. 133806	11. 133950	0	12	4. 115
48	0	11. 134094	11. 134239	11. 134383	45		1 = 29
	15	11. 134527	11. 134671	11. 134816	30		2. 58
	30	11. 134960	11. 135105	11. 135249	15		3. 87
	45	11. 135394	11. 135538	11. 135683	0	11	4. 115
49	0	11. 135827	11. 135972	11. 136117	45		1 = 29
	15	11. 136262	11. 136407	11. 136552	30		2. 58
	30	11. 136696	11. 136842	11. 136987	15		3. 87
	45	11. 137132	11. 137277	11. 137422	0	10	4. 116
50	0	11. 137567	11. 137713	11. 137858	45		1 = 29
	15	11. 138003	11. 138149	11. 138294	30		2. 58
	30	11. 138440	11. 138585	11. 138731	15		3. 87
	45	11. 138877	11. 139022	11. 139168	0	9	4. 116
51	0	11. 139314	11. 139460	11. 139606	45		1 = 29
	15	11. 139752	11. 139898	11. 140044	30		2. 58
	30	11. 140190	11. 140336	11. 140482	15		3. 88
	45	11. 140629	11. 140775	11. 140921	0	8	4. 117
52	0	11. 141068	11. 141214	11. 141361	45		1 = 29
	15	11. 141507	11. 141654	11. 141801	30		2. 59
	30	11. 141947	11. 142094	11. 142241	15		3. 88
	45	11. 142388	11. 142535	11. 142682	0	7	4. 117
53	0	11. 142829	11. 142976	11. 143123	45		1 = 29
	15	11. 143270	11. 143417	11. 143564	30		2. 59
	30	11. 143712	11. 143859	11. 144006	15		3. 88
	45	11. 144154	11. 144301	11. 144449	0	6	4. 118
54	0	11. 144597	11. 144744	11. 144892	45		1 = 30
	15	11. 145040	11. 145187	11. 145335	30		2. 59
	30	11. 145483	11. 145631	11. 145779	15		3. 89
	45	11. 145927	11. 146075	11. 146223	0	5	4. 118
55	0	11. 146372	11. 146520	11. 146668	45		1 = 30
	15	11. 146816	11. 146965	11. 147113	30		2. 59
	30	11. 147262	11. 147410	11. 147559	15		3. 89
	45	11. 147708	11. 147856	11. 148005	0	4	4. 119
56	0	11. 148154	11. 148303	11. 148452	45		1 = 30
	15	11. 148601	11. 148750	11. 148899	30		2. 60
	30	11. 149048	11. 149197	11. 149346	15		3. 89
	45	11. 149495	11. 149645	11. 149794	0	3	4. 119
57	0	11. 149943	11. 150093	11. 150242	45		1 = 30
	15	11. 150392	11. 150542	11. 150691	30		2. 60
	30	11. 150841	11. 150991	11. 151140	15		3. 90
	45	11. 151290	11. 151440	11. 151590	0	2	4. 120
58	0	11. 151740	11. 151890	11. 152040	45		1 = 30
	15	11. 152191	11. 152341	11. 152491	30		2. 60
	30	11. 152641	11. 152792	11. 152942	15		3. 90
	45	11. 153093	11. 153243	11. 153394	0	1	4. 120
59	0	11. 153545	11. 153695	11. 153846	45		1 = 30
	15	11. 153997	11. 154148	11. 154298	30		2. 60
	30	11. 154449	11. 154600	11. 154751	15		3. 91
	45	11. 154903	11. 155054	11. 155205	0	0	4. 121
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 4 degrees, or Tangent of 94 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 86 degrees, or Co-tangent of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11. 155356	11. 155508	11. 155659	45		1″ = 30
	15	11. 155810	11. 155962	11. 156113	30		2. 61
	30	11. 156265	11. 156417	11. 156568	15		3. 91
	45	11. 156720	11. 156872	11. 157024	0	59	4. 121
1	0	11. 157175	11. 157327	11. 157479	45		1 = 30
	15	11. 157631	11. 157784	11. 157936	30		2. 61
	30	11. 158088	11. 158240	11. 158392	15		3. 91
	45	11. 158545	11. 158697	11. 158850	0	58	4. 122
2	0	11. 159002	11. 159155	11. 159307	45		1 = 31
	15	11. 159460	11. 159613	11. 159766	30		2. 61
	30	11. 159919	11. 160071	11. 160224	15		3. 92
	45	11. 160377	11. 160530	11. 160684	0	57	4. 122
3	0	11. 160837	11. 160990	11. 161143	45		1 = 31
	15	11. 161296	11. 161450	11. 161603	30		2. 61
	30	11. 161757	11. 161910	11. 162064	15		3. 92
	45	11. 162218	11. 162371	11. 162525	0	56	4. 123
4	0	11. 162679	11. 162833	11. 162987	45		1 = 31
	15	11. 163141	11. 163295	11. 163449	30		2. 62
	30	11. 163603	11. 163757	11. 163911	15		3. 92
	45	11. 164066	11. 164220	11. 164374	0	55	4. 123
5	0	11. 164529	11. 164683	11. 164838	45		1 = 31
	15	11. 164992	11. 165147	11. 165302	30		2. 62
	30	11. 165457	11. 165611	11. 165766	15		3. 93
	45	11. 165921	11. 166076	11. 166231	0	54	4. 124
6	0	11. 166387	11. 166542	11. 166697	45		1 = 31
	15	11. 166852	11. 167008	11. 167163	30		2. 62
	30	11. 167318	11. 167474	11. 167629	15		3. 93
	45	11. 167785	11. 167941	11. 168096	0	53	4. 124
7	0	11. 168252	11. 168408	11. 168564	45		1 = 31
	15	11. 168720	11. 168876	11. 169032	30		2. 62
	30	11. 169188	11. 169344	11. 169500	15		3. 94
	45	11. 169657	11. 169813	11. 169969	0	52	4. 125
8	0	11. 170126	11. 170282	11. 170439	45		1 = 31
	15	11. 170595	11. 170752	11. 170909	30		2. 63
	30	11. 171066	11. 171223	11. 171379	15		3. 94
	45	11. 171536	11. 171693	11. 171850	0	51	4. 125
9	0	11. 172008	11. 172165	11. 172322	45		1 = 31
	15	11. 172479	11. 172637	11. 172794	30		2. 63
	30	11. 172951	11. 173109	11. 173266	15		3. 94
	45	11. 173424	11. 173582	11. 173740	0	50	4. 126
10	0	11. 173897	11. 174055	11. 174213	45		1 = 32
	15	11. 174371	11. 174529	11. 174687	30		2. 63
	30	11. 174845	11. 175003	11. 175162	15		3. 95
	45	11. 175320	11. 175478	11. 175637	0	49	4. 126
11	0	11. 175795	11. 175954	11. 176112	45		1 = 32
	15	11. 176271	11. 176430	11. 176589	30		2. 64
	30	11. 176747	11. 176906	11. 177065	15		3. 95
	45	11. 177224	11. 177383	11. 177542	0	48	4. 127
12	0	11. 177702	11. 177861	11. 178020	45		1 = 32
	15	11. 178179	11. 178339	11. 178498	30		2. 64
	30	11. 178658	11. 178817	11. 178977	15		3. 96
	45	11. 179137	11. 179296	11. 179456	0	47	4. 128
13	0	11. 179616	11. 179776	11. 179936	45		1 = 32
	15	11. 180096	11. 180256	11. 180416	30		2. 64
	30	11. 180577	11. 180737	11. 180897	15		3. 96
	45	11. 181058	11. 181218	11. 181379	0	46	4. 128
14	0	11. 181539	11. 181700	11. 181860	45		1 = 32
	15	11. 182021	11. 182182	11. 182343	30		2. 64
	30	11. 182504	11. 182665	11. 182826	15		3. 97
	45	11. 182987	11. 183148	11. 183309	0	45	4. 129
Minutes	Seconds	Co-tangent of 3 degrees, or Tangent of 93 degrees. 15′	10″	5″	Seconds	Minutes	Propor. parts.

Minutes	Seconds	Tangent of 86 degrees, or Co-tangent of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11. 183477	11. 183632	11. 183793	45		1″ = [illegible]
	15	11. 183955	11. 184116	11. 184278	30		2. [illegible]
	30	11. 184439	11. 184601	11. 184763	15		3. [illegible]
	45	11. 184925	11. 185087	11. 185249	0	44	4. [illegible]
16	0	11. 185411	11. 185573	11. 185735	45		1 = [illegible]
	15	11. 185897	11. 186059	11. 186221	30		2. [illegible]
	30	11. 186384	11. 186546	11. 186709	15		3. [illegible]
	45	11. 186871	11. 187034	11. 187197	0	43	4. [illegible]
17	0	11. 187359	11. 187522	11. 187685	45		1 = [illegible]
	15	11. 187848	11. 188011	11. 188174	30		2. [illegible]
	30	11. 188337	11. 188500	11. 188663	15		3. [illegible]
	45	11. 188826	11. 188990	11. 189153	0	42	4. [illegible]
18	0	11. 189317	11. 189480	11. 189644	45		1 = [illegible]
	15	11. 189807	11. 189971	11. 190135	30		2. [illegible]
	30	11. 190299	11. 190462	11. 190626	15		3. [illegible]
	45	11. 190790	11. 190954	11. 191119	0	41	4. [illegible]
19	0	11. 191283	11. 191447	11. 191611	45		1 = [illegible]
	15	11. 191776	11. 191940	11. 192105	30		2. [illegible]
	30	11. 192269	11. 192434	11. 192598	15		3. [illegible]
	45	11. 192763	11. 192928	11. 193093	0	40	4. [illegible]
20	0	11. 193258	11. 193423	11. 193588	45		1 = [illegible]
	15	11. 193753	11. 193918	11. 194083	30		2. [illegible]
	30	11. 194249	11. 194414	11. 194579	15		3. [illegible]
	45	11. 194745	11. 194910	11. 195076	0	39	4. [illegible]
21	0	11. 195242	11. 195407	11. 195573	45		1 = [illegible]
	15	11. 195739	11. 195905	11. 196071	30		2. [illegible]
	30	11. 196237	11. 196403	11. 196569	15		3. [illegible]
	45	11. 196736	11. 196902	11. 197068	0	38	4. [illegible]
22	0	11. 197235	11. 197401	11. 197568	45		1 = [illegible]
	15	11. 197734	11. 197901	11. 198068	30		2. [illegible]
	30	11. 198235	11. 198401	11. 198568	15		3. [illegible]
	45	11. 198735	11. 198902	11. 199070	0	37	4. [illegible]
23	0	11. 199237	11. 199404	11. 199571	45		1 = [illegible]
	15	11. 199739	11. 199906	11. 200074	30		2. [illegible]
	30	11. 200241	11. 200409	11. 200577	15		3. [illegible]
	45	11. 200744	11. 200912	11. 201080	0	36	4. [illegible]
24	0	11. 201248	11. 201416	11. 201584	45		1 = [illegible]
	15	11. 201752	11. 201921	11. 202089	30		2. [illegible]
	30	11. 202257	11. 202426	11. 202594	15		3. [illegible]
	45	11. 202763	11. 202931	11. 203100	0	35	4. [illegible]
25	0	11. 203269	11. 203437	11. 203606	45		1 = [illegible]
	15	11. 203775	11. 203944	11. 204113	30		2. [illegible]
	30	11. 204282	11. 204452	11. 204621	15		3. [illegible]
	45	11. 204790	11. 204960	11. 205129	0	34	4. [illegible]
26	0	11. 205299	11. 205468	11. 205638	45		1 = [illegible]
	15	11. 205808	11. 205977	11. 206147	30		2. [illegible]
	30	11. 206317	11. 206487	11. 206657	15		3. [illegible]
	45	11. 206827	11. 206997	11. 207168	0	33	4. [illegible]
27	0	11. 207338	11. 207508	11. 207679	45		1 = [illegible]
	15	11. 207849	11. 208020	11. 208191	30		2. [illegible]
	30	11. 208361	11. 208532	11. 208703	15		3. [illegible]
	45	11. 208874	11. 209045	11. 209216	0	32	4. [illegible]
28	0	11. 209387	11. 209558	11. 209729	45		1 = [illegible]
	15	11. 209901	11. 210072	11. 210244	30		2. [illegible]
	30	11. 210415	11. 210587	11. 210758	15		3. [illegible]
	45	11. 210930	11. 211102	11. 211274	0	31	4. [illegible]
29	0	11. 211446	11. 211618	11. 211790	45		1 = [illegible]
	15	11. 211962	11. 212134	11. 212306	30		2. [illegible]
	30	11. 212478	11. 212651	11. 212823	15		3. [illegible]
	45	11. 212996	11. 213168	11. 213341	0	30	4. [illegible]
Minutes	Seconds	Co-tangent of 3 degrees, or Tangent of 93 degrees. 15′	10″	5″	Seconds	Minutes	Propor. parts.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 86 degrees, or Co-tangent of 176 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
0	0	11.213514	11.213687	11.213860	45		1″ = 35
	15	11.214032	11.214205	11.214379	30		2. 69
	30	11.214552	11.214725	11.214898	15		3. 104
	45	11.215072	11.215245	11.215418	0	29	4. 139
1	0	11.215592	11.215766	11.215939	45		1 = 35
	15	11.216113	11.216287	11.216461	30		2. 70
	30	11.216635	11.216809	11.216983	15		3. 104
	45	11.217157	11.217331	11.217506	0	28	4. 139
2	0	11.217680	11.217855	11.218029	45		1 = 35
	15	11.218204	11.218378	11.218553	30		2. 70
	30	11.218728	11.218903	11.219078	15		3. 105
	45	11.219253	11.219428	11.219603	0	27	4. 140
3	0	11.219778	11.219953	11.220129	45		1 = 35
	15	11.220304	11.220480	11.220655	30		2. 70
	30	11.220831	11.221007	11.221182	15		3. 105
	45	11.221358	11.221534	11.221710	0	26	4. 140
4	0	11.221886	11.222063	11.222239	45		1 = 35
	15	11.222415	11.222591	11.222768	30		2. 71
	30	11.222944	11.223121	11.223297	15		3. 106
	45	11.223474	11.223651	11.223828	0	25	4. 141
5	0	11.224005	11.224182	11.224359	45		1 = 35
	15	11.224536	11.224713	11.224890	30		2. 71
	30	11.225068	11.225245	11.225423	15		3. 106
	45	11.225600	11.225778	11.225956	0	24	4. 142
6	0	11.226133	11.226311	11.226489	45		1 = 36
	15	11.226667	11.226845	11.227024	30		2. 71
	30	11.227202	11.227380	11.227558	15		3. 107
	45	11.227737	11.227915	11.228094	0	23	4. 143
7	0	11.228273	11.228451	11.228630	45		1 = 36
	15	11.228809	11.228988	11.229167	30		2. 72
	30	11.229346	11.229525	11.229705	15		3. 107
	45	11.229884	11.230063	11.230243	0	22	4. 143
8	0	11.230422	11.230602	11.230782	45		1 = 36
	15	11.230961	11.231141	11.231321	30		2. 72
	30	11.231501	11.231681	11.231861	15		3. 108
	45	11.232041	11.232222	11.232402	0	21	4. 144
9	0	11.232582	11.232763	11.232944	45		1 = 36
	15	11.233124	11.233305	11.233486	30		2. 72
	30	11.233667	11.233848	11.234029	15		3. 109
	45	11.234210	11.234391	11.234572	0	20	4. 145
10	0	11.234753	11.234935	11.235116	45		1 = 36
	15	11.235298	11.235480	11.235661	30		2. 73
	30	11.235843	11.236025	11.236207	15		3. 109
	45	11.236389	11.236571	11.236753	0	19	4. 145
11	0	11.236935	11.237118	11.237300	45		1 = 37
	15	11.237482	11.237665	11.237848	30		2. 73
	30	11.238030	11.238213	11.238396	15		3. 110
	45	11.238570	11.238762	11.238945	0	18	4. 146
12	0	11.239128	11.239311	11.239495	45		1 = 37
	15	11.239678	11.239861	11.240045	30		2. 73
	30	11.240229	11.240412	11.240596	15		3. 110
	45	11.240780	11.240964	11.241148	0	17	4. 147
13	0	11.241332	11.241516	11.241700	45		1 = 37
	15	11.241885	11.242069	11.242253	30		2. 74
	30	11.242438	11.242623	11.242807	15		3. 111
	45	11.242992	11.243177	11.243362	0	16	4. 148
14	0	11.243547	11.243732	11.243917	45		1 = 37
	15	11.244102	11.244288	11.244473	30		2. 74
	30	11.244659	11.244844	11.245030	15		3. 111
	45	11.245215	11.245401	11.245587	0	15	4. 148
Minutes		15′	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 3 degrees, or Tangent of 93 degrees.					

Minutes	Seconds	Tangent of 86 degrees, or Co-tangent of 176 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
45	0	11.245773	11.245959	11.246145	45		1″ = 37
	15	11.246331	11.246518	11.246704	30		2. 75
	30	11.246890	11.247077	11.247264	15		3. 112
	45	11.247450	11.247637	11.247824	0	14	4. 149
46	0	11.248011	11.248198	11.248385	45		1 = 37
	15	11.248572	11.248759	11.248946	30		2. 75
	30	11.249134	11.249321	11.249509	15		3. 112
	45	11.249697	11.249884	11.250072	0	13	4. 150
47	0	11.250260	11.250448	11.250636	45		1 = 38
	15	11.250824	11.251012	11.251200	30		2. 75
	30	11.251389	11.251577	11.251766	15		3. 113
	45	11.251954	11.252143	11.252332	0	12	4. 151
48	0	11.252521	11.252710	11.252899	45		1 = 38
	15	11.253088	11.253277	11.253466	30		2. 76
	30	11.253656	11.253845	11.254034	15		3. 114
	45	11.254224	11.254414	11.254603	0	11	4. 151
49	0	11.254793	11.254983	11.255173	45		1 = 38
	15	11.255363	11.255553	11.255744	30		2. 76
	30	11.255934	11.256124	11.256315	15		3. 114
	45	11.256505	11.256696	11.256887	0	10	4. 152
50	0	11.257078	11.257269	11.257460	45		1 = 38
	15	11.257651	11.257842	11.258033	30		2. 77
	30	11.258224	11.258416	11.258607	15		3. 115
	45	11.258799	11.258991	11.259182	0	9	4. 153
51	0	11.259374	11.259566	11.259758	45		1 = 38
	15	11.259950	11.260142	11.260335	30		2. 77
	30	11.260527	11.260719	11.260912	15		3. 115
	45	11.261104	11.261297	11.261490	0	8	4. 154
52	0	11.261683	11.261876	11.262069	45		1 = 39
	15	11.262262	11.262455	11.262648	30		2. 77
	30	11.262842	11.263035	11.263229	15		3. 116
	45	11.263422	11.263616	11.263810	0	7	4. 155
53	0	11.264004	11.264198	11.264392	45		1 = 39
	15	11.264586	11.264780	11.264974	30		2. 78
	30	11.265169	11.265363	11.265558	15		3. 117
	45	11.265752	11.265947	11.266142	0	6	4. 155
54	0	11.266337	11.266532	11.266727	45		1 = 39
	15	11.266922	11.267117	11.267313	30		2. 78
	30	11.267508	11.267704	11.267899	15		3. 117
	45	11.268095	11.268291	11.268487	0	5	4. 156
55	0	11.268683	11.268879	11.269075	45		1 = 39
	15	11.269271	11.269467	11.269664	30		2. 79
	30	11.269860	11.270057	11.270253	15		3. 118
	45	11.270450	11.270647	11.270844	0	4	4. 157
56	0	11.271041	11.271238	11.271435	45		1 = 40
	15	11.271633	11.271830	11.272027	30		2. 79
	30	11.272225	11.272423	11.272620	15		3. 119
	45	11.272818	11.273016	11.273214	0	3	4. 158
57	0	11.273412	11.273610	11.273809	45		1 = 40
	15	11.274007	11.274206	11.274404	30		2. 79
	30	11.274603	11.274801	11.275000	15		3. 119
	45	11.275199	11.275398	11.275597	0	2	4. 159
58	0	11.275796	11.275996	11.276195	45		1 = 40
	15	11.276395	11.276594	11.276794	30		2. 80
	30	11.276993	11.277193	11.277393	15		3. 120
	45	11.277593	11.277793	11.277993	0	1	4. 160
59	0	11.278194	11.278394	11.278595	45		1 = 40
	15	11.278795	11.278996	11.279196	30		2. 80
	30	11.279397	11.279598	11.279799	15		3. 120
	45	11.280000	11.280202	11.280403	0	0	4. 161
Minutes	Seconds	15″	10′	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 3 degrees, or Tangent of 93 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 87 degrees, or Co-tangent of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
0	0	11. 280604	11. 280806	11. 281007	45		1″ = 40
	15	11. 281209	11. 281411	11. 281613	30		2. 81
	30	11. 281814	11. 282016	11. 282219	15		3. 121
	45	11. 282421	11. 282623	11. 282826	0	59	4. 162
1	0	11. 283028	11. 283231	11. 283433	45		1 = 41
	15	11. 283636	11. 283839	11. 284042	30		2. 81
	30	11. 284245	11. 284448	11. 284651	15		3. 122
	45	11. 284855	11. 285058	11. 285262	0	58	4. 162
2	0	11. 285465	11. 285669	11. 285873	45		1 = 41
	15	11. 286077	11. 286281	11. 286485	30		2. 82
	30	11. 286689	11. 286894	11. 287098	15		3. 123
	45	11. 287303	11. 287507	11. 287712	0	57	4. 163
3	0	11. 287917	11. 288121	11. 288326	45		1 = 41
	15	11. 288531	11. 288737	11. 288942	30		2. 82
	30	11. 289147	11. 289353	11. 289558	15		3. 123
	45	11. 289764	11. 289970	11. 290176	0	56	4. 164
4	0	11. 290381	11. 290588	11. 290794	45		1 = 41
	15	11. 291000	11. 291206	11. 291413	30		2. 83
	30	11. 291619	11. 291826	11. 292033	15		3. 124
	45	11. 292239	11. 292446	11. 292653	0	55	4. 165
5	0	11. 292860	11. 293068	11. 293275	45		1 = 42
	15	11. 293482	11. 293690	11. 293897	30		2. 83
	30	11. 294105	11. 294313	11. 294521	15		3. 125
	45	11. 294729	11. 294937	11. 295145	0	54	4. 166
6	0	11. 295353	11. 295562	11. 295770	45		1 = 42
	15	11. 295979	11. 296188	11. 296397	30		2. 84
	30	11. 296605	11. 296814	11. 297023	15		3. 125
	45	11. 297233	11. 297442	11. 297651	0	53	4. 167
7	0	11. 297861	11. 298071	11. 298280	45		1 = 42
	15	11. 298490	11. 298700	11. 298910	30		2. 84
	30	11. 299120	11. 299330	11. 299541	15		3. 126
	45	11. 299751	11. 299961	11. 300172	0	52	4. 168
8	0	11. 300383	11. 300594	11. 300805	45		1 = 42
	15	11. 301016	11. 301227	11. 301438	30		2. 85
	30	11. 301649	11. 301861	11. 302072	15		3. 127
	45	11. 302284	11. 302496	11. 302707	0	51	4. 169
9	0	11. 302919	11. 303131	11. 303344	45		1 = 43
	15	11. 303556	11. 303768	11. 303981	30		2. 85
	30	11. 304193	11. 304406	11. 304619	15		3. 128
	45	11. 304831	11. 305044	11. 305258	0	50	4. 170
10	0	11. 305471	11. 305684	11. 305897	45		1 = 43
	15	11. 306111	11. 306324	11. 306538	30		2. 86
	30	11. 306752	11. 306966	11. 307180	15		3. 128
	45	11. 307394	11. 307608	11. 307823	0	49	4. 171
11	0	11. 308037	11. 308252	11. 308466	45		1 = 43
	15	11. 308681	11. 308896	11. 309111	30		2. 86
	30	11. 309326	11. 309541	11. 309756	15		3. 129
	45	11. 309972	11. 310187	11. 310403	0	48	4. 172
12	0	11. 310619	11. 310834	11. 311050	45		1 = 43
	15	11. 311266	11. 311483	11. 311699	30		2. 87
	30	11. 311915	11. 312132	11. 312348	15		3. 130
	45	11. 312565	11. 312782	11. 312999	0	47	4. 173
13	0	11. 313216	11. 313433	11. 313650	45		1 = 44
	15	11. 313867	11. 314085	11. 314302	30		2. 87
	30	11. 314520	11. 314738	11. 314955	15		3. 131
	45	11. 315173	11. 315392	11. 315610	0	46	4. 174
14	0	11. 315828	11. 316046	11. 316265	45		1 = 44
	15	11. 316484	11. 316702	11. 316921	30		2. 88
	30	11. 317140	11. 317359	11. 317578	15		3. 131
	45	11. 317798	11. 318017	11. 318237	0	45	4. 175
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 2 degrees, or Tangent of 92 degrees.					

Minutes	Seconds	Tangent of 87 degrees, or Co-tangent of 177 degrees. 0″	5″	10″	Seconds	Minutes	Propor. parts.
15	0	11. 318456	11. 318676	11. 318896	45		1″ =
	15	11. 319116	11. 319336	11. 319556	30		2.
	30	11. 319776	11. 319997	11. 320217	15		3.
	45	11. 320438	11. 320659	11. 320879	0	44	4.
16	0	11. 321100	11. 321321	11. 321543	45		1 =
	15	11. 321764	11. 321985	11. 322207	30		2.
	30	11. 322428	11. 322650	11. 322872	15		3.
	45	11. 323094	11. 323316	11. 323538	0	43	4.
17	0	11. 323761	11. 323983	11. 324206	45		1 =
	15	11. 324428	11. 324651	11. 324874	30		2.
	30	11. 325097	11. 325320	11. 325543	15		3.
	45	11. 325766	11. 325990	11. 326214	0	42	4.
18	0	11. 326437	11. 326661	11. 326885	45		1 =
	15	11. 327109	11. 327333	11. 327557	30		2.
	30	11. 327782	11. 328006	11. 328231	15		3.
	45	11. 328455	11. 328680	11. 328905	0	41	4.
19	0	11. 329130	11. 329355	11. 329581	45		1 =
	15	11. 329806	11. 330032	11. 330257	30		2.
	30	11. 330483	11. 330709	11. 330935	15		3.
	45	11. 331161	11. 331387	11. 331614	0	40	4.
20	0	11. 331840	11. 332067	11. 332293	45		1 =
	15	11. 332520	11. 332747	11. 332974	30		2.
	30	11. 333201	11. 333429	11. 333656	15		3.
	45	11. 333884	11. 334111	11. 334339	0	39	4.
21	0	11. 334567	11. 334795	11. 335023	45		1 =
	15	11. 335251	11. 335480	11. 335708	30		2.
	30	11. 335937	11. 336165	11. 336394	15		3.
	45	11. 336623	11. 336852	11. 337081	0	38	4.
22	0	11. 337311	11. 337540	11. 337770	45		1 =
	15	11. 337999	11. 338229	11. 338459	30		2.
	30	11. 338689	11. 338919	11. 339150	15		3.
	45	11. 339380	11. 339611	11. 339841	0	37	4.
23	0	11. 340072	11. 340303	11. 340534	45		1 =
	15	11. 340765	11. 340996	11. 341228	30		2.
	30	11. 341459	11. 341691	11. 341923	15		3.
	45	11. 342155	11. 342387	11. 342619	0	36	4.
24	0	11. 342851	11. 343083	11. 343316	45		1 =
	15	11. 343548	11. 343781	11. 344014	30		2.
	30	11. 344247	11. 344480	11. 344713	15		3.
	45	11. 344947	11. 345180	11. 345414	0	35	4.
25	0	11. 345648	11. 345882	11. 346116	45		1 =
	15	11. 346350	11. 346584	11. 346818	30		2.
	30	11. 347053	11. 347287	11. 347522	15		3.
	45	11. 347757	11. 347992	11. 348227	0	34	4.
26	0	11. 348462	11. 348698	11. 348933	45		1 =
	15	11. 349169	11. 349405	11. 349641	30		2.
	30	11. 349877	11. 350113	11. 350349	15		3.
	45	11. 350586	11. 350822	11. 351059	0	33	4.
27	0	11. 351296	11. 351532	11. 351769	45		1 =
	15	11. 352007	11. 352244	11. 352481	30		2.
	30	11. 352719	11. 352957	11. 353195	15		3.
	45	11. 353432	11. 353671	11. 353909	0	32	4.
28	0	11. 354147	11. 354386	11. 354624	45		1 =
	15	11. 354863	11. 355102	11. 355341	30		2.
	30	11. 355580	11. 355819	11. 356059	15		3.
	45	11. 356298	11. 356538	11. 356778	0	31	4.
29	0	11. 357017	11. 357258	11. 357498	45		1 =
	15	11. 357738	11. 357978	11. 358219	30		2.
	30	11. 358460	11. 358701	11. 358942	15		3.
	45	11. 359183	11. 359424	11. 359665	0	30	4.
Minutes	Seconds	15″	10″	5″	Seconds	Minutes	Propor. parts.
		Co-tangent of 2 degrees, or Tangent of 92 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 87 degrees, or Co-tangent of 177 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
30	0	11.359907	11.360148	11.360390	45		1″ = 48
	15	11.360632	11.360874	11.361116	30		2. 97
	30	11.361359	11.361601	11.361844	15		3. 145
	45	11.362087	11.362329	11.362572	0	29	4. 194
31	0	11.362815	11.363059	11.363302	45		1 = 49
	15	11.363546	11.363789	11.364033	30		2. 98
	30	11.364277	11.364521	11.364765	15		3. 146
	45	11.365010	11.365254	11.365499	0	28	4. 195
32	0	11.365744	11.365989	11.366234	45		1 = 49
	15	11.366479	11.366724	11.366970	30		2. 98
	30	11.367215	11.367461	11.367707	15		3. 147
	45	11.367953	11.368199	11.368445	0	27	4. 196
33	0	11.368692	11.368938	11.369185	45		1 = 49
	15	11.369432	11.369679	11.369926	30		2. 99
	30	11.370173	11.370421	11.370668	15		3. 148
	45	11.370916	11.371164	11.371412	0	26	4. 198
34	0	11.371660	11.371908	11.372156	45		1 = 50
	15	11.372405	11.372654	11.372902	30		2. 100
	30	11.373151	11.373401	11.373650	15		3. 149
	45	11.373899	11.374149	11.374398	0	25	4. 199
35	0	11.374648	11.374898	11.375148	45		1 = 50
	15	11.375398	11.375649	11.375899	30		2. 100
	30	11.376150	11.376401	11.376652	15		3. 150
	45	11.376903	11.377154	11.377406	0	24	4. 201
36	0	11.377657	11.377909	11.378161	45		1 = 50
	15	11.378413	11.378665	11.378917	30		2. 101
	30	11.379170	11.379422	11.379675	15		3. 151
	45	11.379928	11.380181	11.380434	0	23	4. 202
37	0	11.380687	11.380941	11.381194	45		1 = 51
	15	11.381448	11.381702	11.381956	30		2. 102
	30	11.382210	11.382464	11.382719	15		3. 152
	45	11.382974	11.383228	11.383483	0	22	4. 203
38	0	11.383738	11.383994	11.384249	45		1 = 51
	15	11.384505	11.384760	11.385016	30		2. 102
	30	11.385272	11.385528	11.385784	15		3. 154
	45	11.386041	11.386297	11.386554	0	21	4. 205
39	0	11.386811	11.387068	11.387325	45		1 = 52
	15	11.387583	11.387840	11.388098	30		2. 103
	30	11.388356	11.388614	11.388872	15		3. 155
	45	11.389130	11.389388	11.389647	0	20	4. 206
40	0	11.389906	11.390164	11.390424	45		1 = 52
	15	11.390683	11.390942	11.391202	30		2. 104
	30	11.391461	11.391721	11.391981	15		3. 156
	45	11.392241	11.392501	11.392762	0	19	4. 208
41	0	11.393022	11.393283	11.393544	45		1 = 52
	15	11.393805	11.394066	11.394327	30		2. 105
	30	11.394589	11.394851	11.395112	15		3. 157
	45	11.395374	11.395637	11.395899	0	18	4. 209
42	0	11.396161	11.396424	11.396687	45		1 = 53
	15	11.396950	11.397213	11.397476	30		2. 105
	30	11.397739	11.398003	11.398267	15		3. 158
	45	11.398531	11.398795	11.399059	0	17	4. 211
43	0	11.399323	11.399588	11.399852	45		1 = 53
	15	11.400117	11.400382	11.400648	30		2. 106
	30	11.400913	11.401178	11.401444	15		3. 159
	45	11.401710	11.401976	11.402242	0	16	4. 212
44	0	11.402508	11.402775	11.403041	45		1 = 53
	15	11.403308	11.403575	11.403842	30		2. 107
	30	11.404110	11.404377	11.404645	15		3. 160
	45	11.404912	11.405180	11.405448	0	15	4. 214
Minutes	Seconds	15′	10′	5′	Seconds	Minutes	Propor. parts.
		Co-tangent of 2 degrees, or Tangent of 92 degrees.					

Minutes	Seconds	Tangent of 87 degrees, or Co-tangent of 177 degrees. 0′	5′	10′	Seconds	Minutes	Propor. parts.
45	0	11.405717	11.405985	11.406254	45		1″ = 54
	15	11.406523	11.406791	11.407061	30		2. 108
	30	11.407330	11.407599	11.407869	15		3. 162
	45	11.408139	11.408409	11.408679	0	14	4. 215
46	0	11.408949	11.409219	11.409490	45		1 = 54
	15	11.409761	11.410032	11.410303	30		2. 108
	30	11.410574	11.410846	11.411117	15		3. 163
	45	11.411389	11.411661	11.411933	0	13	4. 217
47	0	11.412205	11.412478	11.412751	45		1 = 55
	15	11.413023	11.413296	11.413570	30		2. 109
	30	11.413843	11.414116	11.414390	15		3. 164
	45	11.414664	11.414938	11.415212	0	12	4. 219
48	0	11.415486	11.415761	11.416036	45		1 = 55
	15	11.416311	11.416586	11.416861	30		2. 110
	30	11.417136	11.417412	11.417688	15		3. 165
	45	11.417963	11.418240	11.418516	0	11	4. 220
49	0	11.418792	11.419069	11.419346	45		1 = 55
	15	11.419623	11.419900	11.420177	30		2. 111
	30	11.420455	11.420732	11.421010	15		3. 166
	45	11.421288	11.421566	11.421845	0	10	4. 222
50	0	11.422123	11.422402	11.422681	45		1 = 56
	15	11.422960	11.423239	11.423519	30		2. 112
	30	11.423799	11.424078	11.424358	15		3. 168
	45	11.424639	11.424919	11.425199	0	9	4. 224
51	0	11.425480	11.425761	11.426042	45		1 = 56
	15	11.426323	11.426605	11.426887	30		2. 113
	30	11.427168	11.427450	11.427733	15		3. 169
	45	11.428015	11.428297	11.428580	0	8	4. 225
52	0	11.428863	11.429146	11.429429	45		1 = 57
	15	11.429713	11.429997	11.430280	30		2. 114
	30	11.430564	11.430849	11.431133	15		3. 170
	45	11.431418	11.431702	11.431987	0	7	4. 227
53	0	11.432272	11.432558	11.432843	45		1 = 57
	15	11.433129	11.433415	11.433701	30		2. 114
	30	11.433987	11.434274	11.434560	15		3. 172
	45	11.434847	11.435134	11.435421	0	6	4. 229
54	0	11.435709	11.435996	11.436284	45		1 = 58
	15	11.436572	11.436860	11.437149	30		2. 115
	30	11.437437	11.437726	11.438015	15		3. 173
	45	11.438304	11.438593	11.438883	0	5	4. 231
55	0	11.439172	11.439462	11.439752	45		1 = 58
	15	11.440043	11.440333	11.440624	30		2. 116
	30	11.440915	11.441206	11.441497	15		3. 174
	45	11.441788	11.442080	11.442372	0	4	4. 233
56	0	11.442664	11.442956	11.443248	45		1 = 59
	15	11.443541	11.443834	11.444127	30		2. 117
	30	11.444420	11.444713	11.445007	15		3. 176
	45	11.445301	11.445595	11.445889	0	3	4. 234
57	0	11.446183	11.446478	11.446773	45		1 = 59
	15	11.447068	11.447363	11.447658	30		2. 118
	30	11.447954	11.448250	11.448546	15		3. 177
	45	11.448842	11.449138	11.449435	0	2	4. 236
58	0	11.449732	11.450029	11.450326	45		1 = 60
	15	11.450623	11.450921	11.451219	30		2. 119
	30	11.451517	11.451815	11.452113	15		3. 179
	45	11.452412	11.452711	11.453010	0	1	4. 238
59	0	11.453309	11.453609	11.453908	45		1 = 60
	15	11.454208	11.454508	11.454808	30		2. 120
	30	11.455109	11.455410	11.455710	15		3. 180
	45	11.456012	11.456313	11.456614	0	0	4. 240
Minutes	Seconds	15′	10′	5′	Seconds	Minutes	Propor. parts.
		Co-tangent of 2 degrees, or Tangent of 92 degrees.					

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds Minutes
		Tangent of 88 degrees, or Co-tangent of 178 degrees.										
0	0	11.456916	456977	457037	457097	457158	457218	457279	457339	457399	457460	50
	10	11.457520	457581	457641	457702	457762	457823	457883	457944	458004	458065	40
	20	11.458125	458186	458246	458307	458367	458428	458489	458549	458610	458670	30
	30	11.458731	458792	458852	458913	458974	459034	459095	459155	459216	459277	20
	40	11.459338	459398	459459	459520	459580	459641	459702	459763	459823	459884	10
	50	11.459945	460006	460067	460127	460188	460249	460310	460371	460432	460492	0 59
1	0	11.460553	460614	460675	460736	460797	460858	460919	460980	461041	461102	50
	10	11.461163	461223	461284	461345	461406	461467	461528	461589	461650	461712	40
	20	11.461773	461834	461895	461956	462017	462078	462139	462200	462261	462322	30
	30	11.462383	462445	462506	462567	462628	462689	462750	462812	462873	462934	20
	40	11.462995	463056	463118	463179	463240	463301	463363	463424	463485	463546	10
	50	11.463608	463669	463730	463792	463853	463914	463976	464037	464098	464160	0 58
2	0	11.464221	464283	464344	464405	464467	464528	464590	464651	464713	464774	50
	10	11.464836	464897	464959	465020	465082	465143	465205	465266	465328	465389	40
	20	11.465451	465512	465574	465635	465697	465759	465820	465882	465944	466005	30
	30	11.466067	466128	466190	466252	466313	466375	466437	466499	466560	466622	20
	40	11.466684	466745	466807	466869	466931	466993	467054	467116	467178	467240	10
	50	11.467302	467363	467425	467487	467549	467611	467673	467735	467796	467858	0 57
3	0	11.467920	467982	468044	468106	468168	468230	468292	468354	468416	468478	50
	10	11.468540	468602	468664	468726	468788	468850	468912	468974	469036	469098	40
	20	11.469160	469222	469284	469347	469409	469471	469533	469595	469657	469719	30
	30	11.469782	469844	469906	469968	470030	470093	470155	470217	470279	470342	20
	40	11.470404	470466	470528	470591	470653	470715	470778	470840	470902	470965	10
	50	11.471027	471089	471152	471214	471276	471339	471401	471464	471526	471589	0 56
4	0	11.471651	471713	471776	471838	471901	471963	472026	472088	472151	472213	50
	10	11.472276	472338	472401	472464	472526	472589	472651	472714	472776	472839	40
	20	11.472902	472964	473027	473090	473152	473215	473278	473340	473403	473466	30
	30	11.473528	473591	473654	473717	473779	473842	473905	473968	474030	474093	20
	40	11.474156	474219	474282	474344	474407	474470	474533	474596	474659	474722	10
	50	11.474785	474847	474910	474973	475036	475099	475162	475225	475288	475351	0 55
5	0	11.475414	475477	475540	475603	475666	475729	475792	475855	475918	475981	50
	10	11.476044	476107	476170	476234	476297	476360	476423	476486	476549	476612	40
	20	11.476676	476739	476802	476865	476928	476992	477055	477118	477181	477244	30
	30	11.477308	477371	477434	477498	477561	477624	477687	477751	477814	477877	20
	40	11.477941	478004	478068	478131	478194	478258	478321	478385	478448	478511	10
	50	11.478575	478638	478702	478765	478829	478892	478956	479019	479083	479146	0 54
6	0	11.479210	479273	479337	479400	479464	479528	479591	479655	479718	479782	50
	10	11.479846	479909	479973	480037	480100	480164	480228	480291	480355	480419	40
	20	11.480482	480546	480610	480674	480737	480801	480865	480929	480993	481056	30
	30	11.481120	481184	481248	481312	481375	481439	481503	481567	481631	481695	20
	40	11.481759	481823	481887	481951	482015	482078	482142	482206	482270	482334	10
	50	11.482398	482462	482526	482590	482654	482719	482783	482847	482911	482975	0 53
7	0	11.483039	483103	483167	483231	483295	483360	483424	483488	483552	483616	50
	10	11.483680	483745	483809	483873	483937	484002	484066	484130	484194	484259	40
	20	11.484323	484387	484451	484516	484580	484644	484709	484773	484837	484902	30
	30	11.484966	485031	485095	485159	485224	485288	485353	485417	485482	485546	20
	40	11.485611	485675	485740	485804	485869	485933	485998	486062	486127	486191	10
	50	11.486256	486320	486385	486450	486514	486579	486644	486708	486773	486837	0 52
8	0	11.486902	486967	487031	487096	487161	487226	487290	487355	487420	487485	50
	10	11.487549	487614	487679	487744	487808	487873	487938	488003	488068	488133	40
	20	11.488197	488262	488327	488392	488457	488522	488587	488652	488717	488782	30
	30	11.488847	488912	488977	489042	489107	489172	489237	489302	489367	489432	20
	40	11.489497	489562	489627	489692	489757	489822	489887	489952	490018	490083	10
	50	11.490148	490213	490278	490343	490409	490474	490539	490604	490669	490735	0 51
9	0	11.490800	490865	490930	490996	491061	491126	491192	491257	491322	491388	50
	10	11.491453	491518	491584	491649	491714	491780	491845	491911	491976	492042	40
	20	11.492107	492172	492238	492303	492369	492434	492500	492565	492631	492696	30
	30	11.492762	492828	492893	492959	493024	493090	493155	493221	493287	493352	20
	40	11.493418	493484	493549	493615	493681	493746	493812	493878	493943	494009	10
	50	11.494075	494141	494206	494272	494338	494404	494470	494535	494601	494667	0 50
Minutes	Seconds	10′	9′	8′	7′	6′	5′	4′	3′	2	1″	Seconds Minutes
		Co-tangent of 1 degree, or Tangent of 91 degrees.										

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LOGARITHMIC TANGENTS.

Tangent of 88 degrees, or Co-tangent of 178 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
10	0	11.494733	494799	494865	494930	494996	495062	495128	495194	495260	495326	50	
	10	11.495392	495458	495524	495590	495656	495722	495788	495854	495920	495986	40	
	20	11.496052	496118	496184	496250	496316	496382	496448	496514	496581	496647	30	
	30	11.496713	496779	496845	496911	496977	497044	497110	497176	497242	497309	20	
	40	11.497375	497441	497507	497574	497640	497706	497772	497839	497905	497971	10	
	50	11.498038	498104	498170	498237	498303	498370	498436	498502	498569	498635	0	49
11	0	11.498702	498768	498835	498901	498968	499034	499101	499167	499234	499300	50	
	10	11.499367	499433	499500	499566	499633	499700	499766	499833	499900	499966	40	
	20	11.500033	500099	500166	500233	500300	500366	500433	500500	500566	500633	30	
	30	11.500700	500767	500833	500900	500967	501034	501101	501167	501234	501301	20	
	40	11.501368	501435	501502	501569	501635	501702	501769	501836	501903	501970	10	
	50	11.502037	502104	502171	502238	502305	502372	502439	502506	502573	502640	0	48
12	0	11.502707	502774	502841	502908	502976	503043	503110	503177	503244	503311	50	
	10	11.503378	503446	503513	503580	503647	503714	503782	503849	503916	503983	40	
	20	11.504051	504118	504185	504252	504320	504387	504454	504522	504589	504656	30	
	30	11.504724	504791	504859	504926	504993	505061	505128	505196	505263	505331	20	
	40	11.505398	505466	505533	505601	505668	505736	505803	505871	505938	506006	10	
	50	11.506073	506141	506209	506276	506344	506411	506479	506547	506614	506682	0	47
13	0	11.506750	506817	506885	506953	507021	507088	507156	507224	507292	507359	50	
	10	11.507427	507495	507563	507631	507698	507766	507834	507902	507970	508038	40	
	20	11.508106	508174	508242	508309	508377	508445	508513	508581	508649	508717	30	
	30	11.508785	508853	508921	508989	509057	509125	509193	509262	509330	509398	20	
	40	11.509466	509534	509602	509670	509738	509807	509875	509943	510011	510079	10	
	50	11.510148	510216	510284	510352	510421	510489	510557	510625	510694	510762	0	46
14	0	11.510830	510899	510967	511035	511104	511172	511240	511309	511377	511446	50	
	10	11.511514	511583	511651	511719	511788	511856	511925	511993	512062	512130	40	
	20	11.512199	512268	512336	512405	512473	512542	512610	512679	512748	512816	30	
	30	11.512885	512954	513022	513091	513160	513228	513297	513366	513435	513503	20	
	40	11.513572	513641	513710	513778	513847	513916	513985	514054	514122	514191	10	
	50	11.514260	514329	514398	514467	514536	514605	514674	514743	514812	514880	0	45
15	0	11.514949	515018	515087	515156	515225	515294	515364	515433	515502	515571	50	
	10	11.515640	515709	515778	515847	515916	515985	516055	516124	516193	516262	40	
	20	11.516331	516400	516470	516539	516608	516677	516747	516816	516885	516954	30	
	30	11.517024	517093	517162	517232	517301	517370	517440	517509	517579	517648	20	
	40	11.517717	517787	517856	517926	517995	518065	518134	518204	518273	518343	10	
	50	11.518412	518482	518551	518621	518690	518760	518830	518899	518969	519038	0	44
16	0	11.519108	519178	519247	519317	519387	519456	519526	519596	519665	519735	50	
	10	11.519805	519875	519944	520014	520084	520154	520224	520293	520363	520433	40	
	20	11.520503	520573	520643	520713	520783	520852	520922	520992	521062	521132	30	
	30	11.521202	521272	521342	521412	521482	521552	521622	521692	521762	521832	20	
	40	11.521903	521973	522043	522113	522183	522253	522323	522393	522464	522534	10	
	50	11.522604	522674	522744	522815	522885	522955	523025	523096	523166	523236	0	43
17	0	11.523307	523377	523447	523518	523588	523658	523729	523799	523870	523940	50	
	10	11.524010	524081	524151	524222	524292	524363	524433	524504	524574	524645	40	
	20	11.524715	524786	524856	524927	524997	525068	525139	525209	525280	525351	30	
	30	11.525421	525492	525563	525633	525704	525775	525845	525916	525987	526058	20	
	40	11.526128	526199	526270	526341	526412	526482	526553	526624	526695	526766	10	
	50	11.526837	526908	526979	527049	527120	527191	527262	527333	527404	527475	0	42
18	0	11.527546	527617	527688	527759	527830	527901	527972	528044	528115	528186	50	
	10	11.528257	528328	528399	528470	528541	528613	528684	528755	528826	528897	40	
	20	11.528969	529040	529111	529182	529254	529325	529396	529468	529539	529610	30	
	30	11.529682	529753	529824	529896	529967	530038	530110	530181	530253	530324	20	
	40	11.530396	530467	530539	530610	530682	530753	530825	530896	530968	531039	10	
	50	11.531111	531183	531254	531326	531397	531469	531541	531612	531684	531756	0	41
19	0	11.531827	531899	531971	532043	532114	532186	532258	532330	532402	532473	50	
	10	11.532545	532617	532689	532761	532833	532904	532976	533048	533120	533192	40	
	20	11.533264	533336	533408	533480	533552	533624	533696	533768	533840	533912	30	
	30	11.533984	534056	534128	534200	534272	534344	534417	534489	534561	534633	20	
	40	11.534705	534777	534850	534922	534994	535066	535139	535211	535283	535355	10	
	50	11.535428	535500	535572	535645	535717	535789	535862	535934	536006	536079	0	40
Minutes	Seconds	10′	9″	8″	7″	6″	5″	4″	3″	2′	1″	Seconds	Minutes

Co-tangent of 1 degree, or Tangent of 91 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds Minutes
		Tangent of 88 degrees, or Co-tangent of 178 degrees.										
20	0	11.536151	536224	536296	536369	536441	536514	536586	536659	536731	536804	50
	10	11.536876	536949	537021	537094	537166	537239	537312	537384	537457	537530	40
	20	11.537602	537675	537748	537820	537893	537966	538038	538111	538184	538257	30
	30	11.538329	538402	538475	538548	538621	538694	538766	538839	538912	538985	20
	40	11.539058	539131	539204	539277	539350	539423	539496	539569	539642	539715	10
	50	11.539788	539861	539934	540007	540080	540153	540226	540299	540372	540445	0.39
21	0	11.540519	540592	540665	540738	540811	540884	540958	541031	541104	541177	50
	10	11.541251	541324	541397	541471	541544	541617	541691	541764	541837	541911	40
	20	11.541984	542058	542131	542204	542278	542351	542425	542498	542572	542645	30
	30	11.542719	542792	542866	542939	543013	543087	543160	543234	543307	543381	20
	40	11.543455	543528	543602	543676	543749	543823	543897	543970	544044	544118	10
	50	11.544192	544266	544339	544413	544487	544561	544635	544708	544782	544856	0.38
22	0	11.544930	545004	545078	545152	545226	545300	545374	545448	545522	545596	50
	10	11.545670	545744	545818	545892	545966	546040	546114	546188	546262	546336	40
	20	11.546411	546485	546559	546633	546707	546782	546856	546930	547004	547078	30
	30	11.547153	547227	547301	547376	547450	547524	547599	547673	547747	547822	20
	40	11.547896	547971	548045	548119	548194	548268	548343	548417	548492	548566	10
	50	11.548641	548715	548790	548865	548939	549014	549088	549163	549238	549312	0.37
23	0	11.549387	549461	549536	549611	549686	549760	549835	549910	549985	550059	50
	10	11.550134	550209	550284	550358	550433	550508	550583	550658	550733	550808	40
	20	11.550883	550958	551032	551107	551182	551257	551332	551407	551482	551557	30
	30	11.551632	551707	551783	551858	551933	552008	552083	552158	552233	552308	20
	40	11.552384	552459	552534	552609	552684	552760	552835	552910	552985	553061	10
	50	11.553136	553211	553287	553362	553437	553513	553588	553663	553739	553814	0.36
24	0	11.553890	553965	554041	554116	554192	554267	554343	554418	554494	554569	50
	10	11.554645	554720	554796	554871	554947	555023	555098	555174	555250	555325	40
	20	11.555401	555477	555552	555628	555704	555780	555856	555931	556007	556083	30
	30	11.556159	556235	556310	556386	556462	556538	556614	556690	556766	556842	20
	40	11.556918	556994	557070	557146	557222	557298	557374	557450	557526	557602	10
	50	11.557678	557754	557830	557906	557983	558059	558135	558211	558287	558363	0.35
25	0	11.558440	558516	558592	558668	558745	558821	558897	558974	559050	559126	50
	10	11.559203	559279	559355	559432	559508	559585	559661	559738	559814	559890	40
	20	11.559967	560043	560120	560197	560273	560350	560426	560503	560579	560656	30
	30	11.560733	560809	560886	560963	561039	561116	561193	561269	561346	561423	20
	40	11.561500	561576	561653	561730	561807	561884	561960	562037	562114	562191	10
	50	11.562268	562345	562422	562499	562576	562653	562730	562807	562884	562961	0.34
26	0	11.563038	563115	563192	563269	563346	563423	563500	563577	563654	563732	50
	10	11.563809	563886	563963	564040	564118	564195	564272	564349	564427	564504	40
	20	11.564581	564659	564736	564813	564891	564968	565045	565123	565200	565278	30
	30	11.565355	565433	565510	565588	565665	565743	565820	565898	565975	566053	20
	40	11.566130	566208	566286	566363	566441	566518	566596	566674	566752	566829	10
	50	11.566907	566985	567062	567140	567218	567296	567374	567451	567529	567607	0.33
27	0	11.567685	567763	567841	567919	567997	568074	568152	568230	568308	568386	50
	10	11.568464	568542	568620	568698	568776	568855	568933	569011	569089	569167	40
	20	11.569245	569323	569401	569480	569558	569636	569714	569792	569871	569949	30
	30	11.570027	570106	570184	570262	570341	570419	570497	570576	570654	570732	20
	40	11.570811	570889	570968	571046	571125	571203	571282	571360	571439	571517	10
	50	11.571596	571674	571753	571832	571910	571989	572068	572146	572225	572304	0.32
28	0	11.572382	572461	572540	572619	572697	572776	572855	572934	573012	573091	50
	10	11.573170	573249	573328	573407	573486	573565	573644	573723	573801	573880	40
	20	11.573959	574038	574117	574197	574276	574355	574434	574513	574592	574671	30
	30	11.574750	574829	574908	574988	575067	575146	575225	575305	575384	575463	20
	40	11.575542	575622	575701	575780	575860	575939	576018	576098	576177	576257	10
	50	11.576336	576415	576495	576574	576654	576733	576813	576892	576972	577051	0.31
29	0	11.577131	577211	577290	577370	577449	577529	577609	577688	577768	577848	50
	10	11.577927	578007	578087	578167	578247	578326	578406	578486	578566	578646	40
	20	11.578725	578805	578885	578965	579045	579125	579205	579285	579365	579445	30
	30	11.579525	579605	579685	579765	579845	579925	580005	580085	580166	580246	20
	40	11.580326	580406	580486	580566	580647	580727	580807	580887	580968	581048	10
	50	11.581128	581209	581289	581369	581450	581530	581610	581691	581771	581852	0.30
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds Minutes
		Co-tangent of 1 degree, or Tangent of 91 degrees.										

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 88 degrees, or Co-tangent of 178 degrees.											
30	0	11.581932	582013	582093	582174	582254	582335	582415	582496	582576	582657	50	
	10	11.582737	582818	582899	582979	583060	583141	583221	583302	583383	583464	40	
	20	11.583544	583625	583706	583787	583867	583948	584029	584110	584191	584272	30	
	30	11.584353	584434	584515	584595	584676	584757	584838	584919	585000	585081	20	
	40	11.585163	585244	585325	585406	585487	585568	585649	585730	585811	585893	10	
	50	11.585974	586055	586136	586218	586299	586380	586461	586543	586624	586705	0	29
31	0	11.586787	586868	586950	587031	587112	587194	587275	587357	587438	587520	50	
	10	11.587601	587683	587764	587846	587927	588009	588091	588172	588254	588335	40	
	20	11.588417	588499	588581	588662	588744	588826	588907	588989	589071	589153	30	
	30	11.589235	589316	589398	589480	589562	589644	589726	589808	589890	589972	20	
	40	11.590054	590136	590218	590300	590382	590464	590546	590628	590710	590792	10	
	50	11.590874	590956	591038	591121	591203	591285	591367	591449	591532	591614	0	28
32	0	11.591696	591779	591861	591943	592026	592108	592190	592273	592355	592438	50	
	10	11.592520	592602	592685	592767	592850	592932	593015	593097	593180	593263	40	
	20	11.593345	593428	593510	593593	593676	593758	593841	593924	594006	594089	30	
	30	11.594172	594255	594338	594420	594503	594586	594669	594752	594835	594917	20	
	40	11.595000	595083	595166	595249	595332	595415	595498	595581	595664	595747	10	
	50	11.595830	595913	595996	596080	596163	596246	596329	596412	596495	596579	0	27
33	0	11.596662	596745	596828	596912	596995	597078	597162	597245	597328	597412	50	
	10	11.597495	597578	597662	597745	597829	597912	597996	598079	598163	598246	40	
	20	11.598330	598413	598497	598580	598664	598748	598831	598915	598999	599082	30	
	30	11.599166	599250	599334	599417	599501	599585	599669	599752	599836	599920	20	
	40	11.600004	600088	600172	600256	600340	600424	600508	600592	600676	600760	10	
	50	11.600844	600928	601012	601096	601180	601264	601348	601432	601516	601601	0	26
34	0	11.601685	601769	601853	601937	602022	602106	602190	602275	602359	602443	50	
	10	11.602528	602612	602696	602781	602865	602950	603034	603119	603203	603288	40	
	20	11.603372	603457	603541	603626	603710	603795	603880	603964	604049	604133	30	
	30	11.604218	604303	604388	604472	604557	604642	604727	604811	604896	604981	20	
	40	11.605066	605151	605236	605321	605405	605490	605575	605660	605745	605830	10	
	50	11.605915	606000	606085	606170	606256	606341	606426	606511	606596	606681	0	25
35	0	11.606766	606852	606937	607022	607107	607193	607278	607363	607448	607534	50	
	10	11.607619	607704	607790	607875	607961	608046	608132	608217	608303	608388	40	
	20	11.608474	608559	608645	608730	608816	608901	608987	609073	609158	609244	30	
	30	11.609330	609415	609501	609587	609673	609758	609844	609930	610016	610102	20	
	40	11.610187	610273	610359	610445	610531	610617	610703	610789	610875	610961	10	
	50	11.611047	611133	611219	611305	611391	611477	611563	611650	611736	611822	0	24
36	0	11.611908	611994	612081	612167	612253	612339	612426	612512	612598	612685	50	
	10	11.612771	612857	612944	613030	613117	613203	613290	613376	613463	613549	40	
	20	11.613636	613722	613809	613895	613982	614069	614155	614242	614329	614415	30	
	30	11.614502	614589	614675	614762	614849	614936	615023	615109	615196	615283	20	
	40	11.615370	615457	615544	615631	615718	615805	615892	615979	616066	616153	10	
	50	11.616240	616327	616414	616501	616588	616675	616763	616850	616937	617024	0	23
37	0	11.617111	617199	617286	617373	617460	617548	617635	617722	617810	617897	50	
	10	11.617985	618072	618160	618247	618334	618422	618509	618597	618685	618772	40	
	20	11.618860	618947	619035	619123	619210	619298	619386	619473	619561	619649	30	
	30	11.619737	619824	619912	620000	620088	620176	620263	620351	620439	620527	20	
	40	11.620615	620703	620791	620879	620967	621055	621143	621231	621319	621407	10	
	50	11.621495	621584	621672	621760	621848	621936	622025	622113	622201	622289	0	22
38	0	11.622378	622466	622554	622643	622731	622819	622908	622996	623085	623173	50	
	10	11.623262	623350	623439	623527	623616	623704	623793	623881	623970	624059	40	
	20	11.624147	624236	624325	624413	624502	624591	624680	624768	624857	624946	30	
	30	11.625035	625124	625213	625301	625390	625479	625568	625657	625746	625835	20	
	40	11.625924	626013	626102	626191	626280	626370	626459	626548	626637	626726	10	
	50	11.626815	626905	626994	627083	627172	627262	627351	627440	627530	627619	0	21
39	0	11.627708	627798	627887	627977	628066	628156	628245	628335	628424	628514	50	
	10	11.628603	628693	628782	628872	628962	629051	629141	629231	629321	629410	40	
	20	11.629500	629590	629680	629769	629859	629949	630039	630129	630219	630309	30	
	30	11.630399	630489	630578	630668	630759	630849	630939	631029	631119	631209	20	
	40	11.631299	631389	631479	631569	631660	631750	631840	631930	632021	632111	10	
	50	11.632201	632292	632382	632472	632563	632653	632744	632834	632924	633015	0	20
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 1 degree, or Tangent of 91 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 88 degrees, or Co-tangent of 178 degrees.											
40	0	11.633105	633196	633286	633377	633468	633558	633649	633739	633830	633921	50	
	10	11.634011	634102	634193	634284	634374	634465	634556	634647	634738	634829	40	
	20	11.634919	635010	635101	635192	635283	635374	635465	635556	635647	635738	30	
	30	11.635829	635920	636011	636103	636194	636285	636376	636467	636559	636650	20	
	40	11.636741	636832	636924	637015	637106	637198	637289	637380	637472	637563	10	
	50	11.637655	637746	637838	637929	638021	638112	638204	638295	638387	638479	0	19
41	0	11.638570	638662	638754	638845	638937	639029	639121	639212	639304	639396	50	
	10	11.639488	639580	639672	639763	639855	639947	640039	640131	640223	640315	40	
	20	11.640407	640499	640591	640683	640776	640868	640960	641052	641144	641236	30	
	30	11.641329	641421	641513	641605	641698	641790	641882	641975	642067	642160	20	
	40	11.642252	642344	642437	642529	642622	642714	642807	642900	642992	643085	10	
	50	11.643177	643270	643363	643455	643548	643641	643734	643826	643919	644012	0	18
42	0	11.644105	644198	644290	644383	644476	644569	644662	644755	644848	644941	50	
	10	11.645034	645127	645220	645313	645406	645499	645593	645686	645779	645872	40	
	20	11.645965	646059	646152	646245	646338	646432	646525	646618	646712	646805	30	
	30	11.646899	646992	647085	647179	647272	647366	647459	647553	647647	647740	20	
	40	11.647834	647927	648021	648115	648209	648302	648396	648490	648584	648677	10	
	50	11.648771	648865	648959	649053	649147	649241	649334	649428	649522	649616	0	17
43	0	11.649710	649805	649899	649993	650087	650181	650275	650369	650463	650558	50	
	10	11.650652	650746	650840	650935	651029	651123	651218	651312	651406	651501	40	
	20	11.651595	651690	651784	651879	651973	652068	652162	652257	652351	652446	30	
	30	11.652541	652635	652730	652825	652919	653014	653109	653204	653299	653393	20	
	40	11.653488	653583	653678	653773	653868	653963	654058	654153	654248	654343	10	
	50	11.654438	654533	654628	654723	654818	654913	655009	655104	655199	655294	0	16
44	0	11.655389	655485	655580	655675	655771	655866	655961	656057	656152	656248	50	
	10	11.656343	656439	656534	656630	656725	656821	656916	657012	657108	657203	40	
	20	11.657299	657395	657491	657586	657682	657778	657874	657969	658065	658161	30	
	30	11.658257	658353	658449	658545	658641	658737	658833	658929	659025	659121	20	
	40	11.659217	659313	659409	659506	659602	659698	659794	659890	659987	660083	10	
	50	11.660179	660276	660372	660468	660565	660661	660758	660854	660951	661047	0	15
45	0	11.661144	661240	661337	661433	661530	661627	661723	661820	661917	662013	50	
	10	11.662110	662207	662304	662401	662497	662594	662691	662788	662885	662982	40	
	20	11.663079	663176	663273	663370	663467	663564	663661	663758	663855	663952	30	
	30	11.664050	664147	664244	664341	664438	664536	664633	664730	664828	664925	20	
	40	11.665023	665120	665217	665315	665412	665510	665607	665705	665802	665900	10	
	50	11.665998	666095	666193	666291	666388	666486	666584	666682	666779	666877	0	14
46	0	11.666975	667073	667171	667269	667367	667465	667562	667660	667758	667857	50	
	10	11.667955	668053	668151	668249	668347	668445	668543	668642	668740	668838	40	
	20	11.668936	669035	669133	669231	669330	669428	669526	669625	669723	669822	30	
	30	11.669920	670019	670117	670216	670315	670413	670512	670610	670709	670808	20	
	40	11.670907	671005	671104	671203	671302	671400	671499	671598	671697	671796	10	
	50	11.671895	671994	672093	672192	672291	672390	672489	672588	672687	672787	0	13
47	0	11.672886	672985	673084	673183	673283	673382	673481	673581	673680	673779	50	
	10	11.673879	673978	674078	674177	674276	674376	674476	674575	674675	674774	40	
	20	11.674874	674974	675073	675173	675273	675372	675472	675572	675672	675772	30	
	30	11.675871	675971	676071	676171	676271	676371	676471	676571	676671	676771	20	
	40	11.676871	676971	677071	677172	677272	677372	677472	677573	677673	677773	10	
	50	11.677873	677974	678074	678174	678275	678375	678476	678576	678677	678777	0	12
48	0	11.678878	678978	679079	679180	679280	679381	679482	679582	679683	679784	50	
	10	11.679885	679985	680086	680187	680288	680389	680490	680591	680692	680793	40	
	20	11.680894	680995	681096	681197	681298	681399	681500	681601	681703	681804	30	
	30	11.681905	682006	682108	682209	682310	682412	682513	682615	682716	682817	20	
	40	11.682919	683020	683122	683224	683325	683427	683528	683630	683732	683833	10	
	50	11.683935	684037	684139	684240	684342	684444	684546	684648	684750	684852	0	11
49	0	11.684954	685056	685158	685260	685362	685464	685566	685668	685770	685872	50	
	10	11.685975	686077	686179	686281	686384	686486	686588	686691	686793	686896	40	
	20	11.686998	687101	687203	687306	687408	687511	687613	687716	687818	687921	30	
	30	11.688024	688127	688229	688332	688435	688538	688640	688743	688846	688949	20	
	40	11.689052	689155	689258	689361	689464	689567	689670	689773	689876	689979	10	
	50	11.690083	690186	690289	690392	690496	690599	690702	690806	690909	691012	0	10
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 1 degree, or Tangent of 91 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 88 degrees, or Co-tangent of 178 degrees.											
50	0	11.691116	691219	691323	691426	691530	691633	691737	691840	691944	692048	50	
	10	11.692151	692255	692359	692462	692566	692670	692774	692878	692982	693085	40	
	20	11.693189	693293	693397	693501	693605	693709	693813	693917	694022	694126	30	
	30	11.694230	694334	694438	694542	694647	694751	694855	694960	695064	695168	20	
	40	11.695273	695377	695482	695586	695691	695795	695900	696004	696109	696214	10	
	50	11.696318	696423	696528	696633	696737	696842	696947	697052	697157	697261	0	9
51	0	11.697366	697471	697576	697681	697786	697891	697996	698102	698207	698312	50	
	10	11.698417	698522	698627	698733	698838	698943	699049	699154	699259	699365	40	
	20	11.699470	699576	699681	699787	699892	699998	700103	700209	700314	700420	30	
	30	11.700526	700631	700737	700843	700949	701055	701160	701266	701372	701478	20	
	40	11.701584	701690	701796	701902	702008	702114	702220	702326	702432	702539	10	
	50	11.702645	702751	702857	702964	703070	703176	703283	703389	703495	703602	0	8
52	0	11.703708	703815	703921	704028	704134	704241	704348	704454	704561	704668	50	
	10	11.704774	704881	704988	705095	705201	705308	705415	705522	705629	705736	40	
	20	11.705843	705950	706057	706164	706271	706378	706485	706593	706700	706807	30	
	30	11.706914	707022	707129	707236	707343	707451	707558	707666	707773	707881	20	
	40	11.707988	708096	708203	708311	708418	708526	708634	708742	708849	708957	10	
	50	11.709065	709173	709280	709388	709496	709604	709712	709820	709928	710036	0	7
53	0	11.710144	710252	710360	710468	710576	710685	710793	710901	711009	711118	50	
	10	11.711226	711334	711443	711551	711660	711768	711876	711985	712093	712202	40	
	20	11.712311	712419	712528	712637	712745	712854	712963	713072	713180	713289	30	
	30	11.713398	713507	713616	713725	713834	713943	714052	714161	714270	714379	20	
	40	11.714488	714597	714706	714816	714925	715034	715143	715253	715362	715472	10	
	50	11.715581	715690	715800	715909	716019	716128	716238	716348	716457	716567	0	6
54	0	11.716677	716786	716896	717006	717116	717225	717335	717445	717555	717665	50	
	10	11.717775	717885	717995	718105	718215	718325	718435	718545	718656	718766	40	
	20	11.718876	718986	719097	719207	719317	719428	719538	719648	719759	719869	30	
	30	11.719980	720091	720201	720312	720422	720533	720644	720754	720865	720976	20	
	40	11.721087	721198	721308	721419	721530	721641	721752	721863	721974	722085	10	
	50	11.722196	722307	722419	722530	722641	722752	722863	722975	723086	723197	0	5
55	0	11.723309	723420	723532	723643	723754	723866	723978	724089	724201	724312	50	
	10	11.724424	724536	724647	724759	724871	724983	725095	725206	725318	725430	40	
	20	11.725542	725654	725766	725878	725990	726102	726214	726327	726439	726551	30	
	30	11.726663	726775	726888	727000	727112	727225	727337	727450	727562	727675	20	
	40	11.727787	727900	728012	728125	728237	728350	728463	728576	728688	728801	10	
	50	11.728914	729027	729140	729253	729365	729478	729591	729704	729817	729931	0	4
56	0	11.730044	730157	730270	730383	730496	730610	730723	730836	730950	731063	50	
	10	11.731176	731290	731403	731517	731630	731744	731857	731971	732085	732198	40	
	20	11.732312	732426	732540	732653	732767	732881	732995	733109	733223	733337	30	
	30	11.733451	733565	733679	733793	733907	734021	734135	734250	734364	734478	20	
	40	11.734592	734707	734821	734935	735050	735164	735279	735393	735508	735622	10	
	50	11.735737	735852	735966	736081	736196	736310	736425	736540	736655	736770	0	3
57	0	11.736885	737000	737115	737230	737345	737460	737575	737690	737805	737920	50	
	10	11.738035	738151	738266	738381	738497	738612	738727	738843	738958	739074	40	
	20	11.739189	739305	739420	739536	739651	739767	739883	739999	740114	740230	30	
	30	11.740346	740462	740578	740694	740810	740926	741042	741158	741274	741390	20	
	40	11.741506	741622	741738	741854	741971	742087	742203	742320	742436	742552	10	
	50	11.742669	742785	742902	743018	743135	743252	743368	743485	743602	743718	0	2
58	0	11.743835	743952	744069	744186	744302	744419	744536	744653	744770	744887	50	
	10	11.745004	745121	745239	745356	745473	745590	745707	745825	745942	746059	40	
	20	11.746177	746294	746412	746529	746647	746764	746882	746999	747117	747235	30	
	30	11.747352	747470	747588	747706	747824	747941	748059	748177	748295	748413	20	
	40	11.748531	748649	748767	748885	749004	749122	749240	749358	749477	749595	10	
	50	11.749713	749832	749950	750068	750187	750305	750424	750543	750661	750780	0	1
59	0	11.750898	751017	751136	751255	751373	751492	751611	751730	751849	751968	50	
	10	11.752087	752206	752325	752444	752563	752682	752802	752921	753040	753159	40	
	20	11.753279	753398	753517	753637	753756	753876	753995	754115	754234	754354	30	
	30	11.754474	754593	754713	754833	754953	755072	755192	755312	755432	755552	20	
	40	11.755672	755792	755912	756032	756152	756272	756392	756513	756633	756753	10	
	50	11.756874	756994	757114	757235	757355	757476	757596	757717	757837	757958	0	0
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 1 degree, or Tangent of 91 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 89 degrees, or Co-tangent of 179 degrees.											
0	0	11.758078	758199	758320	758441	758561	758682	758803	758924	759045	759166	50	
	10	11.759287	759408	759529	759650	759771	759892	760013	760135	760256	760377	40	
	20	11.760498	760620	760741	760863	760984	761106	761227	761349	761470	761592	30	
	30	11.761713	761835	761957	762079	762200	762322	762444	762566	762688	762810	20	
	40	11.762932	763054	763176	763298	763420	763542	763665	763787	763909	764032	10	
	50	11.764154	764276	764399	764521	764644	764766	764889	765011	765134	765256	0	59
1	0	11.765379	765502	765625	765747	765870	765993	766116	766239	766362	766485	50	
	10	11.766608	766731	766854	766977	767100	767224	767347	767470	767594	767717	40	
	20	11.767840	767964	768087	768211	768334	768458	768581	768705	768829	768952	30	
	30	11.769076	769200	769324	769447	769571	769695	769819	769943	770067	770191	20	
	40	11.770315	770439	770564	770688	770812	770936	771061	771185	771309	771434	10	
	50	11.771558	771683	771807	771932	772056	772181	772306	772430	772555	772680	0	58
2	0	11.772805	772929	773054	773179	773304	773429	773554	773679	773804	773929	50	
	10	11.774055	774180	774305	774430	774556	774681	774806	774932	775057	775183	40	
	20	11.775308	775434	775559	775685	775811	775936	776062	776188	776314	776440	30	
	30	11.776565	776691	776817	776943	777069	777195	777322	777448	777574	777700	20	
	40	11.777826	777953	778079	778205	778332	778458	778585	778711	778838	778964	10	
	50	11.779091	779218	779344	779471	779598	779725	779851	779978	780105	780232	0	57
3	0	11.780359	780486	780613	780740	780868	780995	781122	781249	781376	781504	50	
	10	11.781631	781759	781886	782013	782141	782269	782396	782524	782651	782779	40	
	20	11.782907	783035	783162	783290	783418	783546	783674	783802	783930	784058	30	
	30	11.784186	784314	784443	784571	784699	784827	784956	785084	785213	785341	20	
	40	11.785470	785598	785727	785855	785984	786113	786241	786370	786499	786628	10	
	50	11.786757	786885	787014	787143	787272	787401	787531	787660	787789	787918	0	56
4	0	11.788047	788177	788306	788435	788565	788694	788824	788953	789083	789212	50	
	10	11.789342	789472	789601	789731	789861	789991	790121	790251	790381	790511	40	
	20	11.790641	790771	790901	791031	791161	791291	791422	791552	791682	791813	30	
	30	11.791943	792074	792204	792335	792465	792596	792726	792857	792988	793119	20	
	40	11.793249	793380	793511	793642	793773	793904	794035	794166	794297	794429	10	
	50	11.794560	794691	794822	794954	795085	795216	795348	795479	795611	795742	0	55
5	0	11.795874	796006	796137	796269	796401	796533	796665	796796	796928	797060	50	
	10	11.797192	797324	797456	797589	797721	797853	797985	798118	798250	798382	40	
	20	11.798515	798647	798780	798912	799045	799177	799310	799443	799575	799708	30	
	30	11.799841	799974	800107	800240	800373	800506	800639	800772	800905	801038	20	
	40	11.801171	801305	801438	801571	801705	801838	801972	802105	802239	802372	10	
	50	11.802506	802639	802773	802907	803041	803175	803308	803442	803576	803710	0	54
6	0	11.803844	803978	804113	804247	804381	804515	804649	804784	804918	805053	50	
	10	11.805187	805322	805456	805591	805725	805860	805995	806129	806264	806399	40	
	20	11.806534	806669	806804	806939	807074	807209	807344	807479	807614	807750	30	
	30	11.807885	808020	808156	808291	808427	808562	808698	808833	808969	809105	20	
	40	11.809240	809376	809512	809648	809784	809919	810055	810191	810328	810464	10	
	50	11.810600	810736	810872	811008	811145	811281	811418	811554	811690	811827	0	53
7	0	11.811964	812100	812237	812374	812510	812647	812784	812921	813058	813195	50	
	10	11.813332	813469	813606	813743	813880	814017	814155	814292	814429	814567	40	
	20	11.814704	814841	814979	815117	815254	815392	815530	815667	815805	815943	30	
	30	11.816081	816219	816357	816495	816633	816771	816909	817047	817185	817324	20	
	40	11.817462	817600	817739	817877	818016	818154	818293	818431	818570	818709	10	
	50	11.818847	818986	819125	819264	819403	819542	819681	819820	819959	820098	0	52
8	0	11.820237	820377	820516	820655	820795	820934	821073	821213	821353	821492	50	
	10	11.821632	821771	821911	822051	822191	822331	822471	822611	822751	822891	40	
	20	11.823031	823171	823311	823451	823592	823732	823872	824013	824153	824294	30	
	30	11.824434	824575	824715	824856	824997	825138	825278	825419	825560	825701	20	
	40	11.825842	825983	826124	826265	826407	826548	826689	826830	826972	827113	10	
	50	11.827255	827396	827538	827679	827821	827963	828104	828246	828388	828530	0	51
9	0	11.828672	828814	828956	829098	829240	829382	829524	829667	829809	829951	50	
	10	11.830094	830236	830379	830521	830664	830806	830949	831092	831234	831377	40	
	20	11.831520	831663	831806	831949	832092	832235	832378	832521	832665	832808	30	
	30	11.832951	833095	833238	833381	833525	833669	833812	833956	834100	834243	20	
	40	11.834387	834531	834675	834819	834963	835107	835251	835395	835539	835683	10	
	50	11.835828	835972	836116	836261	836405	836550	836694	836839	836984	837128	0	50
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes
		Co-tangent of 0 degree, or Tangent of 90 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 89 degrees, or Co-tangent of 179 degrees.											
0	0	11.837273	837418	837563	837708	837853	837998	838143	838288	838433	838578	50	
	10	11.838723	838869	839014	839160	839305	839450	839596	839742	839887	840033	40	
	20	11.840179	840324	840470	840616	840762	840908	841054	841200	841346	841492	30	
	30	11.841639	841785	841931	842078	842224	842370	842517	842664	842810	842957	20	
	40	11.843104	843250	843397	843544	843691	843838	843985	844132	844279	844426	10	
	50	11.844573	844721	844868	845015	845163	845310	845458	845605	845753	845901	0	49
1	0	11.846048	846196	846344	846492	846640	846788	846936	847084	847232	847380	50	
	10	11.847528	847677	847825	847973	848122	848270	848419	848567	848716	848864	40	
	20	11.849013	849162	849311	849460	849609	849758	849907	850056	850205	850354	30	
	30	11.850503	850653	850802	850951	851101	851250	851400	851549	851699	851849	20	
	40	11.851998	852148	852298	852448	852598	852748	852898	853048	853198	853349	10	
	50	11.853499	853649	853800	853950	854100	854251	854402	854552	854703	854854	0	48
2	0	11.855004	855155	855306	855457	855608	855759	855910	856061	856213	856364	50	
	10	11.856515	856667	856818	856969	857121	857273	857424	857576	857728	857879	40	
	20	11.858031	858183	858335	858487	858639	858791	858943	859096	859248	859400	30	
	30	11.859553	859705	859857	860010	860163	860315	860468	860621	860774	860926	20	
	40	11.861079	861232	861385	861538	861691	861845	861998	862151	862305	862458	10	
	50	11.862611	862765	862918	863072	863226	863379	863533	863687	863841	863995	0	47
3	0	11.864149	864303	864457	864611	864765	864920	865074	865228	865383	865537	50	
	10	11.865692	865846	866001	866156	866311	866465	866620	866775	866930	867085	40	
	20	11.867240	867396	867551	867706	867861	868017	868172	868328	868483	868639	30	
	30	11.868794	868950	869106	869262	869418	869573	869729	869886	870042	870198	20	
	40	11.870354	870510	870667	870823	870979	871136	871292	871449	871606	871762	10	
	50	11.871919	872076	872233	872390	872547	872704	872861	873018	873175	873333	0	46
4	0	11.873490	873647	873805	873962	874120	874278	874435	874593	874751	874909	50	
	10	11.875067	875225	875383	875541	875699	875857	876015	876174	876332	876490	40	
	20	11.876649	876808	876966	877125	877284	877442	877601	877760	877919	878078	30	
	30	11.878237	878396	878555	878715	878874	879033	879193	879352	879512	879671	20	
	40	11.879831	879991	880150	880310	880470	880630	880790	880950	881110	881271	10	
	50	11.881431	881591	881751	881912	882072	882233	882394	882554	882715	882876	0	45
5	0	11.883037	883197	883358	883519	883680	883842	884003	884164	884325	884487	50	
	10	11.884648	884810	884971	885133	885295	885456	885618	885780	885942	886104	40	
	20	11.886266	886428	886590	886752	886915	887077	887239	887402	887564	887727	30	
	30	11.887890	888052	888215	888378	888541	888704	888867	889030	889193	889356	20	
	40	11.889519	889683	889846	890010	890173	890337	890500	890664	890828	890991	10	
	50	11.891155	891319	891483	891647	891811	891976	892140	892304	892469	892633	0	44
6	0	11.892797	892962	893127	893291	893456	893621	893786	893951	894116	894281	50	
	10	11.894446	894611	894776	894942	895107	895272	895438	895603	895769	895935	40	
	20	11.896100	896266	896432	896598	896764	896930	897096	897262	897429	897595	30	
	30	11.897761	897928	898094	898261	898428	898594	898761	898928	899095	899262	20	
	40	11.899429	899596	899763	899930	900097	900265	900432	900600	900767	900935	10	
	50	11.901102	901270	901438	901606	901774	901942	902110	902278	902446	902614	0	43
7	0	11.902783	902951	903120	903288	903457	903625	903794	903963	904132	904301	50	
	10	11.904469	904639	904808	904977	905146	905315	905485	905654	905824	905993	40	
	20	11.906163	906333	906502	906672	906842	907012	907182	907352	907522	907692	30	
	30	11.907863	908033	908204	908374	908545	908715	908886	909057	909228	909398	20	
	40	11.909569	909740	909912	910083	910254	910425	910597	910768	910940	911111	10	
	50	11.911283	911454	911626	911798	911970	912142	912314	912486	912658	912831	0	42
8	0	11.913003	913175	913348	913520	913693	913866	914038	914211	914384	914557	50	
	10	11.914730	914903	915076	915249	915423	915596	915769	915943	916116	916290	40	
	20	11.916464	916638	916811	916985	917159	917333	917507	917682	917856	918030	30	
	30	11.918205	918379	918554	918728	918903	919078	919252	919427	919602	919777	20	
	40	11.919952	920128	920303	920478	920654	920829	921005	921180	921356	921532	10	
	50	11.921707	921883	922059	922235	922411	922587	922764	922940	923116	923293	0	41
9	0	11.923469	923646	923823	923999	924176	924353	924530	924707	924884	925061	50	
	10	11.925239	925416	925593	925771	925948	926126	926304	926481	926659	926837	40	
	20	11.927015	927193	927371	927549	927728	927906	928084	928263	928441	928620	30	
	30	11.928799	928977	929156	929335	929514	929693	929872	930052	930231	930410	20	
	40	11.930590	930769	930949	931129	931308	931488	931668	931848	932028	932208	10	
	50	11.932388	932569	932749	932929	933110	933290	933471	933652	933832	934013	0	40
Minutes	Seconds	10″	9″	8″	7″	6″	5′	4″	3″	2′	1″	Seconds	Minutes
		Co-tangent of 0 degree, or Tangent of 90 degrees.											

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LOGARITHMIC TANGENTS.

Tangent of 89 degrees, or Co-tangent of 179 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
20	0	11.934194	934375	934556	934737	934919	935100	935281	935463	935644	935826	50	
	10	11.936008	936190	936371	936553	936735	936917	937099	937282	937464	937646	40	
	20	11.937829	938011	938194	938377	938559	938742	938925	939108	939291	939474	30	
	30	11.939658	939841	940024	940208	940391	940575	940759	940942	941126	941310	20	
	40	11.941494	941678	941862	942047	942231	942415	942600	942784	942969	943154	10	
	50	11.943338	943523	943708	943893	944078	944264	944449	944634	944820	945005	0	39
21	0	11.945191	945376	945562	945748	945934	946120	946306	946492	946678	946864	50	
	10	11.947051	947237	947424	947610	947797	947984	948171	948358	948545	948732	40	
	20	11.948919	949106	949293	949481	949668	949856	950044	950231	950419	950607	30	
	30	11.950795	950983	951171	951359	951548	951736	951925	952113	952302	952490	20	
	40	11.952679	952868	953057	953246	953435	953624	953814	954003	954193	954382	10	
	50	11.954572	954761	954951	955141	955331	955521	955711	955901	956092	956282	0	38
22	0	11.956473	956663	956854	957044	957235	957426	957617	957808	957999	958190	50	
	10	11.958382	958573	958765	958956	959148	959339	959531	959723	959915	960107	40	
	20	11.960299	960491	960684	960876	961069	961261	961454	961647	961839	962032	30	
	30	11.962225	962418	962612	962805	962998	963192	963385	963579	963772	963966	20	
	40	11.964160	964354	964548	964742	964936	965131	965325	965519	965714	965909	10	
	50	11.966103	966298	966493	966688	966883	967078	967273	967469	967664	967860	0	37
23	0	11.968055	968251	968447	968643	968839	969035	969231	969427	969623	969820	50	
	10	11.970016	970213	970409	970606	970803	971000	971197	971394	971591	971789	40	
	20	11.971986	972183	972381	972579	972776	972974	973172	973370	973568	973766	30	
	30	11.973965	974163	974361	974560	974759	974957	975156	975355	975554	975753	20	
	40	11.975952	976152	976351	976551	976750	976950	977149	977349	977549	977749	10	
	50	11.977949	978150	978350	978550	978751	978951	979152	979353	979553	979754	0	36
24	0	11.979955	980157	980358	980559	980761	980962	981164	981365	981567	981769	50	
	10	11.981971	982173	982375	982577	982780	982982	983185	983387	983590	983793	40	
	20	11.983996	984199	984402	984605	984808	985012	985215	985419	985622	985826	30	
	30	11.986030	986234	986438	986642	986846	987051	987255	987460	987664	987869	20	
	40	11.988074	988279	988484	988689	988894	989099	989305	989510	989716	989922	10	
	50	11.990127	990333	990539	990745	990952	991158	991364	991571	991777	991984	0	35
25	0	11.992191	992398	992605	992812	993019	993226	993433	993641	993849	994056	50	
	10	11.994264	994472	994680	994888	995096	995304	995513	995721	995930	996138	40	
	20	11.996347	996556	996765	996974	997183	997392	997602	997811	998021	998230	30	
	30	11.998440	998650	998860	999070	999280	999491	999701	999911	000122	000333	20	
	40	12.000543	000754	000965	001176	001388	001599	001810	002022	002233	002445	10	
	50	12.002657	002869	003081	003293	003505	003718	003930	004143	004355	004568	0	34
26	0	12.004781	004994	005207	005420	005633	005847	006060	006274	006487	006701	50	
	10	12.006915	007129	007343	007557	007772	007986	008201	008415	008630	008845	40	
	20	12.009060	009275	009490	009705	009921	010136	010352	010568	010783	010999	30	
	30	12.011215	011431	011648	011864	012080	012297	012514	012730	012947	013164	20	
	40	12.013381	013599	013816	014033	014251	014469	014686	014904	015122	015340	10	
	50	12.015559	015777	015995	016214	016432	016651	016870	017089	017308	017527	0	33
27	0	12.017747	017966	018185	018405	018625	018845	019065	019285	019505	019725	50	
	10	12.019946	020166	020387	020608	020828	021049	021270	021492	021713	021934	40	
	20	12.022156	022378	022599	022821	023043	023265	023488	023710	023932	024155	30	
	30	12.024378	024600	024823	025046	025269	025493	025716	025939	026163	026387	20	
	40	12.026611	026834	027059	027282	027507	027731	027956	028181	028405	028630	10	
	50	12.028855	029080	029305	029531	029756	029982	030207	030433	030659	030885	0	32
28	0	12.031111	031338	031564	031790	032017	032244	032471	032698	032925	033152	50	
	10	12.033379	033607	033834	034062	034290	034518	034746	034974	035202	035431	40	
	20	12.035659	035888	036117	036346	036575	036804	037033	037262	037492	037721	30	
	30	12.037951	038181	038411	038641	038871	039102	039332	039563	039793	040024	20	
	40	12.040255	040486	040717	040949	041180	041412	041644	041875	042107	042339	10	
	50	12.042572	042804	043036	043269	043502	043734	043967	044200	044434	044667	0	31
29	0	12.044900	045134	045368	045601	045835	046069	046304	046538	046772	047007	50	
	10	12.047242	047477	047711	047947	048182	048417	048653	048888	049124	049360	40	
	20	12.049596	049832	050068	050304	050541	050778	051014	051251	051488	051725	30	
	30	12.051963	052200	052438	052675	052913	053151	053389	053627	053865	054104	20	
	40	12.054342	054581	054820	055059	055298	055537	055777	056016	056256	056495	10	
	50	12.056735	056975	057216	057456	057696	057937	058177	058418	058659	058900	0	30
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1	Seconds	Minutes

Co-tangent of 0 degree, or Tangent of 90 degrees.

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LOGARITHMIC TANGENTS.

Tangent of 89 degrees, or Co-tangent of 179 degrees.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
30	0	12.059142	059383	059624	059866	060108	060350	060592	060834	061076	061319	50	
	10	12.061561	061804	062047	062290	062533	062776	063019	063263	063507	063750	40	
	20	12.063994	064238	064483	064727	064971	065216	065461	065706	065951	066196	30	
	30	12.066441	066687	066932	067178	067424	067670	067916	068162	068409	068655	20	
	40	12.068902	069149	069396	069643	069890	070137	070385	070633	070881	071129	10	
	50	12.071377	071625	071873	072122	072370	072619	072868	073117	073367	073616	0	29
31	0	12.073866	074115	074365	074615	074865	075115	075366	075616	075867	076118	50	
	10	12.076369	076620	076871	077123	077374	077626	077878	078130	078382	078634	40	
	20	12.078887	079139	079392	079645	079898	080151	080404	080658	080911	081165	30	
	30	12.081419	081673	081927	082182	082436	082691	082946	083201	083456	083711	20	
	40	12.083966	084222	084478	084733	084989	085246	085502	085758	086015	086272	10	
	50	12.086529	086786	087043	087300	087558	087816	088073	088331	088589	088848	0	28
32	0	12.089106	089365	089624	089882	090142	090401	090660	090920	091179	091439	50	
	10	12.091699	091959	092220	092480	092741	093001	093262	093523	093785	094046	40	
	20	12.094308	094569	094831	095093	095355	095618	095880	096143	096406	096669	30	
	30	12.096932	097195	097459	097722	097986	098250	098514	098778	099043	099307	20	
	40	12.099572	099837	100102	100367	100633	100898	101164	101430	101696	101962	10	
	50	12.102228	102495	102762	103029	103296	103563	103830	104098	104365	104633	0	27
33	0	12.104901	105169	105438	105706	105975	106244	106513	106782	107051	107321	50	
	10	12.107590	107860	108130	108400	108671	108941	109212	109483	109754	110025	40	
	20	12.110296	110568	110840	111111	111384	111656	111928	112201	112473	112746	30	
	30	12.113019	113293	113566	113840	114113	114387	114661	114936	115210	115485	20	
	40	12.115760	116034	116310	116585	116860	117136	117412	117688	117964	118241	10	
	50	12.118517	118794	119071	119348	119625	119902	120180	120458	120736	121014	0	26
34	0	12.121292	121571	121849	122128	122407	122686	122966	123245	123525	123805	50	
	10	12.124085	124366	124646	124927	125207	125488	125770	126051	126333	126614	40	
	20	12.126896	127178	127461	127743	128026	128309	128592	128875	129158	129442	30	
	30	12.129726	130010	130294	130578	130863	131147	131432	131717	132003	132288	20	
	40	12.132574	132859	133145	133432	133718	134005	134291	134578	134866	135153	10	
	50	12.135440	135728	136016	136304	136592	136881	137170	137458	137747	138037	0	25
35	0	12.138326	138616	138906	139196	139486	139776	140067	140358	140649	140940	50	
	10	12.141231	141523	141815	142107	142399	142691	142984	143276	143569	143863	40	
	20	12.144156	144449	144743	145037	145331	145626	145920	146215	146510	146805	30	
	30	12.147100	147396	147692	147988	148284	148580	148877	149173	149470	149768	20	
	40	12.150065	150363	150660	150958	151256	151555	151853	152152	152451	152751	10	
	50	12.153050	153350	153649	153949	154250	154550	154851	155152	155453	155754	0	24
36	0	12.156056	156357	156659	156961	157264	157566	157869	158172	158475	158778	50	
	10	12.159082	159386	159690	159994	160299	160603	160908	161213	161519	161824	40	
	20	12.162130	162436	162742	163048	163355	163662	163969	164276	164584	164891	30	
	30	12.165199	165507	165816	166124	166433	166742	167051	167361	167670	167980	20	
	40	12.168290	168601	168911	169222	169533	169844	170156	170467	170779	171091	10	
	50	12.171404	171716	172029	172342	172655	172969	173282	173596	173911	174225	0	23
37	0	12.174540	174854	175169	175485	175800	176116	176432	176748	177065	177381	50	
	10	12.177698	178015	178333	178650	178968	179286	179604	179923	180242	180561	40	
	20	12.180880	181199	181519	181839	182159	182480	182800	183121	183442	183764	30	
	30	12.184085	184407	184729	185051	185374	185697	186020	186343	186666	186990	20	
	40	12.187314	187638	187963	188288	188613	188938	189263	189589	189915	190241	10	
	50	12.190567	190894	191221	191548	191876	192203	192531	192859	193188	193516	0	22
38	0	12.193845	194174	194504	194833	195163	195493	195824	196154	196485	196817	50	
	10	12.197148	197480	197812	198144	198476	198809	199142	199475	199808	200142	40	
	20	12.200476	200810	201145	201479	201814	202150	202485	202821	203157	203493	30	
	30	12.203830	204167	204504	204841	205178	205516	205854	206193	206531	206870	20	
	40	12.207210	207549	207889	208229	208569	208909	209250	209591	209932	210274	10	
	50	12.210616	210958	211300	211643	211986	212329	212673	213016	213360	213705	0	21
39	0	12.214049	214394	214739	215084	215430	215776	216122	216469	216815	217162	50	
	10	12.217510	217857	218205	218553	218902	219250	219599	219949	220298	220648	40	
	20	12.220998	221349	221699	222050	222401	222753	223105	223457	223809	224162	30	
	30	12.224515	224868	225222	225575	225929	226284	226639	226994	227349	227704	20	
	40	12.228060	228416	228773	229129	229486	229844	230201	230559	230917	231276	10	
	50	12.231635	231994	232353	232713	233073	233433	233794	234155	234516	234877	0	20
Minutes	Seconds	10″	9″	8″	7″	6″	5″	4″	3″	2″	1″	Seconds	Minutes

Co-tangent of 0 degree, or Tangent of 90 degrees.

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	Seconds	Minutes
		Tangent of 89 degrees, or Co-tangent of 179 degrees.											
40	0	12. 235239	235601	235963	236326	236689	237052	237416	237780	238144	238508	50	
	10	12. 238873	239238	239604	239970	240336	240702	241069	241436	241803	242170	40	
	20	12. 242538	242907	243275	243644	244013	244383	244752	245122	245493	245864	30	
	30	12. 246235	246606	246978	247350	247722	248095	248467	248841	249214	249588	20	
	40	12. 249963	250337	250712	251087	251463	251839	252215	252591	252968	253345	10	
	50	12. 253723	254101	254479	254857	255236	255615	255995	256374	256755	257135	0	19
41	0	12. 257516	257897	258278	258660	259042	259425	259808	260191	260574	260958	50	
	10	12. 261342	261727	262112	262497	262882	263268	263654	264041	264428	264815	40	
	20	12. 265203	265591	265979	266368	266757	267146	267536	267926	268316	268707	30	
	30	12. 269098	269489	269881	270273	270666	271059	271452	271845	272239	272634	20	
	40	12. 273028	273423	273819	274214	274610	275007	275404	275801	276198	276596	10	
	50	12. 276995	277393	277792	278192	278591	278991	279392	279793	280194	280595	0	18
42	0	12. 280997	281400	281802	282205	282609	283013	283417	283821	284226	284632	50	
	10	12. 285037	285443	285850	286257	286664	287072	287480	287888	288297	288706	40	
	20	12. 289115	289525	289936	290346	290757	291169	291581	291993	292406	292819	30	
	30	12. 293232	293646	294060	294475	294890	295305	295721	296137	296554	296971	20	
	40	12. 297388	297806	298224	298643	299062	299481	299901	300321	300742	301163	10	
	50	12. 301584	302006	302428	302851	303274	303698	304122	304546	304971	305396	0	17
43	0	12. 305821	306247	306674	307101	307528	307956	308384	308812	309241	309670	50	
	10	12. 310100	310530	310961	311392	311824	312256	312688	313121	313554	313988	40	
	20	12. 314422	314856	315291	315727	316162	316599	317035	317472	317910	318348	30	
	30	12. 318787	319225	319665	320105	320545	320986	321427	321868	322310	322753	20	
	40	12. 323196	323639	324083	324527	324972	325417	325863	326309	326756	327203	10	
	50	12. 327650	328098	328547	328995	329445	329895	330345	330796	331247	331699	0	16
44	0	12. 332151	332603	333056	333510	333964	334419	334874	335329	335785	336241	50	
	10	12. 336698	337156	337614	338072	338531	338990	339450	339910	340371	340832	40	
	20	12. 341294	341756	342219	342683	343146	343610	344075	344540	345006	345472	30	
	30	12. 345939	346406	346874	347342	347811	348280	348750	349220	349691	350163	20	
	40	12. 350634	351107	351580	352053	352527	353001	353476	353951	354427	354904	10	
	50	12. 355381	355858	356336	356815	357294	357774	358254	358735	359216	359698	0	15
45	0	12. 360180	360663	361146	361630	362114	362599	363085	363571	364058	364545	50	
	10	12. 365032	365521	366009	366499	366989	367479	367970	368462	368954	369447	40	
	20	12. 369940	370434	370928	371423	371918	372414	372911	373408	373906	374404	30	
	30	12. 374903	375403	375903	376403	376905	377406	377909	378412	378915	379419	20	
	40	12. 379924	380429	380935	381442	381949	382456	382965	383474	383983	384493	10	
	50	12. 385004	385515	386027	386539	387052	387566	388080	388595	389111	389627	0	14
46	0	12. 390143	390661	391179	391697	392216	392736	393257	393778	394299	394822	50	
	10	12. 395345	395868	396392	396917	397443	397969	398496	399023	399551	400080	40	
	20	12. 400609	401139	401670	402201	402733	403265	403798	404332	404867	405402	30	
	30	12. 405938	406474	407012	407549	408088	408627	409167	409707	410249	410790	20	
	40	12. 411333	411876	412420	412965	413510	414056	414602	415150	415698	416246	10	
	50	12. 416796	417346	417897	418448	419000	419553	420107	420661	421216	421772	0	13
47	0	12. 422328	422886	423443	424002	424561	425121	425682	426244	426806	427369	50	
	10	12. 427932	428497	429062	429628	430194	430762	431330	431899	432468	433038	40	
	20	12. 433610	434181	434754	435327	435901	436476	437052	437628	438205	438783	30	
	30	12. 439362	439941	440522	441103	441684	442267	442850	443434	444019	444605	20	
	40	12. 445192	445779	446367	446956	447545	448136	448727	449319	449912	450506	10	
	50	12. 451100	451696	452292	452889	453487	454085	454685	455285	455886	456488	0	12
48	0	12. 457091	457694	458299	458904	459510	460117	460725	461334	461943	462554	50	
	10	12. 463165	463777	464390	465004	465619	466234	466851	467468	468086	468705	40	
	20	12. 469325	469946	470568	471191	471814	472439	473064	473690	474317	474945	30	
	30	12. 475574	476204	476835	477467	478099	478733	479367	480003	480639	481276	20	
	40	12. 481915	482554	483194	483835	484477	485120	485764	486408	487054	487701	10	
	50	12. 488349	488997	489647	490298	490949	491602	492256	492910	493566	494222	0	11
49	0	12. 494880	495538	496198	496858	497520	498182	498846	499510	500176	500843	50	
	10	12. 501510	502179	502849	503519	504191	504864	505538	506213	506889	507566	40	
	20	12. 508244	508923	509603	510284	510967	511650	512334	513020	513707	514394	30	
	30	12. 515083	515773	516464	517156	517849	518544	519239	519936	520633	521332	20	
	40	12. 522032	522733	523435	524139	524843	525549	526255	526963	527672	528383	10	
	50	12. 529094	529807	530520	531235	531951	532668	533387	534107	534827	535549	0	10
Minutes	Seconds	10′	9′	8′	7′	6′	5′	4′	3′	2′	1′	Seconds	Minutes
		Co-tangent of 0 degree, or Tangent of 90 degrees.											

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LOGARITHMIC TANGENTS.

Minutes	Seconds	0″	1″	2″	3″	4″	5″	6″	7″	8″	9″	Seconds	Minutes
		Tangent of 89 degrees, or Co-tangent of 179 degrees.											
50	0	12.536273	536997	537723	538450	539178	539907	540637	541369	542102	542836	50	
	10	12.543572	544309	545047	545786	546526	547268	548011	548755	549501	550248	40	
	20	12.550996	551745	552496	553248	554001	554756	555512	556269	557028	557788	30	
	30	12.558549	559312	560076	560841	561608	562376	563145	563916	564688	565461	20	
	40	12.566236	567012	567790	568569	569349	570131	570914	571699	572485	573272	10	
	50	12.574061	574852	575644	576437	577231	578028	578825	579624	580425	581227	0	9
51	0	12.582030	582835	583642	584450	585259	586070	586883	587697	588512	589330	50	
	10	12.590148	590968	591790	592614	593438	594265	595093	595922	596754	597586	40	
	20	12.598421	599257	600094	600934	601774	602617	603461	604307	605154	606003	30	
	30	12.606854	607706	608560	609416	610274	611133	611994	612856	613721	614587	20	
	40	12.615454	616324	617195	618068	618943	619819	620697	621577	622459	623343	10	
	50	12.624228	625115	626004	626895	627788	628683	629579	630477	631377	632279	0	8
52	0	12.633183	634089	634996	635906	636817	637731	638646	639563	640482	641403	50	
	10	12.642326	643251	644178	645107	646038	646971	647906	648843	649782	650723	40	
	20	12.651667	652612	653559	654508	655460	656413	657369	658326	659286	660248	30	
	30	12.661212	662178	663146	664117	665090	666064	667041	668021	669002	669986	20	
	40	12.670972	671960	672950	673943	674938	675935	676935	677937	678941	679947	10	
	50	12.680956	681967	682981	683997	685015	686036	687059	688084	689112	690142	0	7
53	0	12.691175	692210	693248	694288	695331	696376	697424	698474	699527	700583	50	
	10	12.701641	702701	703764	704830	705898	706970	708043	709119	710198	711280	40	
	20	12.712365	713452	714541	715634	716729	717827	718928	720032	721138	722248	30	
	30	12.723360	724475	725593	726714	727837	728964	730093	731226	732361	733500	20	
	40	12.734641	735785	736933	738083	739237	740393	741553	742716	743882	745051	10	
	50	12.746223	747398	748577	749759	750944	752132	753323	754518	755716	756917	0	6
54	0	12.758122	759330	760542	761756	762975	764196	765421	766650	767882	769118	50	
	10	12.770357	771599	772845	774095	775349	776606	777866	779131	780399	781670	40	
	20	12.782946	784225	785508	786795	788085	789380	790678	791980	793287	794597	30	
	30	12.795911	797229	798551	799877	801207	802541	803880	805222	806569	807920	20	
	40	12.809275	810634	811998	813365	814738	816114	817495	818880	820270	821664	10	
	50	12.823063	824466	825874	827286	828703	830125	831551	832982	834418	835858	0	5
55	0	12.837304	838754	840209	841668	843133	844603	846077	847557	849042	850532	50	
	10	12.852027	853527	855032	856543	858059	859580	861106	862638	864176	865718	40	
	20	12.867267	868821	870380	871945	873516	875092	876674	878262	879856	881456	30	
	30	12.883061	884673	886290	887914	889543	891179	892821	894469	896124	897784	20	
	40	12.899452	901125	902805	904492	906185	907885	909591	911304	913024	914751	10	
	50	12.916485	918226	919973	921728	923490	925259	927035	928819	930610	932408	0	4
56	0	12.934214	936027	937848	939677	941513	943357	945209	947069	948937	950813	50	
	10	12.952697	954589	956490	958399	960316	962242	964177	966120	968072	970033	40	
	20	12.972002	973981	975968	977965	979971	981986	984011	986045	988089	990142	30	
	30	12.992206	994279	996362	998455	000558	002671	004795	006929	009074	011229	20	
	40	13.013395	015572	017760	019959	022169	024390	026623	028868	031124	033392	10	
	50	13.035671	037963	040267	042583	044912	047253	049607	051974	054354	056746	0	3
57	0	13.059152	061572	064005	066452	068912	071387	073876	076379	078897	081429	50	
	10	13.083976	086538	089116	091709	094317	096941	099581	102237	104910	107599	40	
	20	13.110305	113028	115768	118525	121300	124093	126904	129734	132581	135448	30	
	30	13.138334	141239	144163	147108	150072	153057	156063	159089	162137	165206	20	
	40	13.168297	171410	174546	177704	180886	184091	187320	190573	193851	197154	10	
	50	13.200482	203835	207215	210621	214054	217515	221003	224520	228065	231640	0	2
58	0	13.235244	238878	242543	246239	249967	253727	257520	261347	265207	269102	50	
	10	13.273032	276999	281001	285041	289119	293236	297392	301588	305825	310104	40	
	20	13.314425	318790	323199	327653	332154	336701	341297	345942	350637	355384	30	
	30	13.360183	365035	369942	374906	379927	385006	390146	395347	400611	405940	20	
	40	13.411335	416798	422330	427934	433611	439364	445193	451102	457093	463167	10	
	50	13.469327	475576	481916	488350	494881	501512	508245	515085	522033	529095	0	1
59	0	13.536274	543573	550997	558550	566237	574062	582031	590149	598422	606855	50	
	10	13.615455	624229	633184	642327	651667	661213	670972	680957	691176	701641	40	
	20	13.712365	723360	734641	746223	758123	770357	782946	795911	809275	823063	30	
	30	13.837304	852027	867267	883061	899452	916485	934214	952697	972002	992206	20	
	40	14.013395	035671	059153	083976	110305	138334	168297	200482	235244	273032	10	
	50	14.314425	360183	411335	469327	536274	615455	712365	837304	013395	314425	0	0
Seconds		10	9″	8″	7″	6″	5″	4″	3″	2	1″	Seconds	Minutes
		Co-tangent of 0 degree, or Tangent of 90 degrees.											

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To reduce the time of the Moon's passage over the Meridian of Greenwich, to the time of her passage over any other Meridian.

Time from Moon's transit	Daily Retardation of the Moon's passage over the Meridian.														Long. west
	40m	42m	44m	46m	48m	50m	52m	54m	56m	58m	60m	62m	64m	66m	
h m	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	°
0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0
20	0. 33	0. 34	0. 36	0. 37	0. 39	0. 40	0. 42	0. 43	0. 45	0. 46	0. 48	0. 50	0. 51	0. 53	5
40	1. 5	1. 8	1. 11	1. 14	1. 17	1. 21	1. 24	1. 27	1. 30	1. 33	1. 36	1. 39	1. 42	1. 45	10
1. 0	1. 37	1. 42	1. 47	1. 51	1. 56	2. 1	2. 5	2. 10	2. 15	2. 19	2. 24	2. 29	2. 33	2. 38	15
20	2. 10	2. 16	2. 22	2. 29	2. 35	2. 41	2. 47	2. 53	3. 0	3. 6	3. 12	3. 18	3. 24	3. 31	20
40	2. 42	2. 50	2. 58	3. 6	3. 14	3. 21	3. 29	3. 37	3. 45	3. 52	4. 0	4. 8	4. 15	4. 23	25
2. 0	3. 15	3. 24	3. 33	3. 43	3. 52	4. 2	4. 11	4. 20	4. 30	4. 39	4. 48	4. 57	5. 6	5. 16	30
20	3. 47	3. 58	4. 9	4. 20	4. 31	4. 42	4. 53	5. 4	5. 14	5. 25	5. 36	5. 47	5. 57	6. 8	35
40	4. 20	4. 32	4. 45	4. 57	5. 10	5. 22	5. 35	5. 47	5. 59	6. 12	6. 24	6. 36	6. 49	7. 1	40
3. 0	4. 52	5. 6	5. 20	5. 34	5. 48	6. 2	6. 16	6. 30	6. 44	6. 58	7. 12	7. 26	7. 40	7. 54	45
20	5. 24	5. 40	5. 56	6. 11	6. 27	6. 43	6. 58	7. 14	7. 29	7. 45	8. 0	8. 15	8. 31	8. 46	50
40	5. 57	6. 14	6. 31	6. 49	7. 6	7. 23	7. 40	7. 57	8. 14	8. 31	8. 48	9. 5	9. 22	9. 39	55
4. 0	6. 29	6. 48	7. 7	7. 26	7. 45	8. 3	8. 22	8. 40	8. 59	9. 18	9. 36	9. 54	10. 13	10. 32	60
20	7. 2	7. 22	7. 42	8. 3	8. 23	8. 43	9. 4	9. 24	9. 44	10. 4	10. 24	10. 44	11. 4	11. 24	65
40	7. 34	7. 56	8. 18	8. 40	9. 2	9. 24	9. 45	10. 7	10. 29	10. 50	11. 12	11. 34	11. 55	12. 17	70
5. 0	8. 7	8. 30	8. 54	9. 17	9. 41	10. 4	10. 27	10. 51	11. 14	11. 37	12. 0	12. 23	12. 46	13. 9	75
20	8. 39	9. 4	9. 29	9. 54	10. 19	10. 44	11. 9	11. 34	11. 59	12. 23	12. 48	13. 13	13. 37	14. 2	80
40	9. 12	9. 38	10. 5	10. 32	10. 58	11. 25	11. 51	12. 17	12. 44	13. 10	13. 36	14. 2	14. 28	14. 55	85
6. 0	9. 44	10. 12	10. 41	11. 9	11. 37	12. 5	12. 33	13. 1	13. 29	13. 56	14. 24	14. 52	15. 19	15. 47	90
20	10. 16	10. 46	11. 16	11. 46	12. 15	12. 45	13. 15	13. 44	14. 14	14. 43	15. 12	15. 41	16. 10	16. 40	95
40	10. 49	11. 20	11. 52	12. 23	12. 54	13. 25	13. 56	14. 27	14. 58	15. 29	16. 0	16. 31	17. 1	17. 32	100
7. 0	11. 21	11. 54	12. 27	13. 0	13. 33	14. 6	14. 38	15. 11	15. 43	16. 16	16. 48	17. 20	17. 52	18. 25	105
20	11. 54	12. 28	13. 3	13. 37	14. 12	14. 46	15. 20	15. 54	16. 28	17. 2	17. 36	18. 10	18. 43	19. 18	110
40	12. 26	13. 2	13. 38	14. 14	14. 50	15. 26	16. 2	16. 37	17. 13	17. 49	18. 24	18. 59	19. 34	20. 10	115
8. 0	12. 58	13. 36	14. 14	14. 51	15. 29	16. 6	16. 44	17. 21	17. 58	18. 35	19. 12	19. 49	20. 25	21. 3	120
20	13. 31	14. 10	14. 49	15. 29	16. 8	16. 46	17. 25	18. 4	18. 43	19. 21	20. 0	20. 38	21. 16	21. 56	125
40	14. 3	14. 44	15. 25	16. 6	16. 47	17. 27	18. 7	18. 48	19. 28	20. 8	20. 48	21. 28	22. 8	22. 48	130
9. 0	14. 36	15. 18	16. 1	16. 43	17. 25	18. 7	18. 49	19. 31	20. 13	20. 55	21. 36	22. 18	22. 59	23. 41	135
20	15. 8	15. 52	16. 36	17. 20	18. 4	18. 48	19. 31	20. 14	20. 58	21. 41	22. 24	23. 7	23. 50	24. 34	140
40	15. 41	16. 26	17. 12	17. 57	18. 43	19. 28	20. 13	20. 58	21. 43	22. 27	23. 12	23. 57	24. 41	25. 26	145
10. 0	16. 13	17. 0	17. 48	18. 34	19. 21	20. 8	20. 55	21. 41	22. 28	23. 14	24. 0	24. 46	25. 32	26. 19	150
20	16. 46	17. 34	18. 23	19. 12	20. 0	20. 48	21. 37	22. 25	23. 13	24. 1	24. 48	25. 36	26. 23	27. 12	155
40	17. 18	18. 8	18. 59	19. 49	20. 39	21. 29	22. 18	23. 8	23. 58	24. 47	25. 36	26. 25	27. 14	28. 4	160
11. 0	17. 50	18. 42	19. 34	20. 26	21. 17	22. 9	23. 0	23. 51	24. 42	25. 33	26. 24	27. 15	28. 5	28. 56	165
20	18. 23	19. 16	20. 10	21. 3	21. 56	22. 49	23. 42	24. 35	25. 27	26. 20	27. 12	28. 4	28. 56	29. 48	170
40	18. 55	19. 50	20. 45	21. 40	22. 35	23. 29	24. 24	25. 18	26. 12	27. 6	28. 0	28. 54	29. 47	30. 41	175
12. 0	19. 28	20. 24	21. 21	22. 17	23. 14	24. 10	25. 6	26. 1	26. 57	27. 53	28. 48	29. 43	30. 38	31. 33	180

TABLE XXXIX.

Correction to be applied to the time of the Moon's transit in finding the time of High Water.

Time of Moon's transit.	Correction.	Time of Moon's transit.	Time of Moon's transit.	Correction.	Time of Moon's transit.
	Subtr.			Subtr.	
h m	h m	h m	h m	h m	h m
0. 0	0. 0	12. 0	6. 0	1. 3	18. 0
20	0. 5	20	20	0. 54	20
40	0. 10	40	40	0. 47	40
1. 0	0. 16	13. 0	7. 0	0. 34	19. 0
20	0. 22	20	20	0. 22	20
40	0. 28	40	40	0. 9	40
				Add	
2. 0	0. 33	14. 0	8. 0	0. 3	20. 0
20	0. 39	20	20	0. 11	20
40	0. 44	40	40	0. 18	40
3. 0	0. 50	15. 0	9. 0	0. 22	21. 0
20	0. 54	20	20	0. 24	20
40	0. 58	40	40	0. 24	40
4. 0	1. 3	16. 0	10. 0	0. 23	22. 0
20	1. 5	20	20	0. 20	20
40	1. 7	40	40	0. 18	40
5. 0	1. 8	17. 0	11. 0	0. 14	23. 0
20	1. 9	20	20	0. 9	20
40	1. 8	40	40	0. 5	40

TABLE XL.

Reduction of the Moon's Horizontal Parallax on account of the spheroidal figure of the earth.

Latitude.	Moon's Horizontal Parallax 53′	55′	57′	59′	61
°	″	″	″	″	″
0	0	0	0	0	0
4	0	0	0	0	0
8	0	0	0	0	0
12	0	0	0	1	1
16	1	1	1	1	1
20	1	1	1	1	1
24	2	2	2	2	2
28	2	2	3	3	3
32	3	3	3	3	3
36	4	4	4	4	4
40	4	5	5	5	5
44	5	5	6	6	6
48	6	6	6	7	7
52	7	7	7	7	8
56	7	8	8	8	8
60	8	8	9	9	9
64	9	9	9	10	10
68	9	9	10	10	10
72	10	10	10	11	11
76	10	10	11	11	11
80	10	11	11	11	12
84	10	11	11	12	12

TABLE XLI.

Reduction of Latitude on account of the spheroidal figure of the earth.

Latitude.	Reduction.	Latitude.
°	′ ″	°
0	0. 0	90
2	0. 50	88
4	1. 39	86
6	2. 28	84
8	3. 16	82
10	4. 3	80
12	4. 49	78
14	5. 34	76
16	6. 17	74
18	6. 58	72
20	7. 37	70
22	8. 14	68
24	8. 49	66
26	9. 21	64
28	9. 50	62
30	10. 17	60
32	10. 40	58
34	11. 0	56
36	11. 18	54
38	11. 31	52
40	11. 42	50

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

	DISTANCE.																Crse.	
	1		2		3		4		5		6		7		8		Degrees	Points
	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	01.0	00.0	02.0	00.0	03.0	00.0	04.0	00.0	05.0	00.0	06.0	00.0	07.0	00.0	08.0	00.0	90	8
1	01.0	00.0	02.0	00.0	03.0	00.1	04.0	00.1	05.0	00.1	06.0	00.1	07.0	00.1	08.0	00.1	89	
2	01.0	00.0	02.0	00.1	03.0	00.1	04.0	00.1	05.0	00.2	06.0	00.2	07.0	00.2	08.0	00.3	88	
	01.0	00.0	02.0	00.1	03.0	00.1	04.0	00.2	05.0	00.2	06.0	00.3	07.0	00.3	08.0	00.4		7¼
3	01.0	00.1	02.0	00.1	03.0	00.2	04.0	00.2	05.0	00.3	06.0	00.3	07.0	00.4	08.0	00.4	87	
4	01.0	00.1	02.0	00.1	03.0	00.2	04.0	00.3	05.0	00.3	06.0	00.4	07.0	00.5	08.0	00.6	86	
5	01.0	00.1	02.0	00.2	03.0	00.3	04.0	00.3	05.0	00.4	06.0	00.5	07.0	00.6	08.0	00.7	85	
	01.0	00.1	02.0	00.2	03.0	00.3	04.0	00.4	05.0	00.5	06.0	00.6	07.0	00.7	08.0	00.8		7½
6	01.0	00.1	02.0	00.2	03.0	00.3	04.0	00.4	05.0	00.5	06.0	00.6	07.0	00.7	08.0	00.8	84	
7	01.0	00.1	02.0	00.2	03.0	00.4	04.0	00.5	05.0	00.6	06.0	00.7	06.9	00.9	07.9	01.0	83	
8	01.0	00.1	02.0	00.3	03.0	00.4	04.0	00.6	05.0	00.7	05.9	00.8	06.9	01.0	07.9	01.1	82	
	01.0	00.1	02.0	00.3	03.0	00.4	04.0	00.6	04.9	00.7	05.9	00.9	06.9	01.0	07.9	01.2		7¼
9	01.0	00.2	02.0	00.3	03.0	00.5	04.0	00.6	04.9	00.8	05.9	00.9	06.9	01.1	07.9	01.3	81	
0	01.0	00.2	02.0	00.3	03.0	00.5	03.9	00.7	04.9	00.9	05.9	01.0	06.9	01.2	07.9	01.4	80	
1	01.0	00.2	02.0	00.4	02.9	00.6	03.9	00.8	04.9	01.0	05.9	01.1	06.9	01.3	07.9	01.5	79	
	01.0	00.2	02.0	00.4	02.9	00.6	03.9	00.8	04.9	01.0	05.9	01.2	06.9	01.4	07.8	01.6		7
2	01.0	00.2	02.0	00.4	02.9	00.6	03.9	00.8	04.9	01.0	05.9	01.2	06.8	01.5	07.8	01.7	78	
3	01.0	00.2	01.9	00.4	02.9	00.7	03.9	00.9	04.9	01.1	05.8	01.3	06.8	01.6	07.8	01.8	77	
4	01.0	00.2	01.9	00.5	02.9	00.7	03.9	01.0	04.9	01.2	05.8	01.5	06.8	01.7	07.8	01.9	76	
	01.0	00.2	01.9	00.5	02.9	00.7	03.9	01.0	04.9	01.2	05.8	01.5	06.8	01.7	07.8	01.9		6¼
5	01.0	00.3	01.9	00.5	02.9	00.8	03.9	01.0	04.8	01.3	05.8	01.6	06.8	01.8	07.7	02.1	75	
6	01.0	00.3	01.9	00.6	02.9	00.8	03.8	01.1	04.8	01.4	05.8	01.7	06.7	01.9	07.7	02.2	74	
	01.0	00.3	01.9	00.6	02.9	00.9	03.8	01.2	04.8	01.5	05.7	01.7	06.7	02.0	07.7	02.3		6½
7	01.0	00.3	01.9	00.6	02.9	00.9	03.8	01.2	04.8	01.5	05.7	01.8	06.7	02.0	07.7	02.3	73	
8	01.0	00.3	01.9	00.6	02.9	00.9	03.8	01.2	04.8	01.5	05.7	01.9	06.7	02.2	07.6	02.5	72	
9	00.9	00.3	01.9	00.7	02.8	01.0	03.8	01.3	04.7	01.6	05.7	02.0	06.6	02.3	07.6	02.6	71	
	00.9	00.3	01.9	00.7	02.8	01.0	03.8	01.3	04.7	01.7	05.6	02.0	06.6	02.4	07.5	02.7		6¼
0	00.9	00.3	01.9	00.7	02.8	01.0	03.8	01.4	04.7	01.7	05.6	02.1	06.6	02.4	07.5	02.7	70	
1	00.9	00.4	01.9	00.7	02.8	01.1	03.7	01.4	04.7	01.8	05.6	02.2	06.5	02.5	07.5	02.9	69	
2	00.9	00.4	01.9	00.7	02.8	01.1	03.7	01.5	04.6	01.9	05.6	02.2	06.5	02.6	07.4	03.0	68	
	00.9	00.4	01.8	00.8	02.8	01.1	03.7	01.5	04.6	01.9	05.5	02.3	06.5	02.7	07.4	03.1		6
3	00.9	00.4	01.8	00.8	02.8	01.2	03.7	01.6	04.6	02.0	05.5	02.3	06.4	02.7	07.4	03.1	67	
4	00.9	00.4	01.8	00.8	02.7	01.2	03.7	01.6	04.6	02.0	05.5	02.4	06.4	02.8	07.3	03.3	66	
5	00.9	00.4	01.8	00.8	02.7	01.3	03.6	01.7	04.5	02.1	05.4	02.5	06.3	03.0	07.3	03.4	65	
	00.9	00.4	01.8	00.9	02.7	01.3	03.6	01.7	04.5	02.1	05.4	02.6	06.3	03.0	07.2	03.4		5¾
6	00.9	00.4	01.8	00.9	02.7	01.3	03.6	01.8	04.5	02.2	05.4	02.6	06.3	03.1	07.2	03.5	64	
7	00.9	00.5	01.8	00.9	02.7	01.4	03.6	01.8	04.5	02.3	05.3	02.7	06.2	03.2	07.1	03.6	63	
8	00.9	00.5	01.8	00.9	02.6	01.4	03.5	01.9	04.4	02.3	05.3	02.8	06.2	03.3	07.1	03.8	62	
	00.9	00.5	01.8	00.9	02.6	01.4	03.5	01.9	04.4	02.4	05.3	02.8	06.2	03.3	07.1	03.8		5½
9	00.9	00.5	01.7	01.0	02.6	01.5	03.5	01.9	04.4	02.4	05.2	02.9	06.1	03.4	07.0	03.9	61	
0	00.9	00.5	01.7	01.0	02.6	01.5	03.5	02.0	04.3	02.5	05.2	03.0	06.1	03.5	06.9	04.0	60	
	00.9	00.5	01.7	01.0	02.6	01.5	03.4	02.1	04.3	02.6	05.1	03.1	06.0	03.6	06.9	04.1		5¼
1	00.9	00.5	01.7	01.0	02.6	01.5	03.4	02.1	04.3	02.6	05.1	03.1	06.0	03.6	06.9	04.1	59	
2	00.8	00.5	01.7	01.1	02.5	01.6	03.4	02.1	04.2	02.6	05.1	03.2	05.9	03.7	06.8	04.2	58	
3	00.8	00.5	01.7	01.1	02.5	01.6	03.4	02.2	04.2	02.7	05.0	03.3	05.9	03.8	06.7	04.4	57	
	00.8	00.6	01.7	01.1	02.5	01.7	03.3	02.2	04.2	02.8	05.0	03.3	05.8	03.9	06.7	04.4		5
4	00.8	00.6	01.7	01.1	02.5	01.7	03.3	02.2	04.1	02.8	05.0	03.4	05.8	03.9	06.6	04.5	56	
5	00.8	00.6	01.6	01.1	02.5	01.7	03.3	02.3	04.1	02.9	04.9	03.4	05.7	04.0	06.6	04.6	55	
6	00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.4	04.0	02.9	04.9	03.5	05.7	04.1	06.5	04.7	54	
	00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.4	04.0	03.0	04.8	03.6	05.6	04.2	06.4	04.8		4¾
7	00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.4	04.0	03.0	04.8	03.6	05.6	04.2	06.4	04.8	53	
8	00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.5	03.9	03.1	04.7	03.7	05.5	04.3	06.3	04.9	52	
9	00.8	00.6	01.6	01.3	02.3	01.9	03.1	02.5	03.9	03.1	04.7	03.8	05.4	04.4	06.2	05.0	51	
	00.8	00.6	01.5	01.3	02.3	01.9	03.1	02.5	03.9	03.2	04.6	03.8	05.4	04.4	06.2	05.1		4½
0	00.8	00.6	01.5	01.3	02.3	01.9	03.1	02.6	03.8	03.2	04.6	03.9	05.4	04.5	06.1	05.1	50	
1	00.8	00.7	01.5	01.3	02.3	02.0	03.0	02.6	03.8	03.3	04.5	03.9	05.3	04.6	06.0	05.2	49	
2	00.7	00.7	01.5	01.3	02.2	02.0	03.0	02.7	03.7	03.3	04.5	04.0	05.2	04.7	05.9	05.4	48	
	00.7	00.7	01.5	01.3	02.2	02.0	03.0	02.7	03.7	03.4	04.4	04.0	05.2	04.7	05.9	05.4		4¼
3	00.7	00.7	01.5	01.4	02.2	02.0	02.9	02.7	03.7	03.4	04.4	04.1	05.1	04.8	05.9	05.5	47	
4	00.7	00.7	01.4	01.4	02.2	02.1	02.9	02.8	03.6	03.5	04.3	04.2	05.0	04.9	05.8	05.6	46	
5	00.7	00.7	01.4	01.4	02.1	02.1	02.8	02.8	03.5	03.5	04.2	04.2	04.9	04.9	05.7	05.7	45	4
Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
	1		2		3		4		5		6		7		8			
Crse.	DISTANCE.																Crse	

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GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

9		10		11		12		13		14		15		16		Cou.
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
09.0	00.0	10.0	00.0	11.0	00.0	12.0	00.0	13.0	00.0	14.0	00.0	15.0	00.0	16.0	00.0	90
09.0	00.2	10.0	00.2	11.0	00.2	12.0	00.2	13.0	00.2	14.0	00.2	15.0	00.3	16.0	00.3	89
09.0	00.3	10.0	00.3	11.0	00.4	12.0	00.4	13.0	00.5	14.0	00.5	15.0	00.5	16.0	00.6	88
09.0	00.4	10.0	00.5	11.0	00.5	12.0	00.6	13.0	00.6	14.0	00.7	15.0	00.7	16.0	00.8	87
09.0	00.5	10.0	00.5	11.0	00.6	12.0	00.6	13.0	00.7	14.0	00.7	15.0	00.8	16.0	00.8	87
09.0	00.6	10.0	00.7	11.0	00.8	12.0	00.8	13.0	00.9	14.0	01.0	15.0	01.0	16.0	01.1	86
09.0	00.8	10.0	00.9	11.0	01.0	12.0	01.0	13.0	01.1	13.9	01.2	14.9	01.3	15.9	01.4	85
09.0	00.9	10.0	01.0	10.9	01.1	11.9	01.2	12.9	01.3	13.9	01.4	14.9	01.5	15.9	01.6	85
09.0	00.9	09.9	01.0	10.9	01.1	11.9	01.3	12.9	01.4	13.9	01.5	14.9	01.6	15.9	01.7	84
08.9	01.1	09.9	01.2	10.9	01.3	11.9	01.5	12.9	01.6	13.9	01.7	14.9	01.8	15.9	01.9	83
08.9	01.3	09.9	01.4	10.9	01.5	11.9	01.7	12.9	01.8	13.9	01.9	14.9	02.1	15.8	02.2	82
08.9	01.3	09.9	01.5	10.9	01.6	11.9	01.8	12.9	01.9	13.8	02.1	14.8	02.2	15.8	02.3	82
08.9	01.4	09.9	01.6	10.9	01.7	11.9	01.9	12.8	02.0	13.8	02.2	14.8	02.3	15.8	02.5	81
08.9	01.6	09.8	01.7	10.8	01.9	11.8	02.1	12.8	02.3	13.8	02.4	14.8	02.6	15.8	02.8	80
08.8	01.7	09.8	01.9	10.8	02.1	11.8	02.3	12.8	02.5	13.7	02.7	14.7	02.9	15.7	03.1	79
08.8	01.8	09.8	02.0	10.8	02.1	11.8	02.3	12.7	02.5	13.7	02.7	14.7	02.9	15.7	03.1	79
08.8	01.9	09.8	02.1	10.8	02.3	11.7	02.5	12.7	02.7	13.7	02.9	14.7	03.1	15.7	03.3	78
08.8	02.0	09.7	02.2	10.7	02.5	11.7	02.7	12.7	02.9	13.6	03.1	14.6	03.4	15.6	03.6	77
08.7	02.2	09.7	02.4	10.7	02.7	11.6	02.9	12.6	03.1	13.6	03.4	14.6	03.6	15.5	03.9	76
08.7	02.2	09.7	02.4	10.7	02.7	11.6	02.9	12.6	03.2	13.6	03.4	14.6	03.6	15.5	03.9	76
08.7	02.3	09.7	02.6	10.6	02.8	11.6	03.1	12.6	03.4	13.5	03.6	14.5	03.9	15.5	04.1	75
08.7	02.5	09.6	02.8	10.6	03.0	11.5	03.3	12.5	03.6	13.5	03.9	14.4	04.1	15.4	04.4	74
08.6	02.6	09.6	02.9	10.5	03.2	11.5	03.5	12.4	03.8	13.4	04.1	14.4	04.4	15.3	04.6	74
08.6	02.6	09.6	02.9	10.5	03.2	11.5	03.5	12.4	03.8	13.4	04.1	14.3	04.4	15.3	04.7	73
08.6	02.8	09.5	03.1	10.5	03.4	11.4	03.7	12.4	04.0	13.3	04.3	14.3	04.6	15.2	04.9	72
08.5	02.9	09.5	03.3	10.4	03.6	11.3	03.9	12.3	04.2	13.2	04.6	14.2	04.9	15.1	05.2	71
08.5	03.0	09.4	03.4	10.4	03.7	11.3	04.0	12.2	04.4	13.2	04.7	14.1	05.1	15.1	05.4	71
08.5	03.1	09.4	03.4	10.3	03.8	11.3	04.1	12.2	04.4	13.2	04.8	14.1	05.1	15.0	05.5	70
08.4	03.2	09.3	03.6	10.3	03.9	11.2	04.3	12.1	04.7	13.1	05.0	14.0	05.4	14.9	05.7	69
08.3	03.4	09.3	03.7	10.2	04.1	11.1	04.5	12.1	04.9	13.0	05.2	13.9	05.6	14.8	06.0	68
08.3	03.4	09.2	03.8	10.2	04.2	11.1	04.6	12.0	05.0	12.9	05.4	13.9	05.7	14.8	06.1	68
08.3	03.5	09.2	03.9	10.1	04.3	11.0	04.7	12.0	05.1	12.9	05.5	13.8	05.9	14.7	06.3	67
08.2	03.7	09.1	04.1	10.0	04.5	11.0	04.9	11.9	05.3	12.8	05.7	13.7	06.1	14.6	06.5	66
08.2	03.8	09.1	04.2	10.0	04.6	10.9	05.1	11.8	05.5	12.7	05.9	13.6	06.3	14.5	06.8	65
08.1	03.8	09.0	04.3	09.9	04.7	10.8	05.1	11.8	05.6	12.7	06.0	13.6	06.4	14.5	06.8	65
08.1	03.9	09.0	04.4	09.9	04.8	10.8	05.3	11.7	05.7	12.6	06.1	13.5	06.6	14.4	07.0	64
08.0	04.1	08.9	04.5	09.8	05.0	10.7	05.4	11.6	05.9	12.5	06.4	13.4	06.8	14.3	07.3	63
07.9	04.2	08.8	04.7	09.7	05.2	10.6	05.6	11.5	06.1	12.4	06.6	13.2	07.0	14.1	07.5	62
07.9	04.2	08.8	04.7	09.7	05.2	10.6	05.7	11.5	06.1	12.3	06.6	13.2	07.1	14.1	07.5	62
07.9	04.4	08.7	04.8	09.6	05.3	10.5	05.8	11.4	06.3	12.2	06.8	13.1	07.3	14.0	07.8	61
07.8	04.5	08.7	05.0	09.5	05.5	10.4	06.0	11.3	06.5	12.1	07.0	13.0	07.5	13.9	08.0	60
07.7	04.6	08.6	05.1	09.4	05.7	10.3	06.2	11.2	06.7	12.0	07.2	12.9	07.7	13.7	08.2	59
07.7	04.6	08.6	05.2	09.4	05.7	10.3	06.2	11.1	06.7	12.0	07.2	12.9	07.7	13.7	08.2	59
07.6	04.8	08.5	05.3	09.3	05.8	10.2	06.4	11.0	06.9	11.9	07.4	12.7	07.9	13.6	08.5	58
07.5	04.9	08.4	05.4	09.2	06.0	10.1	06.5	10.9	07.1	11.7	07.6	12.6	08.2	13.4	08.7	57
07.5	05.0	08.3	05.6	09.1	06.1	10.0	06.7	10.8	07.2	11.6	07.8	12.5	08.3	13.3	08.9	57
07.5	05.0	08.3	05.6	09.1	06.2	09.9	06.7	10.8	07.3	11.6	07.8	12.4	08.4	13.3	08.9	56
07.4	05.2	08.2	05.7	09.0	06.3	09.8	06.9	10.6	07.5	11.5	08.0	12.3	08.6	13.1	09.2	55
07.3	05.3	08.1	05.9	08.9	06.5	09.7	07.1	10.5	07.6	11.3	08.2	12.1	08.8	12.9	09.4	54
07.2	05.4	08.0	06.0	08.8	06.6	09.6	07.1	10.4	07.7	11.2	08.3	12.0	08.9	12.9	09.5	54
07.2	05.4	08.0	06.0	08.8	06.6	09.6	07.2	10.4	07.8	11.2	08.4	12.0	09.0	12.8	09.6	53
07.1	05.5	07.9	06.2	08.7	06.8	09.5	07.4	10.2	08.0	11.0	08.6	11.8	09.2	12.6	09.9	52
07.0	05.7	07.8	06.3	08.5	06.9	09.3	07.6	10.1	08.2	10.9	08.8	11.7	09.4	12.4	10.1	51
07.0	05.7	07.7	06.3	08.5	07.0	09.3	07.6	10.0	08.2	10.8	08.9	11.6	09.5	12.4	10.2	[illegible]
06.9	05.8	07.7	06.4	08.4	07.1	09.2	07.7	10.0	08.4	10.7	09.0	11.5	09.6	12.3	10.3	[illegible]
06.8	05.9	07.5	06.6	08.3	07.2	09.1	07.9	09.8	08.5	10.6	09.2	11.3	09.8	12.1	10.5	[illegible]
06.7	06.0	07.4	06.7	08.2	07.4	08.9	08.0	09.7	08.7	10.4	09.4	11.1	10.0	11.9	10.7	[illegible]
06.7	06.0	07.4	06.7	08.2	07.4	08.9	08.1	09.6	08.7	10.4	09.4	11.1	10.1	11.9	10.8	[illegible]
06.6	06.1	07.3	06.8	08.0	07.5	08.8	08.2	09.5	08.9	10.2	09.5	11.0	10.2	11.7	10.9	[illegible]
06.5	06.3	07.2	06.9	07.9	07.6	08.6	08.3	09.4	09.0	10.1	09.7	10.8	10.4	11.5	11.1	[illegible]
06.4	06.4	07.1	07.1	07.8	07.8	08.5	08.5	09.2	09.2	09.9	09.9	10.6	10.6	11.3	11.3	[illegible]
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	
9		10		11		12		13		14		15		16		

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Degrees	DISTANCE 17 Diff. Lat.	17 Departure	18 Diff. Lat.	18 Departure	19 Diff. Lat.	19 Departure	20 Diff. Lat.	20 Departure	21 Diff. Lat.	21 Departure	22 Diff. Lat.	22 Departure	23 Diff. Lat.	23 Departure	24 Diff. Lat.	24 Departure	Crse Degrees	Points
0	17.0	00.0	18.0	00.0	19.0	00.0	20.0	00.0	21.0	00.0	22.0	00.0	23.0	00.0	24.0	00.0	90	8
1	17.0	00.3	18.0	00.3	19.0	00.3	20.0	00.3	21.0	00.4	22.0	00.4	23.0	00.4	24.0	00.4	89	
2	17.0	00.6	18.0	00.6	19.0	00.7	20.0	00.7	21.0	00.7	22.0	00.8	23.0	00.8	24.0	00.8	88	
	17.0	00.8	18.0	00.9	19.0	00.9	20.0	01.0	21.0	01.0	22.0	01.1	23.0	01.1	24.0	01.2		7¼
3	17.0	00.9	18.0	00.9	19.0	01.0	20.0	01.0	21.0	01.1	22.0	01.2	23.0	01.2	24.0	01.3	87	
4	17.0	01.2	18.0	01.3	19.0	01.3	20.0	01.4	20.9	01.5	21.9	01.5	22.9	01.6	23.9	01.7	86	
5	16.9	01.5	17.9	01.6	18.9	01.7	19.9	01.7	20.9	01.8	21.9	01.9	22.9	02.0	23.9	02.1	85	
	16.9	01.7	17.9	01.8	18.9	01.9	19.9	02.0	20.9	02.1	21.9	02.2	22.9	02.3	23.9	02.4		7½
6	16.9	01.8	17.9	01.9	18.9	02.0	19.9	02.1	20.9	02.2	21.9	02.3	22.9	02.4	23.9	02.5	84	
7	16.9	02.1	17.9	02.2	18.9	02.3	19.9	02.4	20.8	02.6	21.8	02.7	22.8	02.8	23.8	02.9	83	
8	16.8	02.4	17.8	02.5	18.8	02.6	19.8	02.8	20.8	02.9	21.8	03.1	22.8	03.2	23.8	03.3	82	
	16.8	02.5	17.8	02.6	18.8	02.8	19.8	02.9	20.8	03.1	21.8	03.2	22.7	03.4	23.7	03.5		7¾
9	16.8	02.7	17.8	02.8	18.8	03.0	19.8	03.1	20.7	03.3	21.7	03.4	22.7	03.6	23.7	03.8	81	
10	16.7	03.0	17.7	03.1	18.7	03.3	19.7	03.5	20.7	03.6	21.7	03.8	22.7	04.0	23.6	04.2	80	
11	16.7	03.2	17.7	03.4	18.7	03.6	19.6	03.8	20.6	04.0	21.6	04.2	22.6	04.4	23.6	04.6	79	
	16.7	03.3	17.7	03.5	18.6	03.7	19.6	03.9	20.6	04.1	21.6	04.3	22.6	04.5	23.5	04.7		7
12	16.6	03.5	17.6	03.7	18.6	04.0	19.6	04.2	20.5	04.4	21.5	04.6	22.5	04.8	23.5	05.0	78	
13	16.6	03.8	17.5	04.0	18.5	04.3	19.5	04.5	20.5	04.7	21.4	04.9	22.4	05.2	23.4	05.4	77	
14	16.5	04.1	17.5	04.4	18.4	04.6	19.4	04.8	20.4	05.1	21.3	05.3	22.3	05.6	23.3	05.8	76	
	16.5	04.1	17.5	04.4	18.4	04.6	19.4	04.9	20.4	05.1	21.3	05.3	22.3	05.6	23.3	05.8		6¾
15	16.4	04.4	17.4	04.7	18.4	04.9	19.3	05.2	20.3	05.4	21.3	05.7	22.2	06.0	23.2	06.2	75	
16	16.3	04.7	17.3	05.0	18.3	05.2	19.2	05.5	20.2	05.8	21.1	06.1	22.1	06.3	23.1	06.6	74	
	16.3	04.9	17.2	05.2	18.2	05.5	19.1	05.8	20.1	06.1	21.1	06.4	22.0	06.7	23.0	07.0		6½
17	16.3	05.0	17.2	05.3	18.2	05.6	19.1	05.8	20.1	06.1	21.0	06.4	22.0	06.7	23.0	07.0	73	
18	16.2	05.3	17.1	05.6	18.1	05.9	19.0	06.2	20.0	06.5	20.9	06.8	21.9	07.1	22.8	07.4	72	
19	16.1	05.5	17.0	05.9	18.0	06.2	18.9	06.5	19.9	06.8	20.8	07.2	21.7	07.5	22.7	07.8	71	
	16.0	05.7	16.9	06.1	17.9	06.4	18.8	06.7	19.8	07.1	20.7	07.4	21.7	07.7	22.6	08.1		6¼
20	16.0	05.8	16.9	06.2	17.9	06.5	18.8	06.8	19.7	07.2	20.7	07.5	21.6	07.9	22.6	08.2	70	
21	15.9	06.1	16.8	06.5	17.7	06.8	18.7	07.2	19.6	07.5	20.5	07.9	21.5	08.2	22.4	08.6	69	
22	15.8	06.4	16.7	06.7	17.6	07.1	18.5	07.5	19.5	07.9	20.4	08.2	21.3	08.6	22.3	09.0	68	
	15.7	06.5	16.6	06.9	17.6	07.3	18.5	07.7	19.4	08.0	20.3	08.4	21.2	08.8	22.2	09.2		6
23	15.6	06.6	16.6	07.0	17.5	07.4	18.4	07.8	19.3	08.2	20.3	08.6	21.2	09.0	22.1	09.4	67	
24	15.5	06.9	16.4	07.3	17.4	07.7	18.3	08.1	19.2	08.5	20.1	08.9	21.0	09.4	21.9	09.8	66	
25	15.4	07.2	16.3	07.6	17.2	08.0	18.1	08.5	19.0	08.9	19.9	09.3	20.8	09.7	21.8	10.1	65	
	15.4	07.3	16.3	07.7	17.2	08.1	18.1	08.6	19.0	09.0	19.9	09.4	20.8	09.8	21.7	10.3		5¾
26	15.3	07.5	16.2	07.9	17.1	08.3	18.0	08.8	18.9	09.2	19.8	09.6	20.7	10.1	21.6	10.5	64	
27	15.1	07.7	16.0	08.2	16.9	08.6	17.8	09.1	18.7	09.5	19.6	10.0	20.5	10.4	21.4	10.9	63	
28	15.0	08.0	15.9	08.5	16.8	08.9	17.7	09.4	18.5	09.9	19.4	10.3	20.3	10.8	21.2	11.3	62	
	15.0	08.0	15.9	08.5	16.8	09.0	17.6	09.4	18.5	09.9	19.4	10.4	20.3	10.8	21.2	11.3		5½
29	14.9	08.2	15.7	08.7	16.6	09.2	17.5	09.7	18.4	10.2	19.2	10.7	20.1	11.2	21.0	11.6	61	
30	14.7	08.5	15.6	09.0	16.5	09.5	17.3	10.0	18.2	10.5	19.1	11.0	19.9	11.5	20.8	12.0	60	
	14.6	08.7	15.4	09.3	16.3	09.8	17.2	10.3	18.0	10.8	18.9	11.3	19.7	11.8	20.6	12.3		5¼
31	14.6	08.8	15.4	09.3	16.3	09.8	17.1	10.3	18.0	10.8	18.9	11.3	19.7	11.8	20.6	12.4	59	
32	14.4	09.0	15.3	09.5	16.1	10.1	17.0	10.6	17.8	11.1	18.7	11.7	19.5	12.2	20.4	12.7	58	
33	14.3	09.3	15.1	09.8	15.9	10.3	16.8	10.9	17.6	11.4	18.5	12.0	19.3	12.5	20.1	13.1	57	
	14.1	09.4	15.0	10.0	15.8	10.6	16.6	11.1	17.5	11.7	18.3	12.2	19.1	12.8	20.0	13.3		5
34	14.1	09.5	14.9	10.1	15.8	10.6	16.6	11.2	17.4	11.7	18.2	12.3	19.1	12.9	19.9	13.4	56	
35	13.9	09.8	14.7	10.3	15.6	10.9	16.4	11.5	17.2	12.0	18.0	12.6	18.8	13.2	19.7	13.8	55	
36	13.8	10.0	14.6	10.6	15.4	11.2	16.2	11.8	17.0	12.3	17.8	12.9	18.6	13.5	19.4	14.1	54	
	13.7	10.1	14.5	10.7	15.3	11.3	16.1	11.9	16.9	12.5	17.7	13.1	18.5	13.7	19.3	14.3		4¾
37	13.6	10.2	14.4	10.8	15.2	11.4	16.0	12.0	16.8	12.6	17.6	13.2	18.4	13.8	19.2	14.4	53	
38	13.4	10.5	14.2	11.1	15.0	11.7	15.8	12.3	16.5	12.9	17.3	13.5	18.1	14.2	18.9	14.8	52	
39	13.2	10.7	14.0	11.3	14.8	12.0	15.5	12.6	16.3	13.2	17.1	13.8	17.9	14.5	18.7	15.1	51	
	13.1	10.8	13.9	11.4	14.7	12.1	15.5	12.7	16.2	13.3	17.0	14.0	17.8	14.6	18.6	15.2		4½
40	13.0	10.9	13.8	11.6	14.6	12.2	15.3	12.9	16.1	13.5	16.9	14.1	17.6	14.8	18.4	15.4	50	
41	12.8	11.2	13.6	11.8	14.3	12.5	15.1	13.1	15.8	13.8	16.6	14.4	17.4	15.1	18.1	15.7	49	
42	12.6	11.4	13.4	12.0	14.1	12.7	14.9	13.4	15.6	14.1	16.3	14.7	17.1	15.4	17.8	16.1	48	
	12.6	11.4	13.3	12.1	14.1	12.8	14.8	13.4	15.6	14.1	16.3	14.8	17.0	15.4	17.8	16.1		4¼
43	12.4	11.6	13.2	12.3	13.9	13.0	14.6	13.6	15.4	14.3	16.1	15.0	16.8	15.7	17.6	16.4	47	
44	12.2	11.8	12.9	12.5	13.7	13.2	14.4	13.9	15.1	14.6	15.8	15.3	16.5	16.0	17.3	16.7	46	
45	12.0	12.0	12.7	12.7	13.4	13.4	14.1	14.1	14.8	14.8	15.6	15.6	16.3	16.3	17.0	17.0	45	4
Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
	17		18		19		20		21		22		23		24			

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	Distance 25 Diff. Lat.	25 Departure.	26 Diff. Lat.	26 Departure.	27 Diff. Lat.	27 Departure.	28 Diff. Lat.	28 Departure.	29 Diff. Lat.	29 Departure.	30 Diff. Lat.	30 Departure.	31 Diff. Lat.	31 Departure.	32 Diff. Lat.	32 Departure.	Crse. Degrees
0	0	25.0	00.0	26.0	00.0	27.0	00.0	28.0	00.0	29.0	00.0	30.0	00.0	31.0	00.0	32.0	00.0	90
	1	25.0	00.4	26.0	00.5	27.0	00.5	28.0	00.5	29.0	00.5	30.0	00.5	31.0	00.5	32.0	00.6	89
	2	25.0	00.9	26.0	00.9	27.0	00.9	28.0	01.0	29.0	01.0	30.0	01.0	31.0	01.1	32.0	01.1	88
0¼		25.0	01.2	26.0	01.3	27.0	01.3	28.0	01.4	29.0	01.4	30.0	01.5	31.0	01.5	32.0	01.6	
	3	25.0	01.3	26.0	01.4	27.0	01.4	28.0	01.5	29.0	01.5	30.0	01.6	31.0	01.6	32.0	01.7	87
	4	24.9	01.7	25.9	01.8	26.9	01.9	27.9	02.0	28.9	02.0	29.9	02.1	30.9	02.2	31.9	02.2	86
	5	24.9	02.2	25.9	02.3	26.9	02.4	27.9	02.4	28.9	02.5	29.9	02.6	30.9	02.7	31.9	02.8	85
0½		24.9	02.4	25.9	02.5	26.9	02.6	27.9	02.7	28.9	02.8	29.9	02.9	30.9	03.0	31.8	03.1	
	6	24.9	02.6	25.9	02.7	26.9	02.8	27.8	02.9	28.8	03.0	29.8	03.1	30.8	03.2	31.8	03.3	84
	7	24.8	03.0	25.8	03.2	26.8	03.3	27.8	03.4	28.8	03.5	29.8	03.7	30.8	03.8	31.8	03.9	83
	8	24.8	03.5	25.7	03.6	26.7	03.8	27.7	03.9	28.7	04.0	29.7	04.2	30.7	04.3	31.7	04.5	82
0¾		24.7	03.7	25.7	03.8	26.7	04.0	27.7	04.1	28.7	04.3	29.7	04.4	30.7	04.5	31.7	04.7	
	9	24.7	03.9	25.7	04.1	26.7	04.2	27.7	04.4	28.6	04.5	29.6	04.7	30.6	04.8	31.6	05.0	81
	10	24.6	04.3	25.6	04.5	26.6	04.7	27.6	04.9	28.6	05.0	29.5	05.2	30.5	05.4	31.5	05.6	80
	11	24.5	04.8	25.5	05.0	26.5	05.2	27.5	05.3	28.5	05.5	29.4	05.7	30.4	05.9	31.4	06.1	79
1		24.5	04.9	25.5	05.1	26.5	05.3	27.5	05.5	28.4	05.7	29.4	05.9	30.4	06.0	31.4	06.2	
	12	24.5	05.2	25.4	05.4	26.4	05.6	27.4	05.8	28.4	06.0	29.3	06.2	30.3	06.4	31.3	06.7	78
	13	24.4	05.6	25.3	05.8	26.3	06.1	27.3	06.3	28.3	06.5	29.2	06.7	30.2	07.0	31.2	07.2	77
	14	24.3	06.0	25.2	06.3	26.2	06.5	27.2	06.8	28.1	07.0	29.1	07.3	30.1	07.5	31.0	07.7	76
1¼		24.3	06.1	25.2	06.3	26.2	06.6	27.2	06.8	28.1	07.0	29.1	07.3	30.1	07.5	31.0	07.8	
	15	24.1	06.5	25.1	06.7	26.1	07.0	27.0	07.2	28.0	07.5	29.0	07.8	29.9	08.0	30.9	08.3	75
	16	24.0	06.9	25.0	07.2	26.0	07.4	26.9	07.7	27.9	08.0	28.8	08.3	29.8	08.5	30.8	08.8	74
1½		23.9	07.3	24.9	07.5	25.8	07.8	26.8	08.1	27.8	08.4	28.7	08.7	29.7	09.0	30.6	09.3	
	17	23.9	07.3	24.9	07.6	25.8	07.9	26.8	08.2	27.7	08.5	28.7	08.8	29.6	09.1	30.6	09.4	73
	18	23.8	07.7	24.7	08.0	25.7	08.3	26.6	08.7	27.6	09.0	28.5	09.3	29.5	09.6	30.4	09.9	72
	19	23.6	08.1	24.6	08.5	25.5	08.8	26.5	09.1	27.4	09.4	28.4	09.8	29.3	10.1	30.3	10.4	71
1¾		23.5	08.4	24.5	08.8	25.4	09.1	26.4	09.4	27.3	09.8	28.2	10.1	29.2	10.4	30.1	10.8	
	20	23.5	08.6	24.4	08.9	25.4	09.2	26.3	09.6	27.3	09.9	28.2	10.3	29.1	10.6	30.1	10.9	70
	21	23.3	09.0	24.3	09.3	25.2	09.7	26.1	10.0	27.1	10.4	28.0	10.8	28.9	11.1	29.9	11.5	69
	22	23.2	09.4	24.1	09.7	25.0	10.1	26.0	10.5	26.9	10.9	27.8	11.2	28.7	11.6	29.7	12.0	68
2		23.1	09.6	24.0	09.9	24.9	10.3	25.9	10.7	26.8	11.1	27.7	11.5	28.6	11.9	29.6	12.2	
	23	23.0	09.8	23.9	10.2	24.9	10.5	25.8	10.9	26.7	11.3	27.6	11.7	28.5	12.1	29.5	12.5	67
	24	22.8	10.2	23.8	10.6	24.7	11.0	25.6	11.4	26.5	11.8	27.4	12.2	28.3	12.6	29.2	13.0	66
	25	22.7	10.6	23.6	11.0	24.5	11.4	25.4	11.8	26.3	12.3	27.2	12.7	28.1	13.1	29.0	13.5	65
2¼		22.6	10.7	23.5	11.1	24.4	11.5	25.3	12.0	26.2	12.4	27.1	12.8	28.0	13.3	28.9	13.7	
	26	22.5	11.0	23.4	11.4	24.3	11.8	25.2	12.3	26.1	12.7	27.0	13.2	27.9	13.6	28.8	14.0	64
	27	22.3	11.3	23.2	11.8	24.1	12.3	24.9	12.7	25.8	13.2	26.7	13.6	27.6	14.1	28.5	14.5	63
	28	22.1	11.7	23.0	12.2	23.8	12.7	24.7	13.1	25.6	13.6	26.5	14.1	27.4	14.6	28.3	15.0	62
2½		22.0	11.8	22.9	12.3	23.8	12.7	24.7	13.2	25.6	13.7	26.5	14.1	27.3	14.6	28.2	15.1	
	29	21.9	12.1	22.7	12.6	23.6	13.1	24.5	13.6	25.4	14.1	26.2	14.5	27.1	15.0	28.0	15.5	61
	30	21.7	12.5	22.5	13.0	23.4	13.5	24.2	14.0	25.1	14.5	26.0	15.0	26.8	15.5	27.7	16.0	60
2¾		21.4	12.9	22.3	13.4	23.2	13.9	24.0	14.4	24.9	14.9	25.7	15.4	26.6	15.9	27.4	16.5	
	31	21.4	12.9	22.3	13.4	23.1	13.9	24.0	14.4	24.9	14.9	25.7	15.5	26.6	16.0	27.4	16.5	59
	32	21.2	13.2	22.0	13.8	22.9	14.3	23.7	14.8	24.6	15.4	25.4	15.9	26.3	16.4	27.1	17.0	58
	33	21.0	13.6	21.8	14.2	22.6	14.7	23.5	15.2	24.3	15.8	25.2	16.3	26.0	16.9	26.8	17.4	57
3		20.8	13.9	21.6	14.4	22.4	15.0	23.3	15.6	24.1	16.1	24.9	16.7	25.8	17.2	26.6	17.8	
	34	20.7	14.0	21.6	14.5	22.4	15.1	23.2	15.7	24.0	16.2	24.9	16.8	25.7	17.3	26.5	17.9	56
	35	20.5	14.3	21.3	14.9	22.1	15.5	22.9	16.1	23.8	16.6	24.6	17.2	25.4	17.8	26.2	18.4	55
	36	20.2	14.7	21.0	15.3	21.8	15.9	22.7	16.5	23.5	17.0	24.3	17.6	25.1	18.2	25.9	18.8	54
3¼		20.1	14.9	20.9	15.5	21.7	16.1	22.5	16.7	23.3	17.3	24.1	17.9	24.9	18.5	25.7	19.1	
	37	20.0	15.0	20.8	15.6	21.6	16.2	22.4	16.9	23.2	17.5	24.0	18.1	24.8	18.7	25.6	19.3	53
	38	19.7	15.4	20.5	16.0	21.3	16.6	22.1	17.2	22.9	17.9	23.6	18.5	24.4	19.1	25.2	19.7	52
	39	19.4	15.7	20.2	16.4	21.0	17.0	21.8	17.6	22.5	18.3	23.3	18.9	24.1	19.5	24.9	20.1	51
3½		19.3	15.9	20.1	16.5	20.9	17.1	21.6	17.8	22.4	18.4	23.2	19.0	24.0	19.7	24.7	20.3	
	40	19.2	16.1	19.9	16.7	20.7	17.4	21.4	18.0	22.2	18.6	23.0	19.3	23.7	19.9	24.5	20.6	50
	41	18.9	16.4	19.6	17.1	20.4	17.7	21.1	18.4	21.9	19.0	22.6	19.7	23.4	20.3	24.2	21.0	49
	42	18.6	16.7	19.3	17.4	20.1	18.1	20.8	18.7	21.6	19.4	22.3	20.1	23.0	20.7	23.8	21.4	48
3¾		18.5	16.8	19.3	17.5	20.0	18.1	20.7	18.8	21.5	19.5	22.2	20.1	23.0	20.8	23.7	21.5	
	43	18.3	17.0	19.0	17.7	19.7	18.4	20.5	19.1	21.2	19.8	21.9	20.5	22.7	21.2	23.4	21.8	47
	44	18.0	17.4	18.7	18.1	19.4	18.8	20.1	19.5	20.9	20.1	21.6	20.8	22.3	21.5	23.0	22.2	46
4	45	17.7	17.7	18.4	18.4	19.1	19.1	19.8	19.8	20.5	20.5	21.2	21.2	21.9	21.9	22.6	22.6	45
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	
	Crse.	25		26		27		28		29		30		31		32		

Distance

*Distance.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Crse. Points	Degrees	33 Diff. Lat.	33 Departure.	34 Diff. Lat.	34 Departure.	35 Diff. Lat.	35 Departure.	36 Diff. Lat.	36 Departure.	37 Diff. Lat.	37 Departure.	38 Diff. Lat.	38 Departure.	39 Diff. Lat.	39 Departure.	40 Diff. Lat.	40 Departure.	Degrees	Crse.
	0	33.0	00.0	34.0	00.0	35.0	00.0	36.0	00.0	37.0	00.0	38.0	00.0	39.0	00.0	40.0	00.0	90	8
	1	33.0	00.6	34.0	00.6	35.0	00.6	36.0	00.6	37.0	00.6	38.0	00.7	39.0	00.7	40.0	00.7	89	
	2	33.0	01.2	34.0	01.2	35.0	01.2	36.0	01.3	37.0	01.3	38.0	01.3	39.0	01.4	40.0	01.4	88	
		33.0	01.6	34.0	01.7	35.0	01.7	36.0	01.8	37.0	01.8	38.0	01.9	39.0	01.9	40.0	02.0		7
	3	33.0	01.7	34.0	01.8	35.0	01.8	36.0	01.9	36.9	01.9	37.9	02.0	38.9	02.0	39.9	02.1	87	
	4	32.9	02.3	33.9	02.4	34.9	02.4	35.9	02.5	36.9	02.6	37.9	02.7	38.9	02.7	39.9	02.8	86	
	5	32.9	02.9	33.9	03.0	34.9	03.1	35.9	03.1	36.9	03.2	37.9	03.3	38.9	03.4	39.8	03.5	85	
		32.8	03.2	33.8	03.3	34.8	03.4	35.8	03.5	36.8	03.6	37.8	03.7	38.8	03.8	39.8	03.9		7
	6	32.8	03.4	33.8	03.6	34.8	03.7	35.8	03.8	36.8	03.9	37.8	04.0	38.8	04.1	39.8	04.2	84	
	7	32.8	04.0	33.7	04.1	34.7	04.3	35.7	04.4	36.7	04.5	37.7	04.6	38.7	04.8	39.7	04.9	83	
	8	32.7	04.6	33.7	04.7	34.7	04.9	35.6	05.0	36.6	05.1	37.6	05.3	38.6	05.4	39.6	05.6	82	
		32.6	04.8	33.6	05.0	34.6	05.1	35.6	05.3	36.6	05.4	37.6	05.6	38.6	05.7	39.6	05.9		7
	9	32.6	05.2	33.6	05.3	34.6	05.5	35.6	05.6	36.5	05.8	37.5	05.9	38.5	06.1	39.5	06.3	81	
	10	32.5	05.7	33.5	05.9	34.5	06.1	35.5	06.3	36.4	06.4	37.4	06.6	38.4	06.8	39.4	06.9	80	
	11	32.4	06.3	33.4	06.5	34.4	06.7	35.3	06.9	36.3	07.1	37.3	07.3	38.3	07.4	39.3	07.6	79	
		32.4	06.4	33.3	06.6	34.3	06.8	35.3	07.0	36.3	07.2	37.3	07.4	38.2	07.6	39.2	07.8		7
	12	32.3	06.9	33.3	07.1	34.2	07.3	35.2	07.5	36.2	07.7	37.2	07.9	38.1	08.1	39.1	08.3	78	
	13	32.2	07.4	33.1	07.6	34.1	07.9	35.1	08.1	36.1	08.3	37.0	08.5	38.0	08.8	39.0	09.0	77	
	14	32.0	08.0	33.0	08.2	34.0	08.5	34.9	08.7	35.9	09.0	36.9	09.2	37.8	09.4	38.8	09.7	76	
		32.0	08.0	33.0	08.3	34.0	08.5	34.9	08.7	35.9	09.0	36.9	09.2	37.8	09.5	38.8	09.7		6
	15	31.9	08.5	32.8	08.8	33.8	09.1	34.8	09.3	35.7	09.6	36.7	09.8	37.7	10.1	38.6	10.4	75	
	16	31.7	09.1	32.7	09.4	33.6	09.6	34.6	09.9	35.6	10.2	36.5	10.5	37.5	10.7	38.5	11.0	74	
		31.6	09.6	32.5	09.9	33.5	10.2	34.4	10.5	35.4	10.7	36.4	11.0	37.3	11.3	38.3	11.6		6
	17	31.6	09.6	32.5	09.9	33.5	10.2	34.4	10.5	35.4	10.8	36.3	11.1	37.3	11.4	38.3	11.7	73	
	18	31.4	10.2	32.3	10.5	33.3	10.8	34.2	11.1	35.2	11.4	36.1	11.7	37.1	12.1	38.0	12.4	72	
	19	31.2	10.7	32.1	11.1	33.1	11.4	34.0	11.7	35.0	12.0	35.9	12.4	36.9	12.7	37.8	13.0	71	
		31.1	11.1	32.0	11.5	33.0	11.8	33.9	12.1	34.8	12.5	35.8	12.8	36.7	13.1	37.7	13.5		6
	20	31.0	11.3	31.9	11.6	32.9	12.0	33.8	12.3	34.8	12.7	35.7	13.0	36.6	13.3	37.6	13.7	70	
	21	30.8	11.8	31.7	12.2	32.7	12.5	33.6	12.9	34.5	13.3	35.5	13.6	36.4	14.0	37.3	14.3	69	
	22	30.6	12.4	31.5	12.7	32.5	13.1	33.4	13.5	34.3	13.9	35.2	14.2	36.2	14.6	37.1	15.0	68	
		30.5	12.6	31.4	13.0	32.3	13.4	33.3	13.8	34.2	14.2	35.1	14.5	36.0	14.9	37.0	15.3		6
	23	30.4	12.9	31.3	13.3	32.2	13.7	33.1	14.1	34.1	14.5	35.0	14.8	35.9	15.2	36.8	15.6	67	
	24	30.1	13.4	31.1	13.8	32.0	14.2	32.9	14.6	33.8	15.0	34.7	15.5	35.6	15.9	36.5	16.3	66	
	25	29.9	13.9	30.8	14.4	31.7	14.8	32.6	15.2	33.5	15.6	34.4	16.1	35.3	16.5	36.3	16.9	65	
		29.8	14.1	30.7	14.5	31.6	15.0	32.5	15.4	33.4	15.8	34.4	16.2	35.3	16.7	36.2	17.1		5
	26	29.7	14.5	30.6	14.9	31.5	15.3	32.4	15.8	33.3	16.2	34.2	16.7	35.1	17.1	36.0	17.5	64	
	27	29.4	15.0	30.3	15.4	31.2	15.9	32.1	16.3	33.0	16.8	33.9	17.3	34.7	17.7	35.6	18.2	63	
	28	29.1	15.5	30.0	16.0	30.9	16.4	31.8	16.9	32.7	17.4	33.6	17.8	34.4	18.3	35.3	18.8	62	
		29.1	15.6	30.0	16.0	30.9	16.5	31.7	17.0	32.6	17.4	33.5	17.9	34.4	18.4	35.3	18.9		5
	29	28.9	16.0	29.7	16.5	30.6	17.0	31.5	17.5	32.4	17.9	33.2	18.4	34.1	18.9	35.0	19.4	61	
	30	28.6	16.5	29.4	17.0	30.3	17.5	31.2	18.0	32.0	18.5	32.9	19.0	33.8	19.5	34.6	20.0	60	
		28.3	17.0	29.2	17.5	30.0	18.0	30.9	18.5	31.7	19.0	32.6	19.5	33.5	20.1	34.3	20.6		5
	31	28.3	17.0	29.1	17.5	30.0	18.0	30.9	18.5	31.7	19.1	32.6	19.6	33.4	20.1	34.3	20.6	59	
	32	28.0	17.5	28.8	18.0	29.7	18.5	30.5	19.1	31.4	19.6	32.2	20.1	33.1	20.7	33.9	21.2	58	
	33	27.7	18.0	28.5	18.5	29.4	19.1	30.2	19.6	31.0	20.2	31.9	20.7	32.7	21.2	33.5	21.8	57	
		27.4	18.3	28.3	18.9	29.1	19.4	29.9	20.0	30.8	20.6	31.6	21.1	32.4	21.7	33.3	22.2		5
	34	27.4	18.5	28.2	19.0	29.0	19.6	29.8	20.1	30.7	20.7	31.5	21.2	32.3	21.8	33.2	22.4	56	
	35	27.0	18.9	27.9	19.5	28.7	20.1	29.5	20.6	30.3	21.2	31.1	21.8	31.9	22.4	32.8	22.9	55	
	36	26.7	19.4	27.5	20.0	28.3	20.6	29.1	21.2	29.9	21.7	30.7	22.3	31.6	22.9	32.4	23.5	54	
		26.5	19.7	27.3	20.3	28.1	20.8	28.9	21.4	29.7	22.0	30.5	22.6	31.3	23.2	32.1	23.8		4
	37	26.4	19.9	27.2	20.5	28.0	21.1	28.8	21.7	29.5	22.3	30.3	22.9	31.1	23.5	31.9	24.1	53	
	38	26.0	20.3	26.8	20.9	27.6	21.5	28.4	22.2	29.2	22.8	29.9	23.4	30.7	24.0	31.5	24.6	52	
	39	25.6	20.8	26.4	21.4	27.2	22.0	28.0	22.7	28.8	23.3	29.5	23.9	30.3	24.5	31.1	25.2	51	
		25.5	20.9	26.3	21.6	27.1	22.2	27.8	22.8	28.6	23.5	29.4	24.1	30.1	24.7	30.9	25.4		4
	40	25.3	21.2	26.0	21.9	26.8	22.5	27.6	23.1	28.3	23.8	29.1	24.4	29.9	25.1	30.6	25.7	50	
	41	24.9	21.6	25.7	22.3	26.4	23.0	27.2	23.6	27.9	24.3	28.7	24.9	29.4	25.6	30.2	26.2	49	
	42	24.5	22.1	25.3	22.8	26.0	23.4	26.8	24.1	27.5	24.8	28.2	25.4	29.0	26.1	29.7	26.8	48	
		24.5	22.2	25.2	22.8	25.9	23.5	26.7	24.2	27.4	24.8	28.2	25.5	28.9	26.2	29.6	26.9		4
	43	24.1	22.5	24.9	23.2	25.6	23.9	26.3	24.6	27.1	25.2	27.8	25.9	28.5	26.6	29.3	27.3	47	
	44	23.7	22.9	24.5	23.6	25.2	24.3	25.9	25.0	26.6	25.7	27.3	26.4	28.1	27.1	28.8	27.8	46	
	45	23.3	23.3	24.0	24.0	24.7	24.7	25.5	25.5	26.2	26.2	26.9	26.9	27.6	27.6	28.3	28.3	45	4
Points Degrees		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees Points	
		33		34		35		36		37		38		39		40			

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Points	Degrees	41 Diff. Lat.	41 Departure.	42 Diff. Lat.	42 Departure.	43 Diff. Lat.	43 Departure.	44 Diff. Lat.	44 Departure.	45 Diff. Lat.	45 Departure.	46 Diff. Lat.	46 Departure.	47 Diff. Lat.	47 Departure.	48 Diff. Lat.	48 Departure.	Degrees	Points
0	0	41.0	00.0	42.0	00.0	43.0	00.0	44.0	00.0	45.0	00.0	46.0	00.0	47.0	00.0	48.0	00.0	90	8
	1	41.0	00.7	42.0	00.7	43.0	00.8	44.0	00.8	45.0	00.8	46.0	00.8	47.0	00.8	48.0	00.8	89	
	2	41.0	01.4	42.0	01.5	43.0	01.5	44.0	01.5	45.0	01.6	46.0	01.6	47.0	01.6	48.0	01.7	88	
0¼		41.0	02.0	41.9	02.1	42.9	02.1	43.9	02.2	44.9	02.2	45.9	02.3	46.9	02.3	47.9	02.4		7½
	3	40.9	02.1	41.9	02.2	42.9	02.3	43.9	02.3	44.9	02.4	45.9	02.4	46.9	02.5	47.9	02.5	87	
	4	40.9	02.9	41.9	02.9	42.9	03.0	43.9	03.1	44.9	03.1	45.9	03.2	46.9	03.3	47.9	03.3	86	
	5	40.8	03.6	41.8	03.7	42.8	03.7	43.8	03.8	44.8	03.9	45.8	04.0	46.8	04.1	47.8	04.2	85	
0½		40.8	04.0	41.8	04.1	42.8	04.2	43.8	04.3	44.8	04.4	45.8	04.5	46.8	04.6	47.8	04.7		7½
	6	40.8	04.3	41.8	04.4	42.8	04.5	43.8	04.6	44.8	04.7	45.7	04.8	46.7	04.9	47.7	05.0	84	
	7	40.7	05.0	41.7	05.1	42.7	05.2	43.7	05.4	44.7	05.5	45.7	05.6	46.6	05.7	47.6	05.8	83	
	8	40.6	05.7	41.6	05.8	42.6	06.0	43.6	06.1	44.6	06.3	45.6	06.4	46.5	06.5	47.5	06.7	82	
0¾		40.6	06.0	41.5	06.2	42.5	06.3	43.5	06.5	44.5	06.6	45.5	06.7	46.5	06.9	47.5	07.0		7½
	9	40.5	06.4	41.5	06.6	42.5	06.7	43.5	06.9	44.4	07.0	45.4	07.2	46.4	07.4	47.4	07.5	81	
	10	40.4	07.1	41.4	07.3	42.3	07.5	43.3	07.6	44.3	07.8	45.3	08.0	46.3	08.2	47.3	08.3	80	
	11	40.2	07.8	41.2	08.0	42.2	08.2	43.2	08.4	44.2	08.6	45.2	08.8	46.1	09.0	47.1	09.2	79	
1		40.2	08.0	41.2	08.2	42.2	08.4	43.2	08.6	44.1	08.8	45.1	09.0	46.1	09.2	47.1	09.4		7
	12	40.1	08.5	41.1	08.7	42.1	08.9	43.0	09.1	44.0	09.4	45.0	09.6	46.0	09.8	47.0	10.0	78	
	13	39.9	09.2	40.9	09.4	41.9	09.7	42.9	09.9	43.8	10.1	44.8	10.3	45.8	10.6	46.8	10.8	77	
	14	39.8	09.9	40.8	10.2	41.7	10.4	42.7	10.6	43.7	10.9	44.6	11.1	45.6	11.4	46.6	11.6	76	
1¼		39.8	10.0	40.7	10.2	41.7	10.4	42.7	10.7	43.7	10.9	44.6	11.2	45.6	11.4	46.6	11.7		6¾
	15	39.6	10.6	40.6	10.9	41.5	11.1	42.5	11.4	43.5	11.6	44.4	11.9	45.4	12.2	46.4	12.4	75	
	16	39.4	11.3	40.4	11.6	41.3	11.9	42.3	12.1	43.3	12.4	44.2	12.7	45.2	13.0	46.1	13.2	74	
1½		39.2	11.9	40.2	12.2	41.1	12.5	42.1	12.8	43.1	13.1	44.0	13.4	45.0	13.6	45.9	13.9		6¾
	17	39.2	12.0	40.2	12.3	41.1	12.6	42.1	12.9	43.0	13.2	44.0	13.4	44.9	13.7	45.9	14.0	73	
	18	39.0	12.7	39.9	13.0	40.9	13.3	41.8	13.6	42.8	13.9	43.7	14.2	44.7	14.5	45.7	14.8	72	
	19	38.8	13.3	39.7	13.7	40.7	14.0	41.6	14.3	42.5	14.7	43.5	15.0	44.4	15.3	45.4	15.6	71	
1¾		38.6	13.8	39.5	14.1	40.5	14.5	41.4	14.8	42.4	15.2	43.3	15.5	44.3	15.8	45.2	16.2		6¾
	20	38.5	14.0	39.5	14.4	40.4	14.7	41.3	15.0	42.3	15.4	43.2	15.7	44.2	16.1	45.1	16.4	70	
	21	38.3	14.7	39.2	15.1	40.1	15.4	41.1	15.8	42.0	16.1	42.9	16.5	43.9	16.8	44.8	17.2	69	
	22	38.0	15.4	38.9	15.7	39.9	16.1	40.8	16.5	41.7	16.9	42.7	17.2	43.6	17.6	44.5	18.0	68	
2		37.9	15.7	38.8	16.1	39.7	16.5	40.7	16.8	41.6	17.2	42.5	17.6	43.4	18.0	44.3	18.4		6
	23	37.7	16.0	38.7	16.4	39.6	16.8	40.5	17.2	41.4	17.6	42.3	18.0	43.3	18.4	44.2	18.8	67	
	24	37.5	16.7	38.4	17.1	39.3	17.5	40.2	17.9	41.1	18.3	42.0	18.7	42.9	19.1	43.9	19.5	66	
	25	37.2	17.3	38.1	17.7	39.0	18.2	39.9	18.6	40.8	19.0	41.7	19.4	42.6	19.9	43.5	20.3	65	
2¼		37.1	17.5	38.0	18.0	38.9	18.4	39.8	18.8	40.7	19.2	41.6	19.7	42.5	20.1	43.4	20.5		5¾
	26	36.9	18.0	37.7	18.4	38.6	18.8	39.5	19.3	40.4	19.7	41.3	20.2	42.2	20.6	43.1	21.0	64	
	27	36.5	18.6	37.4	19.1	38.3	19.5	39.2	20.0	40.1	20.4	41.0	20.9	41.9	21.3	42.8	21.8	63	
	28	36.2	19.2	37.1	19.7	38.0	20.2	38.8	20.7	39.7	21.1	40.6	21.6	41.5	22.1	42.4	22.5	62	
2½		36.2	19.3	37.0	19.8	37.9	20.3	38.8	20.7	39.7	21.2	40.6	21.7	41.5	22.2	42.3	22.6		5¾
	29	35.9	19.9	36.7	20.4	37.6	20.8	38.5	21.3	39.4	21.8	40.2	22.3	41.1	22.8	42.0	23.3	61	
	30	35.5	20.5	36.4	21.0	37.2	21.5	38.1	22.0	39.0	22.5	39.8	23.0	40.7	23.5	41.6	24.0	60	
2¾		35.2	21.1	36.0	21.6	36.9	22.1	37.7	22.6	38.6	23.1	39.5	23.6	40.3	24.2	41.2	24.7		5¾
	31	35.1	21.1	36.0	21.6	36.9	22.1	37.7	22.7	38.6	23.2	39.4	23.7	40.3	24.2	41.1	24.7	59	
	32	34.8	21.7	35.6	22.3	36.5	22.8	37.3	23.3	38.2	23.8	39.0	24.4	39.9	24.9	40.7	25.4	58	
	33	34.4	22.3	35.2	22.9	36.1	23.4	36.9	24.0	37.7	24.5	38.6	25.1	39.4	25.6	40.3	26.1	57	
3		34.1	22.8	34.9	23.3	35.8	23.9	36.6	24.4	37.4	25.0	38.2	25.6	39.1	26.1	39.9	26.7		5
	34	34.0	22.9	34.8	23.5	35.6	24.0	36.5	24.6	37.3	25.2	38.1	25.7	39.0	26.3	39.8	26.8	56	
	35	33.6	23.5	34.4	24.1	35.2	24.7	36.0	25.2	36.9	25.8	37.7	26.4	38.5	27.0	39.3	27.5	55	
	36	33.2	24.1	34.0	24.7	34.8	25.3	35.6	25.9	36.4	26.5	37.2	27.0	38.0	27.6	38.8	28.2	54	
3¼		32.9	24.4	33.7	25.0	34.5	25.6	35.3	26.2	36.1	26.8	36.9	27.4	37.8	28.0	38.6	28.6		4¾
	37	32.7	24.7	33.5	25.3	34.3	25.9	35.1	26.5	35.9	27.1	36.7	27.7	37.5	28.3	38.3	28.9	53	
	38	32.3	25.2	33.1	25.9	33.9	26.5	34.7	27.1	35.5	27.7	36.2	28.3	37.0	28.9	37.8	29.6	52	
	39	31.9	25.8	32.6	26.4	33.4	27.1	34.2	27.7	35.0	28.3	35.7	28.9	36.5	29.6	37.3	30.2	51	
3½		31.7	26.0	32.5	26.6	33.2	27.3	34.0	27.9	34.8	28.5	35.6	29.2	36.3	29.8	37.1	30.5		4½
	40	31.4	26.4	32.2	27.0	32.9	27.6	33.7	28.3	34.5	28.9	35.2	29.6	36.0	30.2	36.8	30.9	50	
	41	30.9	26.9	31.7	27.6	32.5	28.2	33.2	28.9	34.0	29.5	34.7	30.2	35.5	30.8	36.2	31.5	49	
	42	30.5	27.4	31.2	28.1	32.0	28.8	32.7	29.4	33.4	30.1	34.2	30.8	34.9	31.4	35.7	32.1	48	
3¾		30.4	27.5	31.1	28.2	31.9	28.9	32.6	29.5	33.3	30.2	34.1	30.9	34.8	31.6	35.6	32.2		4¼
	43	30.0	28.0	30.7	28.6	31.4	29.3	32.2	30.0	32.9	30.7	33.6	31.4	34.4	32.1	35.1	32.7	47	
	44	29.5	28.5	30.2	29.2	30.9	29.9	31.7	30.6	32.4	31.3	33.1	32.0	33.8	32.6	34.5	33.2	46	
4	45	29.0	29.0	29.7	29.7	30.4	30.4	31.1	31.1	31.8	31.8	32.5	32.5	33.2	33.2	33.9	33.9	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		41		42		43		44		45		46		47		48			

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Degrees	49 Diff. Lat.	49 Departure.	50 Diff. Lat.	50 Departure.	51 Diff. Lat.	51 Departure.	52 Diff. Lat.	52 Departure.	53 Diff. Lat.	53 Departure.	54 Diff. Lat.	54 Departure.	55 Diff. Lat.	55 Departure.	56 Diff. Lat.	56 Departure.	Crse. Degrees	Crse. Points
0	49.0	00.0	50.0	00.0	51.0	00.0	52.0	00.0	53.0	00.0	54.0	00.0	55.0	00.0	56.0	00.9	90	8
1	49.0	00.9	50.0	00.9	51.0	00.9	52.0	00.9	53.0	00.9	54.0	00.9	55.0	01.0	56.0	01.0	89	
2	49.0	01.7	50.0	01.7	51.0	01.8	52.0	01.8	53.0	01.8	54.0	01.9	55.0	01.9	56.0	02.0	88	
3	48.9	02.4	49.9	02.5	50.9	02.5	51.9	02.6	52.9	02.6	53.9	02.7	54.9	02.7	55.9	02.8		7¾
4	48.9	02.6	49.9	02.6	50.9	02.7	51.9	02.7	52.9	02.8	53.9	02.8	54.9	02.9	55.9	02.9	87	
5	48.9	03.4	49.9	03.5	50.9	03.6	51.9	03.6	52.9	03.7	53.9	03.8	54.9	03.8	55.9	03.9	86	
	48.8	04.3	49.8	04.4	50.8	04.4	51.8	04.5	52.8	04.6	53.8	04.7	54.8	04.8	55.8	04.9	85	
6	48.8	04.8	49.8	04.9	50.8	05.0	51.7	05.1	52.7	05.2	53.7	05.3	54.7	05.4	55.7	05.5		7½
7	48.7	05.1	49.7	05.2	50.7	05.3	51.7	05.4	52.7	05.5	53.7	05.6	54.7	05.7	55.7	05.9	84	
8	48.6	06.0	49.6	06.1	50.6	06.2	51.6	06.3	52.6	06.5	53.6	06.6	54.6	06.7	55.6	06.8	83	
	48.5	06.8	49.5	07.0	50.5	07.1	51.5	07.2	52.5	07.4	53.5	07.5	54.5	07.7	55.5	07.8	82	
9	48.5	07.2	49.5	07.3	50.4	07.5	51.4	07.6	52.4	07.8	53.4	07.9	54.4	08.1	55.4	08.2		7¼
0	48.4	07.7	49.4	07.8	50.4	08.0	51.4	08.1	52.3	08.3	53.3	08.4	54.3	08.6	55.3	08.8	81	
1	48.3	08.5	49.2	08.7	50.2	08.9	51.2	09.0	52.2	09.2	53.2	09.4	54.2	09.6	55.1	09.7	80	
	48.1	09.3	49.1	09.5	50.1	09.7	51.0	09.9	52.0	10.1	53.0	10.3	54.0	10.5	55.0	10.7	79	
2	48.1	09.6	49.0	09.8	50.0	10.0	51.0	10.1	52.0	10.3	53.0	10.5	53.9	10.7	54.9	10.9		7
3	47.9	10.2	48.9	10.4	49.9	10.6	50.9	10.8	51.8	11.0	52.8	11.2	53.8	11.4	54.8	11.6	78	
4	47.7	11.0	48.7	11.2	49.7	11.5	50.7	11.7	51.6	11.9	52.6	12.1	53.6	12.4	54.6	12.6	77	
	47.5	11.9	48.5	12.1	49.5	12.3	50.5	12.6	51.4	12.8	52.4	13.1	53.4	13.3	54.3	13.5	76	
5	47.5	11.9	48.5	12.1	49.5	12.4	50.4	12.6	51.4	12.9	52.4	13.1	53.4	13.4	54.3	13.6		6¾
6	47.3	12.7	48.3	12.9	49.3	13.2	50.2	13.5	51.2	13.7	52.2	14.0	53.1	14.2	54.1	14.5	75	
	47.1	13.5	48.1	13.8	49.0	14.1	50.0	14.3	50.9	14.6	51.9	14.9	52.9	15.2	53.8	15.4	74	
7	46.9	14.2	47.8	14.5	48.8	14.8	49.8	15.1	50.7	15.4	51.7	15.7	52.6	16.0	53.6	16.3		6½
8	46.9	14.3	47.8	14.6	48.8	14.9	49.7	15.2	50.7	15.5	51.6	15.8	52.6	16.1	53.6	16.4	73	
9	46.6	15.1	47.6	15.5	48.5	15.8	49.5	16.1	50.4	16.4	51.4	16.7	52.3	17.0	53.3	17.3	72	
	46.3	16.0	47.3	16.3	48.2	16.6	49.2	16.9	50.1	17.3	51.1	17.6	52.0	17.9	52.9	18.2	71	
0	46.1	16.5	47.1	16.8	48.0	17.2	49.0	17.5	49.9	17.9	50.8	18.2	51.8	18.5	52.7	18.9		6¼
1	46.0	16.8	47.0	17.1	47.9	17.4	48.9	17.8	49.8	18.1	50.7	18.5	51.7	18.8	52.6	19.2	70	
2	45.7	17.6	46.7	17.9	47.6	18.3	48.5	18.6	49.5	19.0	50.4	19.4	51.3	19.7	52.3	20.1	69	
	45.4	18.4	46.4	18.7	47.3	19.1	48.2	19.5	49.1	19.9	50.1	20.2	51.0	20.6	51.9	21.0	68	
3	45.3	18.8	46.2	19.1	47.1	19.5	48.0	19.9	49.0	20.3	49.9	20.7	50.8	21.0	51.7	21.4		6
4	45.1	19.1	46.0	19.5	46.9	19.9	47.9	20.3	48.8	20.7	49.7	21.1	50.6	21.5	51.5	21.9	67	
5	44.8	19.9	45.7	20.3	46.6	20.7	47.5	21.2	48.4	21.6	49.3	22.0	50.2	22.4	51.2	22.8	66	
	44.4	20.7	45.3	21.1	46.2	21.6	47.1	22.0	48.0	22.4	48.9	22.8	49.8	23.2	50.8	23.7	65	
6	44.3	21.0	45.2	21.4	46.1	21.8	47.0	22.2	47.9	22.7	48.8	23.1	49.7	23.5	50.6	23.9		5¾
7	44.0	21.5	44.9	21.9	45.8	22.4	46.7	22.8	47.6	23.2	48.5	23.7	49.4	24.1	50.3	24.5	64	
8	43.7	22.2	44.6	22.7	45.4	23.2	46.3	23.6	47.2	24.1	48.1	24.5	49.0	25.0	49.9	25.4	63	
	43.3	23.0	44.1	23.5	45.0	23.9	45.9	24.4	46.8	24.9	47.7	25.4	48.6	25.8	49.4	26.3	62	
9	43.2	23.1	44.1	23.6	45.0	24.0	45.9	24.5	46.7	25.0	47.6	25.5	48.5	25.9	49.4	26.4		5½
0	42.9	23.8	43.7	24.2	44.6	24.7	45.5	25.2	46.4	25.7	47.2	26.2	48.1	26.7	49.0	27.1	61	
	42.4	24.5	43.3	25.0	44.2	25.5	45.0	26.0	45.9	26.5	46.8	27.0	47.6	27.5	48.5	28.0	60	
1	42.0	25.2	42.9	25.7	43.7	26.2	44.6	26.7	45.5	27.2	46.3	27.8	47.2	28.3	48.0	28.8		5¼
2	42.0	25.2	42.9	25.8	43.7	26.3	44.6	26.8	45.4	27.3	46.3	27.8	47.1	28.3	48.0	28.8	59	
3	41.6	26.0	42.4	26.5	43.3	27.0	44.1	27.6	44.9	28.1	45.8	28.6	46.6	29.1	47.5	29.7	58	
	41.1	26.7	41.9	27.2	42.8	27.8	43.6	28.3	44.4	28.9	45.3	29.4	46.1	30.0	47.0	30.5	57	
4	40.7	27.2	41.6	27.8	42.4	28.3	43.2	28.9	44.1	29.4	44.9	30.0	45.7	30.6	46.6	31.1		5
5	40.6	27.4	41.5	28.0	42.3	28.5	43.1	29.1	43.9	29.6	44.8	30.2	45.6	30.8	46.4	31.3	56	
6	40.1	28.1	41.0	28.7	41.8	29.3	42.6	29.8	43.4	30.4	44.2	31.0	45.1	31.5	45.9	32.1	55	
	39.6	28.8	40.5	29.4	41.3	30.0	42.1	30.6	42.9	31.2	43.7	31.7	44.5	32.3	45.3	32.9	54	
7	39.4	29.2	40.2	29.8	41.0	30.4	41.8	31.0	42.6	31.6	43.4	32.2	44.2	32.8	45.0	33.4		4¾
8	39.1	29.5	39.9	30.1	40.7	30.7	41.5	31.3	42.3	31.9	43.1	32.5	43.9	33.1	44.7	33.7	53	
9	38.6	30.2	39.4	30.8	40.2	31.4	41.0	32.0	41.8	32.6	42.6	33.2	43.3	33.9	44.1	34.5	52	
	38.1	30.8	38.9	31.5	39.6	32.1	40.4	32.7	41.2	33.4	42.0	34.0	42.7	34.6	43.5	35.2	51	
0	37.9	31.1	38.7	31.7	39.4	32.4	40.2	33.0	41.0	33.6	41.7	34.3	42.5	34.9	43.3	35.5		4½
1	37.5	31.5	38.3	32.1	39.1	32.8	39.8	33.4	40.6	34.1	41.4	34.7	42.1	35.4	42.9	36.0	50	
2	37.0	32.1	37.7	32.8	38.5	33.5	39.2	34.1	40.0	34.8	40.8	35.4	41.5	36.1	42.3	36.7	49	
	36.4	32.8	37.2	33.5	37.9	34.1	38.6	34.8	39.4	35.5	40.1	36.1	40.9	36.8	41.6	37.5	48	
3	36.3	32.9	37.0	33.6	37.8	34.2	38.5	34.9	39.3	35.6	40.0	36.3	40.8	36.9	41.5	37.6		4¼
4	35.8	33.4	36.6	34.1	37.3	34.8	38.0	35.5	38.8	36.1	39.5	36.8	40.2	37.5	41.0	38.2	47	
5	35.2	34.0	36.0	34.7	36.7	35.4	37.4	36.1	38.1	36.8	38.8	37.5	39.6	38.2	40.3	38.9	46	
	34.6	34.6	35.4	35.4	36.1	36.1	36.8	36.8	37.5	37.5	38.2	38.2	38.9	38.9	39.6	39.6	45	4
	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
	49		50		51		52		53		54		55		56		Crse.	

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Points	Degrees	57 Diff. Lat.	57 Departure.	58 Diff. Lat.	58 Departure.	59 Diff. Lat.	59 Departure.	60 Diff. Lat.	60 Departure.	61 Diff. Lat.	61 Departure.	62 Diff. Lat.	62 Departure.	63 Diff. Lat.	63 Departure.	64 Diff. Lat.	64 Departure.	Degrees	Points
0	0	57.0	00.0	58.0	00.0	59.0	00.0	60.0	00.0	61.0	00.0	62.0	00.0	63.0	00.0	64.0	00.0	90	
	1	57.0	01.0	58.0	01.0	59.0	01.0	60.0	01.0	61.0	01.1	62.0	01.1	63.0	01.1	64.0	01.1	89	
	2	57.0	02.0	58.0	02.0	59.0	02.1	60.0	02.1	61.0	02.1	62.0	02.2	63.0	02.2	64.0	02.2	88	
0¼		56.9	02.8	57.9	02.9	58.9	02.9	59.9	02.9	60.9	03.0	61.9	03.0	62.9	03.1	63.9	03.1		
	3	56.9	03.0	57.9	03.0	58.9	03.1	59.9	03.1	60.9	03.2	61.9	03.2	62.9	03.3	63.9	03.3	87	
	4	56.9	04.0	57.9	04.0	58.9	04.1	59.9	04.2	60.9	04.3	61.8	04.3	62.8	04.4	63.8	04.5	86	
	5	56.8	05.0	57.8	05.1	58.8	05.1	59.8	05.2	60.8	05.3	61.8	05.4	62.8	05.5	63.8	05.6	85	
0½		56.7	05.6	57.7	05.7	58.7	05.8	59.7	05.9	60.7	06.0	61.7	06.1	62.7	06.2	63.7	06.3		
	6	56.7	06.0	57.7	06.1	58.7	06.2	59.7	06.3	60.7	06.4	61.7	06.5	62.7	06.6	63.6	06.7	84	
	7	56.6	06.9	57.6	07.1	58.6	07.2	59.6	07.3	60.5	07.4	61.5	07.6	62.5	07.7	63.5	07.8	83	
	8	56.4	07.9	57.4	08.1	58.4	08.2	59.4	08.4	60.4	08.5	61.4	08.6	62.4	08.8	63.4	08.9	82	
0¾		56.4	08.4	57.4	08.5	58.4	08.7	59.3	08.8	60.3	08.9	61.3	09.1	62.3	09.2	63.3	09.4		
	9	56.3	08.9	57.3	09.1	58.3	09.2	59.3	09.4	60.2	09.5	61.2	09.7	62.2	09.9	63.2	10.0	81	
	10	56.1	09.9	57.1	10.1	58.1	10.2	59.1	10.4	60.1	10.6	61.1	10.8	62.0	10.9	63.0	11.1	80	
	11	56.0	10.9	56.9	11.1	57.9	11.3	58.9	11.4	59.9	11.6	60.9	11.8	61.8	12.0	62.8	12.2	79	
1		55.9	11.1	56.9	11.3	57.9	11.5	58.8	11.7	59.8	11.9	60.8	12.1	61.8	12.3	62.8	12.5		
	12	55.8	11.9	56.7	12.1	57.7	12.3	58.7	12.5	59.7	12.7	60.6	12.9	61.6	13.1	62.6	13.3	78	
	13	55.5	12.8	56.5	13.0	57.5	13.3	58.5	13.5	59.4	13.7	60.4	13.9	61.4	14.2	62.4	14.4	77	
	14	55.3	13.8	56.3	14.0	57.2	14.3	58.2	14.5	59.2	14.8	60.2	15.0	61.1	15.2	62.1	15.5	76	
1¼		55.3	13.8	56.3	14.1	57.2	14.3	58.2	14.6	59.2	14.8	60.1	15.1	61.1	15.3	62.1	15.6		
	15	55.1	14.8	56.0	15.0	57.0	15.3	58.0	15.5	58.9	15.8	59.9	16.0	60.9	16.3	61.8	16.6	75	
	16	54.8	15.7	55.8	16.0	56.7	16.3	57.7	16.5	58.6	16.8	59.6	17.1	60.6	17.4	61.5	17.6	74	
1½		54.5	16.5	55.5	16.8	56.5	17.1	57.4	17.4	58.4	17.7	59.3	18.0	60.3	18.3	61.2	18.6		
	17	54.5	16.7	55.5	17.0	56.4	17.2	57.4	17.5	58.3	17.8	59.3	18.1	60.2	18.4	61.2	18.7	73	
	18	54.2	17.6	55.2	17.9	56.1	18.2	57.1	18.5	58.0	18.9	59.0	19.2	59.9	19.5	60.9	19.8	72	
	19	53.9	18.6	54.8	18.9	55.8	19.2	56.7	19.5	57.7	19.9	58.6	20.2	59.6	20.5	60.5	20.8	71	
1¾		53.7	19.2	54.6	19.5	55.6	19.9	56.5	20.2	57.4	20.6	58.4	20.9	59.3	21.2	60.3	21.6		
	20	53.6	19.5	54.5	19.8	55.4	20.2	56.4	20.5	57.3	20.9	58.3	21.2	59.2	21.5	60.1	21.9	70	
	21	53.2	20.4	54.1	20.8	55.1	21.1	56.0	21.5	56.9	21.9	57.9	22.2	58.8	22.6	59.7	22.9	69	
	22	52.8	21.4	53.8	21.7	54.7	22.1	55.6	22.5	56.6	22.9	57.5	23.2	58.4	23.6	59.3	24.0	68	
2		52.7	21.8	53.6	22.2	54.5	22.6	55.4	23.0	56.4	23.3	57.3	23.7	58.2	24.1	59.1	24.5		
	23	52.5	22.3	53.4	22.7	54.3	23.1	55.2	23.4	56.2	23.8	57.1	24.2	58.0	24.6	58.9	25.0	67	
	24	52.1	23.2	53.0	23.6	53.9	24.0	54.8	24.4	55.7	24.8	56.6	25.2	57.6	25.6	58.5	26.0	66	
	25	51.7	24.1	52.6	24.5	53.5	24.9	54.4	25.4	55.3	25.8	56.2	26.2	57.1	26.6	58.0	27.0	65	
2¼		51.5	24.4	52.4	24.8	53.3	25.2	54.2	25.7	55.1	26.1	56.0	26.5	57.0	26.9	57.9	27.4		
	26	51.2	25.0	52.1	25.4	53.0	25.9	53.9	26.3	54.8	26.7	55.7	27.2	56.6	27.6	57.5	28.1	64	
	27	50.8	25.9	51.7	26.3	52.6	26.8	53.5	27.2	54.4	27.7	55.2	28.1	56.1	28.6	57.0	29.1	63	
	28	50.3	26.8	51.2	27.2	52.1	27.7	53.0	28.2	53.9	28.6	54.7	29.1	55.6	29.6	56.5	30.0	62	
2½		50.3	26.9	51.2	27.3	52.0	27.8	52.9	28.3	53.8	28.8	54.7	29.2	55.6	29.7	56.4	30.2		
	29	49.9	27.6	50.7	28.1	51.6	28.6	52.5	29.1	53.4	29.6	54.2	30.1	55.1	30.5	56.0	31.0	61	
	30	49.4	28.5	50.2	29.0	51.1	29.5	52.0	30.0	52.8	30.5	53.7	31.0	54.6	31.5	55.4	32.0	60	
2¾		48.9	29.3	49.7	29.8	50.6	30.3	51.5	30.8	52.3	31.4	53.2	31.9	54.0	32.4	54.9	32.9		
	31	48.9	29.4	49.7	29.9	50.6	30.4	51.4	30.9	52.3	31.4	53.1	31.9	54.0	32.4	54.9	33.0	59	
	32	48.3	30.2	49.2	30.7	50.0	31.3	50.9	31.8	51.7	32.3	52.6	32.9	53.4	33.4	54.3	33.9	58	
	33	47.8	31.0	48.6	31.6	49.5	32.1	50.3	32.7	51.2	33.2	52.0	33.8	52.8	34.3	53.7	34.9	57	
3		47.4	31.7	48.2	32.2	49.1	32.8	49.9	33.3	50.7	33.9	51.6	34.4	52.4	35.0	53.2	35.6		
	34	47.3	31.9	48.1	32.4	48.9	33.0	49.7	33.6	50.6	34.1	51.4	34.7	52.2	35.2	53.1	35.8	56	
	35	46.7	32.7	47.5	33.3	48.3	33.8	49.1	34.4	50.0	35.0	50.8	35.6	51.6	36.1	52.4	36.7	55	
	36	46.1	33.5	46.9	34.1	47.7	34.7	48.5	35.3	49.4	35.9	50.2	36.4	51.0	37.0	51.8	37.6	54	
3¼		45.8	34.0	46.6	34.6	47.4	35.1	48.2	35.7	49.0	36.3	49.8	36.9	50.6	37.5	51.4	38.1		
	37	45.5	34.3	46.3	34.9	47.1	35.5	47.9	36.1	48.7	36.7	49.5	37.3	50.3	37.9	51.1	38.5	53	
	38	44.9	35.1	45.7	35.7	46.5	36.3	47.3	36.9	48.1	37.6	48.9	38.2	49.6	38.8	50.4	39.4	52	
	39	44.3	35.9	45.1	36.5	45.9	37.1	46.6	37.8	47.4	38.4	48.2	39.0	49.0	39.6	49.7	40.3	51	
3½		44.1	36.2	44.8	36.8	45.6	37.4	46.4	38.1	47.2	38.7	47.9	39.3	48.7	40.0	49.5	40.6		
	40	43.7	36.6	44.4	37.3	45.2	37.9	46.0	38.6	46.7	39.2	47.5	39.9	48.3	40.5	49.0	41.1	50	
	41	43.0	37.4	43.8	38.1	44.5	38.7	45.3	39.4	46.0	40.0	46.8	40.7	47.5	41.3	48.3	42.0	49	
	42	42.4	38.1	43.1	38.8	43.8	39.5	44.6	40.1	45.3	40.8	46.1	41.5	46.8	42.2	47.6	42.8	48	
3¾		42.2	38.3	43.0	39.0	43.7	39.6	44.5	40.3	45.2	41.0	45.9	41.6	46.7	42.3	47.4	43.0		
	43	41.7	38.9	42.4	39.6	43.1	40.2	43.9	40.9	44.6	41.6	45.3	42.3	46.1	43.0	46.8	43.6	47	
	44	41.0	39.6	41.7	40.3	42.4	41.0	43.2	41.7	43.9	42.4	44.6	43.1	45.3	43.8	46.0	44.5	46	
4	45	40.3	40.3	41.0	41.0	41.7	41.7	42.4	42.4	43.1	43.1	43.8	43.8	44.5	44.5	45.3	45.3	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
		57		58		59		60		61		62		63		64			

DISTANCE.

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Table XLII.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse. Points	Degrees	Distance 65 Diff. Lat.	65 Departure.	66 Diff. Lat.	66 Departure.	67 Diff. Lat	67 Departure.	68 Diff. Lat.	68 Departure.	69 Diff. Lat.	69 Departure.	70 Diff. Lat.	70 Departure.	71 Diff. Lat.	71 Departure.	72 Diff. Lat.	72 Departure.
0	0	65.0	00.0	66.0	00.0	67.0	00.0	68.0	00.0	69.0	00.0	70.0	00.0	71.0	00.0	72.0	00.0
	1	65.0	01.1	66.0	01.2	67.0	01.2	68.0	01.2	69.0	01.2	70.0	01.2	71.0	01.2	72.0	01.3
	2	65.0	02.3	66.0	02.3	67.0	02.3	68.0	02.4	69.0	02.4	70.0	02.4	71.0	02.5	72.0	02.5
0¼		64.9	03.2	65.9	03.2	66.9	03.3	67.9	03.3	68.9	03.4	69.9	03.4	70.9	03.5	71.9	03.5
	3	64.9	03.4	65.9	03.5	66.9	03.5	67.9	03.6	68.9	03.6	69.9	03.7	70.9	03.7	71.9	03.8
	4	64.8	04.5	65.8	04.6	66.8	04.7	67.8	04.7	68.8	04.8	69.8	04.9	70.8	05.0	71.8	05.0
	5	64.8	05.7	65.7	05.8	66.7	05.8	67.7	05.9	68.7	06.0	69.7	06.1	70.7	06.2	71.7	06.3
0½		64.7	06.4	65.7	06.5	66.7	06.6	67.7	06.7	68.7	06.8	69.7	06.9	70.7	07.0	71.7	07.1
	6	64.6	06.8	65.6	06.9	66.6	07.0	67.6	07.1	68.6	07.2	69.6	07.3	70.6	07.4	71.6	07.5
	7	64.5	07.9	65.5	08.0	66.5	08.2	67.5	08.3	68.5	08.4	69.5	08.5	70.5	08.7	71.5	08.8
	8	64.4	09.0	65.4	09.2	66.3	09.3	67.3	09.5	68.3	09.6	69.3	09.7	70.3	09.9	71.3	10.0
0¾		64.3	09.5	65.3	09.7	66.3	09.8	67.3	10.0	68.2	10.1	69.2	10.3	70.2	10.4	71.2	10.6
	9	64.2	10.2	65.2	10.3	66.2	10.5	67.2	10.6	68.2	10.8	69.1	11.0	70.1	11.1	71.1	11.3
	10	64.0	11.3	65.0	11.5	66.0	11.6	67.0	11.8	68.0	12.0	68.9	12.2	69.9	12.3	70.9	12.5
	11	63.8	12.4	64.8	12.6	65.8	12.8	66.8	13.0	67.7	13.2	68.7	13.4	69.7	13.5	70.7	13.7
1		63.7	12.7	64.7	12.9	65.7	13.1	66.7	13.3	67.7	13.5	68.7	13.7	69.6	13.9	70.6	14.0
	12	63.6	13.5	64.6	13.7	65.5	13.9	66.5	14.1	67.5	14.3	68.5	14.6	69.4	14.8	70.4	15.0
	13	63.3	14.6	64.3	14.8	65.3	15.1	66.3	15.3	67.2	15.5	68.2	15.7	69.2	16.0	70.2	16.2
	14	63.1	15.7	64.0	16.0	65.0	16.2	66.0	16.5	67.0	16.7	67.9	16.9	68.9	17.2	69.9	17.4
1¼		63.1	15.8	64.0	16.0	65.0	16.3	66.0	16.5	66.9	16.8	67.9	17.0	68.9	17.3	69.8	17.5
	15	62.8	16.8	63.8	17.1	64.7	17.3	65.7	17.6	66.6	17.9	67.6	18.1	68.6	18.4	69.5	18.6
	16	62.5	17.9	63.4	18.2	64.4	18.5	65.4	18.7	66.3	19.0	67.3	19.3	68.2	19.6	69.2	19.8
1½		62.2	18.9	63.2	19.2	64.1	19.4	65.1	19.7	66.0	20.0	67.0	20.3	67.9	20.6	68.9	20.9
	17	62.2	19.0	63.1	19.3	64.1	19.6	65.0	19.9	66.0	20.2	66.9	20.5	67.9	20.8	68.9	21.1
	18	61.8	20.1	62.8	20.4	63.7	20.7	64.7	21.0	65.6	21.3	66.6	21.6	67.5	21.9	68.5	22.2
	19	61.5	21.2	62.4	21.5	63.3	21.8	64.3	22.1	65.2	22.5	66.2	22.8	67.1	23.1	68.1	23.4
1¾		61.2	21.9	62.1	22.2	63.1	22.6	64.0	22.9	65.0	23.2	65.9	23.6	66.8	23.9	67.8	24.3
	20	61.1	22.2	62.0	22.6	63.0	22.9	63.9	23.3	64.8	23.6	65.8	23.9	66.7	24.3	67.7	24.6
	21	60.7	23.3	61.6	23.7	62.5	24.0	63.5	24.4	64.4	24.7	65.4	25.1	66.3	25.4	67.2	25.8
	22	60.3	24.3	61.2	24.7	62.1	25.1	63.0	25.5	64.0	25.8	64.9	26.2	65.8	26.6	66.8	27.0
2		60.1	24.9	61.0	25.3	61.9	25.6	62.8	26.0	63.7	26.4	64.7	26.8	65.6	27.2	66.5	27.6
	23	59.8	25.4	60.8	25.8	61.7	26.2	62.6	26.6	63.5	27.0	64.4	27.4	65.4	27.7	66.3	28.1
	24	59.4	26.4	60.3	26.8	61.2	27.3	62.1	27.7	63.0	28.1	63.9	28.5	64.9	28.9	65.8	29.3
	25	58.9	27.5	59.8	27.9	60.7	28.3	61.6	28.7	62.5	29.2	63.4	29.6	64.3	30.0	65.3	30.4
2¼		58.8	27.8	59.7	28.2	60.6	28.6	61.5	29.1	62.4	29.5	63.3	29.9	64.2	30.4	65.1	30.8
	26	58.4	28.5	59.3	28.9	60.2	29.4	61.1	29.8	62.0	30.2	62.9	30.7	63.8	31.1	64.7	31.6
	27	57.9	29.5	58.8	30.0	59.7	30.4	60.6	30.9	61.5	31.3	62.4	31.8	63.3	32.2	64.2	32.7
	28	57.4	30.5	58.3	31.0	59.2	31.5	60.0	31.9	60.9	32.4	61.8	32.9	62.7	33.3	63.6	33.8
2½		57.3	30.6	58.2	31.1	59.1	31.6	60.0	32.1	60.9	32.5	61.7	33.0	62.6	33.5	63.5	33.9
	29	56.9	31.5	57.7	32.0	58.6	32.5	59.5	33.0	60.3	33.5	61.2	33.9	62.1	34.4	63.0	34.9
	30	56.3	32.5	57.2	33.0	58.0	33.5	58.9	34.0	59.8	34.5	60.6	35.0	61.5	35.5	62.4	36.0
2¾		55.8	33.4	56.6	33.9	57.5	34.4	58.3	35.0	59.2	35.5	60.0	36.0	60.9	36.5	61.8	37.0
	31	55.7	33.5	56.6	34.0	57.4	34.5	58.3	35.0	59.1	35.5	60.0	36.1	60.9	36.6	61.7	37.1
	32	55.1	34.4	56.0	35.0	56.8	35.5	57.7	36.0	58.5	36.6	59.4	37.1	60.2	37.6	61.1	38.2
	33	54.5	35.4	55.4	35.9	56.2	36.5	57.0	37.0	57.9	37.6	58.7	38.1	59.5	38.7	60.4	39.2
3		54.0	36.1	54.9	36.7	55.7	37.2	56.5	37.8	57.4	38.3	58.2	38.9	59.0	39.4	59.9	40.0
	34	53.9	36.3	54.7	36.9	55.5	37.5	56.4	38.0	57.2	38.6	58.0	39.1	58.9	39.7	59.7	40.3
	35	53.2	37.3	54.1	37.9	54.9	38.4	55.7	39.0	56.5	39.6	57.3	40.2	58.2	40.7	59.0	41.3
	36	52.6	38.2	53.4	38.8	54.2	39.4	55.0	40.0	55.8	40.6	56.6	41.1	57.4	41.7	58.2	42.3
3¼		52.2	38.7	53.0	39.3	53.8	39.9	54.6	40.5	55.4	41.1	56.2	41.7	57.0	42.3	57.8	42.9
	37	51.9	39.1	52.7	39.7	53.5	40.3	54.3	40.9	55.1	41.5	55.9	42.1	56.7	42.7	57.5	43.3
	38	51.2	40.0	52.0	40.6	52.8	41.2	53.6	41.9	54.4	42.5	55.2	43.1	55.9	43.7	56.7	44.3
	39	50.5	40.9	51.3	41.5	52.1	42.2	52.8	42.8	53.6	43.4	54.4	44.1	55.2	44.7	56.0	45.3
3½		50.2	41.2	51.0	41.9	51.8	42.5	52.6	43.1	53.3	43.8	54.1	44.4	54.9	45.0	55.7	45.7
	40	49.8	41.8	50.6	42.4	51.3	43.1	52.1	43.7	52.9	44.4	53.6	45.0	54.4	45.6	55.2	46.3
	41	49.1	42.6	49.8	43.3	50.6	44.0	51.3	44.6	52.1	45.3	52.8	45.9	53.6	46.6	54.3	47.2
	42	48.3	43.5	49.0	44.2	49.8	44.8	50.5	45.5	51.3	46.2	52.0	46.8	52.8	47.5	53.5	48.2
3¾		48.2	43.7	48.9	44.3	49.6	45.0	50.4	45.7	51.1	46.3	51.9	47.0	52.6	47.7	53.3	48.4
	43	47.5	44.3	48.3	45.0	49.0	45.7	49.7	46.4	50.5	47.1	51.2	47.7	51.9	48.4	52.7	49.1
	44	46.8	45.2	47.5	45.8	48.2	46.5	48.9	47.2	49.6	47.9	50.4	48.6	51.1	49.3	51.8	50.0
4	45	46.0	46.0	46.7	46.7	47.4	47.4	48.1	48.1	48.8	48.8	49.5	49.5	50.2	50.2	50.9	50.9
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.
		65		66		67		68		69		70		71		72	

Crse. Distance.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Crse. Points	Degrees	73 Diff. Lat.	73 Departure.	74 Diff. Lat.	74 Departure.	75 Diff. Lat.	75 Departure.	76 Diff. Lat.	76 Departure.	77 Diff. Lat.	77 Departure.	78 Diff. Lat.	78 Departure.	79 Diff. Lat.	79 Departure.	80 Diff. Lat.	80 Departure.	Crse. Degrees Points
0	0	73.0	00.0	74.0	00.0	75.0	00.0	76.0	00.0	77.0	00.0	78.0	00.0	79.0	00.0	80.0	00.0	90 8
	1	73.0	01.3	74.0	01.3	75.0	01.3	76.0	01.3	77.0	01.3	78.0	01.4	79.0	01.4	80.0	01.4	89
	2	73.0	02.5	74.0	02.6	75.0	02.6	76.0	02.7	77.0	02.7	78.0	02.7	79.0	02.8	80.0	02.8	88
0¼		72.9	03.6	73.9	03.6	74.9	03.7	75.9	03.7	76.9	03.8	77.9	03.8	78.9	03.9	79.9	03.9	7
	3	72.9	03.8	73.9	03.9	74.9	03.9	75.9	04.0	76.9	04.0	77.9	04.1	78.9	04.1	79.9	04.2	87
	4	72.8	05.1	73.8	05.2	74.8	05.2	75.8	05.3	76.8	05.4	77.8	05.4	78.8	05.5	79.8	05.6	86
	5	72.7	06.4	73.7	06.4	74.7	06.5	75.7	06.6	76.7	06.7	77.7	06.8	78.7	06.9	79.7	07.0	85
0½		72.6	07.2	73.6	07.3	74.6	07.4	75.6	07.4	76.6	07.5	77.6	07.6	78.6	07.7	79.6	07.8	7
	6	72.6	07.6	73.6	07.7	74.6	07.8	75.6	07.9	76.6	08.0	77.6	08.2	78.6	08.3	79.6	08.4	84
	7	72.5	08.9	73.4	09.0	74.4	09.1	75.4	09.3	76.4	09.4	77.4	09.5	78.4	09.6	79.4	09.7	83
	8	72.3	10.2	73.3	10.3	74.3	10.4	75.3	10.6	76.3	10.7	77.2	10.9	78.2	11.0	79.2	11.1	82
0¾		72.2	10.7	73.2	10.9	74.2	11.0	75.2	11.1	76.2	11.3	77.2	11.4	78.1	11.6	79.1	11.7	7
	9	72.1	11.4	73.1	11.6	74.1	11.7	75.1	11.9	76.1	12.0	77.0	12.2	78.0	12.4	79.0	12.5	81
	10	71.9	12.7	72.9	12.8	73.9	13.0	74.8	13.2	75.8	13.4	76.8	13.5	77.8	13.7	78.8	13.9	80
	11	71.7	13.9	72.6	14.1	73.6	14.3	74.6	14.5	75.6	14.7	76.6	14.9	77.5	15.1	78.5	15.3	79
1		71.6	14.2	72.6	14.4	73.6	14.6	74.5	14.8	75.5	15.0	76.5	15.2	77.5	15.4	78.5	15.6	7
	12	71.4	15.2	72.4	15.4	73.4	15.6	74.3	15.8	75.3	16.0	76.3	16.2	77.3	16.4	78.3	16.6	78
	13	71.1	16.4	72.1	16.6	73.1	16.9	74.1	17.1	75.0	17.3	76.0	17.5	77.0	17.8	77.9	18.0	77
	14	70.8	17.7	71.8	17.9	72.8	18.1	73.7	18.4	74.7	18.6	75.7	18.9	76.7	19.1	77.6	19.4	76
1¼		70.8	17.7	71.8	18.0	72.8	18.2	73.7	18.5	74.7	18.7	75.7	19.0	76.6	19.2	77.6	19.4	6
	15	70.5	18.9	71.5	19.2	72.4	19.4	73.4	19.7	74.4	19.9	75.3	20.2	76.3	20.4	77.3	20.7	75
	16	70.2	20.1	71.1	20.4	72.1	20.7	73.1	20.9	74.0	21.2	75.0	21.5	75.9	21.8	76.9	22.1	74
1½		69.9	21.2	70.8	21.5	71.8	21.8	72.7	22.1	73.7	22.4	74.6	22.6	75.6	22.9	76.6	23.2	6
	17	69.8	21.3	70.8	21.6	71.7	21.9	72.7	22.2	73.6	22.5	74.6	22.8	75.5	23.1	76.5	23.4	73
	18	69.4	22.6	70.4	22.9	71.3	23.2	72.3	23.5	73.2	23.8	74.2	24.1	75.1	24.4	76.1	24.7	72
	19	69.0	23.8	70.0	24.1	70.9	24.4	71.9	24.7	72.8	25.1	73.8	25.4	74.7	25.7	75.6	26.0	71
1¾		68.7	24.6	69.7	24.9	70.6	25.3	71.6	25.6	72.5	25.9	73.4	26.3	74.4	26.6	75.3	27.0	6
	20	68.6	25.0	69.5	25.3	70.5	25.7	71.4	26.0	72.4	26.3	73.3	26.7	74.2	27.0	75.2	27.4	70
	21	68.2	26.2	69.1	26.5	70.0	26.9	71.0	27.2	71.9	27.6	72.8	28.0	73.8	28.3	74.7	28.7	69
	22	67.7	27.3	68.6	27.7	69.5	28.1	70.5	28.5	71.4	28.8	72.3	29.2	73.2	29.6	74.2	30.0	68
2		67.4	27.9	68.4	28.3	69.3	28.7	70.2	29.1	71.1	29.5	72.1	29.8	73.0	30.2	73.9	30.6	6
	23	67.2	28.5	68.1	28.9	69.0	29.3	70.0	29.7	70.9	30.1	71.8	30.5	72.7	30.9	73.6	31.3	67
	24	66.7	29.7	67.6	30.1	68.5	30.5	69.4	30.9	70.3	31.3	71.3	31.7	72.2	32.1	73.1	32.5	66
	25	66.2	30.9	67.1	31.3	68.0	31.7	68.9	32.1	69.8	32.5	70.7	33.0	71.6	33.4	72.5	33.8	65
2¼		66.0	31.2	66.9	31.6	67.8	32.1	68.7	32.5	69.6	32.9	70.5	33.3	71.4	33.8	72.3	34.2	5
	26	65.6	32.0	66.5	32.4	67.4	32.9	68.3	33.3	69.2	33.8	70.1	34.2	71.0	34.6	71.9	35.1	64
	27	65.0	33.1	65.9	33.6	66.8	34.0	67.7	34.5	68.6	35.0	69.5	35.4	70.4	35.9	71.3	36.3	63
	28	64.5	34.3	65.3	34.7	66.2	35.2	67.1	35.7	68.0	36.1	68.9	36.6	69.8	37.1	70.6	37.6	62
2½		64.4	34.4	65.3	34.9	66.1	35.4	67.0	35.8	67.9	36.3	68.8	36.8	69.7	37.2	70.6	37.7	5
	29	63.8	35.4	64.7	35.9	65.6	36.4	66.5	36.8	67.3	37.3	68.2	37.8	69.1	38.3	70.0	38.8	61
	30	63.2	36.5	64.1	37.0	65.0	37.5	65.8	38.0	66.7	38.5	67.5	39.0	68.4	39.5	69.3	40.0	60
2¾		62.6	37.5	63.5	38.0	64.3	38.6	65.2	39.1	66.0	39.6	66.9	40.1	67.8	40.6	68.6	41.1	5
	31	62.6	37.6	63.4	38.1	64.3	38.6	65.1	39.1	66.0	39.7	66.9	40.2	67.7	40.7	68.6	41.2	59
	32	61.9	38.7	62.8	39.2	63.6	39.7	64.5	40.3	65.3	40.8	66.1	41.3	67.0	41.9	67.8	42.4	58
	33	61.2	39.8	62.1	40.3	62.9	40.8	63.7	41.4	64.6	41.9	65.4	42.5	66.3	43.0	67.1	43.6	57
3		60.7	40.6	61.5	41.1	62.4	41.7	63.2	42.2	64.0	42.8	64.9	43.3	65.7	43.9	66.5	44.4	5
	34	60.5	40.8	61.3	41.4	62.2	41.9	63.0	42.5	63.8	43.1	64.7	43.6	65.5	44.2	66.3	44.7	56
	35	59.8	41.9	60.6	42.4	61.4	43.0	62.3	43.6	63.1	44.2	63.9	44.7	64.7	45.3	65.5	45.9	55
	36	59.1	42.9	59.9	43.5	60.7	44.1	61.5	44.7	62.3	45.3	63.1	45.8	63.9	46.4	64.7	47.0	54
3¼		58.6	43.5	59.4	44.1	60.2	44.7	61.0	45.3	61.8	45.9	62.7	46.5	63.5	47.1	64.3	47.7	4
	37	58.3	43.9	59.1	44.5	59.9	45.1	60.7	45.7	61.5	46.3	62.3	46.9	63.1	47.5	63.9	48.1	53
	38	57.5	44.9	58.3	45.6	59.1	46.2	59.9	46.8	60.7	47.4	61.5	48.0	62.3	48.6	63.0	49.3	52
	39	56.7	45.9	57.5	46.6	58.3	47.2	59.1	47.8	59.8	48.5	60.6	49.1	61.4	49.7	62.2	50.3	51
3½		56.4	46.3	57.2	46.9	58.0	47.6	58.7	48.2	59.5	48.8	60.3	49.5	61.1	50.1	61.8	50.8	4
	40	55.9	46.9	56.7	47.6	57.5	48.2	58.2	48.9	59.0	49.5	59.8	50.1	60.5	50.8	61.3	51.4	50
	41	55.1	47.9	55.8	48.5	56.6	49.2	57.4	49.9	58.1	50.5	58.9	51.2	59.6	51.8	60.4	52.5	49
	42	54.2	48.8	55.0	49.5	55.7	50.2	56.5	50.9	57.2	51.5	58.0	52.2	58.7	52.9	59.5	53.5	48
3¾		54.1	49.0	54.8	49.7	55.6	50.4	56.3	51.0	57.1	51.7	57.8	52.4	58.5	53.1	59.3	53.7	4
	43	53.4	49.8	54.1	50.5	54.9	51.1	55.6	51.8	56.3	52.5	57.0	53.2	57.8	53.9	58.5	54.6	47
	44	52.5	50.7	53.2	51.4	54.0	52.1	54.7	52.8	55.4	53.5	56.1	54.2	56.8	54.9	57.5	55.6	46
4	45	51.6	51.6	52.3	52.3	53.0	53.0	53.7	53.7	54.4	54.4	55.2	55.2	55.9	55.9	56.6	56.6	45
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees Points
		73		74		75		76		77		78		79		80		

Crse. DISTANCE. Crse.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Points	Degrees	81 Diff. Lat.	81 Departure.	82 Diff. Lat.	82 Departure.	83 Diff. Lat.	83 Departure.	84 Diff. Lat.	84 Departure.	85 Diff. Lat.	85 Departure.	86 Diff. Lat.	86 Departure.	87 Diff. Lat.	87 Departure.	88 Diff. Lat.	88 Departure.	Degrees	Points
		DISTANCE.																	
0	0	81.0	00.0	82.0	00.0	83.0	00.0	84.0	00.0	85.0	00.0	86.0	00.0	87.0	00.0	88.0	00.0	90	8
	1	81.0	01.4	82.0	01.4	83.0	01.4	84.0	01.5	85.0	01.5	86.0	01.5	87.0	01.5	88.0	01.5	89	
	2	81.0	02.8	82.0	02.9	82.9	02.9	83.9	02.9	84.9	03.0	85.9	03.0	86.9	03.0	87.9	03.1	88	
0¼		80.9	04.0	81.9	04.0	82.9	04.1	83.9	04.1	84.9	04.2	85.9	04.2	86.9	04.3	87.9	04.3		7½
	3	80.9	04.2	81.9	04.3	82.9	04.3	83.9	04.4	84.9	04.4	85.9	04.5	86.9	04.6	87.9	04.6	87	
	4	80.8	05.7	81.8	05.7	82.8	05.8	83.8	05.9	84.8	05.9	85.8	06.0	86.8	06.1	87.8	06.1	86	
	5	80.7	07.1	81.7	07.1	82.7	07.2	83.7	07.3	84.7	07.4	85.7	07.5	86.7	07.6	87.7	07.7	85	
0½		80.6	07.9	81.6	08.0	82.6	08.1	83.6	08.2	84.6	08.3	85.6	08.4	86.6	08.5	87.6	08.6		7½
	6	80.6	08.5	81.6	08.6	82.5	08.7	83.5	08.8	84.5	08.9	85.5	09.0	86.5	09.1	87.5	09.2	84	
	7	80.4	09.9	81.4	10.0	82.4	10.1	83.4	10.2	84.4	10.4	85.4	10.5	86.4	10.6	87.3	10.7	83	
	8	80.2	11.3	81.2	11.4	82.2	11.6	83.2	11.7	84.2	11.8	85.2	12.0	86.2	12.1	87.1	12.2	82	
0¾		80.1	11.9	81.1	12.0	82.1	12.2	83.1	12.3	84.1	12.5	85.1	12.6	86.1	12.8	87.0	12.9		7¾
	9	80.0	12.7	81.0	12.8	82.0	13.0	83.0	13.1	84.0	13.3	84.9	13.5	85.9	13.6	86.9	13.8	81	
	10	79.8	14.1	80.8	14.2	81.7	14.4	82.7	14.6	83.7	14.8	84.7	14.9	85.7	15.1	86.7	15.3	80	
	11	79.5	15.5	80.5	15.6	81.5	15.8	82.5	16.0	83.4	16.2	84.4	16.4	85.4	16.6	86.4	16.8	79	
1		79.4	15.8	80.4	16.0	81.4	16.2	82.4	16.4	83.4	16.6	84.3	16.8	85.3	17.0	86.3	17.2		7
	12	79.2	16.8	80.2	17.0	81.2	17.3	82.2	17.5	83.1	17.7	84.1	17.9	85.1	18.1	86.1	18.3	78	
	13	78.9	18.2	79.9	18.4	80.9	18.7	81.8	18.9	82.8	19.1	83.8	19.3	84.8	19.6	85.7	19.8	77	
	14	78.6	19.6	79.6	19.8	80.5	20.1	81.5	20.3	82.5	20.6	83.4	20.8	84.4	21.0	85.4	21.3	76	
1¼		78.6	19.7	79.5	19.9	80.5	20.2	81.5	20.4	82.5	20.7	83.4	20.9	84.4	21.1	85.4	21.4		6¾
	15	78.2	21.0	79.2	21.2	80.2	21.5	81.1	21.7	82.1	22.0	83.1	22.3	84.0	22.5	85.0	22.8	75	
	16	77.9	22.3	78.8	22.6	79.8	22.9	80.7	23.2	81.7	23.4	82.7	23.7	83.6	24.0	84.6	24.3	74	
1½		77.5	23.5	78.5	23.8	79.4	24.1	80.4	24.4	81.3	24.7	82.3	25.0	83.3	25.3	84.2	25.5		6½
	17	77.5	23.7	78.4	24.0	79.4	24.3	80.3	24.6	81.3	24.9	82.2	25.1	83.2	25.4	84.2	25.7	73	
	18	77.0	25.0	78.0	25.3	78.9	25.6	79.9	26.0	80.8	26.3	81.8	26.6	82.7	26.9	83.7	27.2	72	
	19	76.6	26.4	77.5	26.7	78.5	27.0	79.4	27.3	80.4	27.7	81.3	28.0	82.3	28.3	83.2	28.7	71	
1¾		76.3	27.3	77.2	27.6	78.1	28.0	79.1	28.3	80.0	28.6	81.0	29.0	81.9	29.3	82.9	29.6		6¼
	20	76.1	27.7	77.1	28.0	78.0	28.4	78.9	28.7	79.9	29.1	80.8	29.4	81.8	29.8	82.7	30.1	70	
	21	75.6	29.0	76.6	29.4	77.5	29.7	78.4	30.1	79.4	30.5	80.3	30.8	81.2	31.2	82.2	31.5	69	
	22	75.1	30.3	76.0	30.7	77.0	31.1	77.9	31.5	78.8	31.8	79.7	32.2	80.7	32.6	81.6	33.0	68	
2		74.8	31.0	75.8	31.4	76.7	31.8	77.6	32.1	78.5	32.5	79.5	32.9	80.4	33.3	81.3	33.7		6
	23	74.6	31.6	75.5	32.0	76.4	32.4	77.3	32.8	78.2	33.2	79.2	33.6	80.1	34.0	81.0	34.4	67	
	24	74.0	32.9	74.9	33.4	75.8	33.8	76.7	34.2	77.7	34.6	78.6	35.0	79.5	35.4	80.4	35.8	66	
	25	73.4	34.2	74.3	34.7	75.2	35.1	76.1	35.5	77.0	35.9	77.9	36.3	78.8	36.8	79.8	37.2	65	
2¼		73.2	34.6	74.1	35.1	75.0	35.5	75.9	35.9	76.8	36.3	77.7	36.8	78.6	37.2	79.6	37.6		5¾
	26	72.8	35.5	73.7	35.9	74.6	36.4	75.5	36.8	76.4	37.3	77.3	37.7	78.2	38.1	79.1	38.6	64	
	27	72.2	36.8	73.1	37.2	74.0	37.7	74.8	38.1	75.7	38.6	76.6	39.0	77.5	39.5	78.4	40.0	63	
	28	71.5	38.0	72.4	38.5	73.3	39.0	74.2	39.4	75.1	39.9	75.9	40.4	76.8	40.8	77.7	41.3	62	
2½		71.4	38.2	72.3	38.7	73.2	39.1	74.1	39.6	75.0	40.1	75.8	40.5	76.7	41.0	77.6	41.5		5½
	29	70.8	39.3	71.7	39.8	72.6	40.2	73.5	40.7	74.3	41.2	75.2	41.7	76.1	42.2	77.0	42.7	61	
	30	70.1	40.5	71.0	41.0	71.9	41.5	72.7	42.0	73.6	42.5	74.5	43.0	75.3	43.5	76.2	44.0	60	
2¾		69.5	41.6	70.3	42.2	71.2	42.7	72.0	43.2	72.9	43.7	73.8	44.2	74.6	44.7	75.5	45.2		5¼
	31	69.4	41.7	70.3	42.2	71.1	42.7	72.0	43.3	72.9	43.8	73.7	44.3	74.6	44.8	75.4	45.3	59	
	32	68.7	42.9	69.5	43.5	70.4	44.0	71.2	44.5	72.1	45.0	72.9	45.6	73.8	46.1	74.6	46.6	58	
	33	67.9	44.1	68.8	44.7	69.6	45.2	70.4	45.7	71.3	46.3	72.1	46.8	73.0	47.4	73.8	47.9	57	
		67.3	45.0	68.2	45.6	69.0	46.1	69.8	46.7	70.7	47.2	71.5	47.8	72.3	48.3	73.2	48.9		5
	34	67.2	45.3	68.0	45.9	68.8	46.4	69.6	47.0	70.5	47.5	71.3	48.1	72.1	48.6	73.0	49.2	56	
	35	66.4	46.5	67.2	47.0	68.0	47.6	68.8	48.2	69.6	48.8	70.4	49.3	71.3	49.9	72.1	50.5	55	
	36	65.5	47.6	66.3	48.2	67.1	48.8	68.0	49.4	68.8	50.0	69.6	50.5	70.4	51.1	71.2	51.7	54	
4		65.1	48.3	65.9	48.8	66.7	49.4	67.5	50.0	68.3	50.6	69.1	51.2	69.9	51.8	70.7	52.4		4¾
	37	64.7	48.7	65.5	49.3	66.3	50.0	67.1	50.6	67.9	51.2	68.7	51.8	69.5	52.4	70.3	53.0	53	
	38	63.8	49.9	64.6	50.5	65.4	51.1	66.2	51.7	67.0	52.3	67.8	52.9	68.6	53.6	69.3	54.2	52	
	39	62.9	51.0	63.7	51.6	64.5	52.2	65.3	52.9	66.1	53.5	66.8	54.1	67.6	54.8	68.4	55.4	51	
4½		62.6	51.4	63.4	52.0	64.2	52.7	64.9	53.3	65.7	53.9	66.5	54.6	67.3	55.2	68.0	55.8		4½
	40	62.0	52.1	62.8	52.7	63.6	53.4	64.3	54.0	65.1	54.6	65.9	55.3	66.6	55.9	67.4	56.6	50	
	41	61.1	53.1	61.9	53.8	62.6	54.5	63.4	55.1	64.2	55.8	64.9	56.4	65.7	57.1	66.4	57.7	49	
	42	60.2	54.2	60.9	54.9	61.7	55.5	62.4	56.2	63.2	56.9	63.9	57.5	64.7	58.2	65.4	58.9	48	
4¾		60.0	54.4	60.8	55.1	61.5	55.7	62.2	56.4	63.0	57.1	63.7	57.8	64.5	58.4	65.2	59.1		4¾
	43	59.2	55.2	60.0	55.9	60.7	56.6	61.4	57.3	62.2	58.0	62.9	58.7	63.6	59.3	64.4	60.0	47	
	44	58.3	56.3	59.0	57.0	59.7	57.7	60.4	58.4	61.1	59.0	61.9	59.7	62.6	60.4	63.3	61.1	46	
	45	57.3	57.3	58.0	58.0	58.7	58.7	59.4	59.4	60.1	60.1	60.8	60.8	61.5	61.5	62.2	62.2	45	4
Degrees		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
		81		82		83		84		85		86		87		88			
		DISTANCE.																	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Degrees	DISTANCE 89 Diff. Lat.	89 Departure.	90 Diff. Lat.	90 Departure	91 Diff. Lat.	91 Departure.	92 Diff. Lat.	92 Departure.	93 Diff. Lat.	93 Departure.	94 Diff. Lat.	94 Departure.	95 Diff. Lat.	95 Departure.	96 Diff. Lat.	96 Departure.	Crse. Degrees	Points
0	0	89.0	00.0	90.0	00.0	91.0	00.0	92.0	00.0	93.0	00.0	94.0	00.0	95.0	00.0	96.0	00.0	90	8
	1	89.0	01.6	90.0	01.6	91.0	01.6	92.0	01.6	93.0	01.6	94.0	01.6	95.0	01.7	96.0	01.7	89	
	2	88.9	03.1	89.9	03.1	90.9	03.2	91.9	03.2	92.9	03.2	93.9	03.3	94.9	03.3	95.9	03.4	88	
0¼		88.9	04.4	89.9	04.4	90.9	04.5	91.9	04.5	92.9	04.6	93.9	04.6	94.9	04.7	95.9	04.7		7½
	3	88.9	04.7	89.9	04.7	90.9	04.8	91.9	04.8	92.9	04.9	93.9	04.9	94.9	05.0	95.9	05.0	87	
	4	88.8	06.2	89.8	06.3	90.8	06.3	91.8	06.4	92.8	06.5	93.8	06.6	94.8	06.6	95.8	06.7	86	
	5	88.7	07.8	89.7	07.8	90.7	07.9	91.6	08.0	92.6	08.1	93.6	08.2	94.6	08.3	95.6	08.4	85	
0½		88.6	08.7	89.6	08.8	90.6	08.9	91.6	09.0	92.6	09.1	93.5	09.2	94.5	09.3	95.5	09.4		7½
	6	88.5	09.3	89.5	09.4	90.5	09.5	91.5	09.6	92.5	09.7	93.5	09.8	94.5	09.9	95.5	10.0	84	
	7	88.3	10.8	89.3	11.0	90.3	11.1	91.3	11.2	92.3	11.3	93.3	11.5	94.3	11.6	95.3	11.7	83	
	8	88.1	12.4	89.1	12.5	90.1	12.7	91.1	12.8	92.1	12.9	93.1	13.1	94.1	13.2	95.1	13.4	82	
0¾		88.0	13.1	89.0	13.2	90.0	13.3	91.0	13.5	92.0	13.6	93.0	13.8	94.0	13.9	95.0	14.1		7½
	9	87.9	13.9	88.9	14.1	89.9	14.2	90.9	14.4	91.9	14.5	92.8	14.7	93.8	14.9	94.8	15.0	81	
	10	87.6	15.5	88.6	15.6	89.6	15.8	90.6	16.0	91.6	16.1	92.6	16.3	93.6	16.5	94.5	16.7	80	
	11	87.4	17.0	88.3	17.2	89.3	17.4	90.3	17.6	91.3	17.7	92.3	17.9	93.3	18.1	94.2	18.3	79	
1		87.3	17.4	88.3	17.6	89.2	17.8	90.2	18.0	91.2	18.1	92.2	18.3	93.2	18.5	94.2	18.7		7
	12	87.1	18.5	88.0	18.7	89.0	18.9	90.0	19.1	91.0	19.3	91.9	19.5	92.9	19.8	93.9	20.0	78	
	13	86.7	20.0	87.7	20.2	88.7	20.5	89.6	20.7	90.6	20.9	91.6	21.1	92.6	21.4	93.5	21.6	77	
	14	86.4	21.5	87.3	21.8	88.3	22.0	89.3	22.3	90.2	22.5	91.2	22.7	92.2	23.0	93.1	23.2	76	
1¼		86.3	21.6	87.3	21.9	88.3	22.1	89.2	22.4	90.2	22.6	91.2	22.8	92.2	23.1	93.1	23.3		6¾
	15	86.0	23.0	86.9	23.3	87.9	23.6	88.9	23.8	89.8	24.1	90.8	24.3	91.8	24.6	92.7	24.8	75	
	16	85.6	24.5	86.5	24.8	87.5	25.1	88.4	25.4	89.4	25.6	90.4	25.9	91.3	26.2	92.3	26.5	74	
1½		85.2	25.8	86.1	26.1	87.1	26.4	88.0	26.7	89.0	27.0	90.0	27.3	90.9	27.6	91.9	27.9		6¼
	17	85.1	26.0	86.1	26.3	87.0	26.6	88.0	26.9	88.9	27.2	89.9	27.5	90.8	27.8	91.8	28.1	73	
	18	84.6	27.5	85.6	27.8	86.5	28.1	87.5	28.4	88.4	28.7	89.4	29.0	90.4	29.4	91.3	29.7	72	
	19	84.2	29.0	85.1	29.3	86.0	29.6	87.0	30.0	87.9	30.3	88.9	30.6	89.8	30.9	90.8	31.3	71	
1¾		83.8	30.0	84.7	30.3	85.7	30.7	86.6	31.0	87.6	31.3	88.5	31.7	89.4	32.0	90.4	32.3		6¼
	20	83.6	30.4	84.6	30.8	85.5	31.1	86.5	31.5	87.4	31.8	88.3	32.1	89.3	32.5	90.2	32.8	70	
	21	83.1	31.9	84.0	32.3	85.0	32.6	85.9	33.0	86.8	33.3	87.8	33.7	88.7	34.0	89.6	34.4	69	
	22	82.5	33.3	83.4	33.7	84.4	34.1	85.3	34.5	86.2	34.8	87.2	35.2	88.1	35.6	89.0	36.0	68	
2		82.2	34.1	83.1	34.4	84.1	34.8	85.0	35.2	85.9	35.6	86.8	36.0	87.8	36.4	88.7	36.7		6
	23	81.9	34.8	82.8	35.2	83.8	35.6	84.7	35.9	85.6	36.3	86.5	36.7	87.4	37.1	88.4	37.5	67	
	24	81.3	36.2	82.2	36.6	83.1	37.0	84.0	37.4	85.0	37.8	85.9	38.2	86.8	38.6	87.7	39.0	66	
	25	80.7	37.6	81.6	38.0	82.5	38.5	83.4	38.9	84.3	39.3	85.2	39.7	86.1	40.1	87.0	40.6	65	
2¼		80.5	38.1	81.4	38.5	82.3	38.9	83.2	39.3	84.1	39.8	85.0	40.2	85.9	40.6	86.8	41.0		5¾
	26	80.0	39.0	80.9	39.5	81.8	39.9	82.7	40.3	83.6	40.8	84.5	41.2	85.4	41.6	86.3	42.1	64	
	27	79.3	40.4	80.2	40.9	81.1	41.3	82.0	41.8	82.9	42.2	83.8	42.7	84.6	43.1	85.5	43.6	63	
	28	78.6	41.8	79.5	42.3	80.3	42.7	81.2	43.2	82.1	43.7	83.0	44.1	83.9	44.6	84.8	45.1	62	
2½		78.5	42.0	79.4	42.4	80.3	42.9	81.1	43.4	82.0	43.8	82.9	44.3	83.8	44.8	84.7	45.3		5¼
	29	77.8	43.1	78.7	43.6	79.6	44.1	80.5	44.6	81.3	45.1	82.2	45.6	83.1	46.1	84.0	46.5	61	
	30	77.1	44.5	77.9	45.0	78.8	45.5	79.7	46.0	80.5	46.5	81.4	47.0	82.3	47.5	83.1	48.0	60	
2¾		76.3	45.8	77.2	46.3	78.1	46.8	78.9	47.3	79.8	47.8	80.6	48.3	81.5	48.8	82.3	49.4		5
	31	76.3	45.8	77.1	46.4	78.0	46.9	78.9	47.4	79.7	47.9	80.6	48.4	81.4	48.9	82.3	49.4	59	
	32	75.5	47.2	76.3	47.7	77.2	48.2	78.0	48.8	78.9	49.3	79.7	49.8	80.6	50.3	81.4	50.9	58	
	33	74.6	48.5	75.5	49.0	76.3	49.6	77.2	50.1	78.0	50.7	78.8	51.2	79.7	51.7	80.5	52.3	57	
3		74.0	49.4	74.8	50.0	75.7	50.6	76.5	51.1	77.3	51.7	78.2	52.2	79.0	52.8	79.8	53.3		5
	34	73.8	49.8	74.6	50.3	75.4	50.9	76.3	51.4	77.1	52.0	77.9	52.6	78.8	53.1	79.6	53.7	56	
	35	72.9	51.0	73.7	51.6	74.5	52.2	75.4	52.8	76.2	53.3	77.0	53.9	77.8	54.5	78.6	55.1	55	
	36	72.0	52.3	72.8	52.9	73.6	53.5	74.4	54.1	75.2	54.7	76.0	55.3	76.9	55.8	77.7	56.4	54	
3¼		71.5	53.0	72.3	53.6	73.1	54.2	73.9	54.8	74.7	55.4	75.5	56.0	76.3	56.6	77.1	57.2		4¾
	37	71.1	53.6	71.9	54.2	72.7	54.8	73.5	55.4	74.3	56.0	75.1	56.6	75.9	57.2	76.7	57.8	53	
	38	70.1	54.8	70.9	55.4	71.7	56.0	72.5	56.6	73.3	57.3	74.1	57.9	74.9	58.5	75.6	59.1	52	
	39	69.2	56.0	69.9	56.6	70.7	57.3	71.5	57.9	72.3	58.5	73.1	59.2	73.8	59.8	74.6	60.4	51	
3½		68.8	56.5	69.6	57.1	70.3	57.7	71.1	58.4	71.9	59.0	72.7	59.6	73.4	60.3	74.2	60.9		4½
	40	68.2	57.2	68.9	57.9	69.7	58.5	70.5	59.1	71.2	59.8	72.0	60.4	72.8	61.1	73.5	61.7	50	
	41	67.2	58.4	67.9	59.0	68.7	59.7	69.4	60.4	70.2	61.0	70.9	61.7	71.7	62.3	72.5	63.0	49	
	42	66.1	59.6	66.9	60.2	67.6	60.9	68.4	61.6	69.1	62.2	69.9	62.9	70.6	63.6	71.3	64.2	48	
3¾		65.9	59.8	66.7	60.4	67.4	61.1	68.2	61.8	68.9	62.5	69.6	63.1	70.4	63.8	71.1	64.5		4¼
	43	65.1	60.7	65.8	61.4	66.6	62.1	67.3	62.7	68.0	63.4	68.7	64.1	69.5	64.8	70.2	65.5	47	
	44	64.0	61.8	64.7	62.5	65.5	63.2	66.2	63.9	66.9	64.6	67.6	65.3	68.3	66.0	69.1	66.7	46	
4	45	62.9	62.9	63.6	63.6	64.3	64.3	65.1	65.1	65.8	65.8	66.5	66.5	67.2	67.2	67.9	67.9	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
Crse.		89		90		91		92		93		94		95		96			
		DISTANCE																	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

97		98		99		100		101		102		103		104		Course Degrees	Points
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
97.0	00.0	98.0	00.0	99.0	00.0	100.0	00.0	101.0	00.0	102.0	00.0	103.0	00.0	104.0	00.0	90	8
97.0	01.7	98.0	01.7	99.0	01.7	100.0	01.7	101.0	01.8	102.0	01.8	103.0	01.8	104.0	01.8	89	
96.9	03.4	97.9	03.4	98.9	03.5	99.9	03.5	100.9	03.5	101.9	03.6	102.9	03.6	103.9	03.6	88	
96.9	04.8	97.9	04.8	98.9	04.9	99.9	04.9	100.9	05.0	101.9	05.0	102.9	05.1	103.9	05.1		7½
96.9	05.1	97.9	05.1	98.9	05.2	99.9	05.2	100.9	05.3	101.9	05.3	102.9	05.4	103.9	05.4	87	
96.8	06.8	97.8	06.8	98.8	06.9	99.8	07.0	100.8	07.0	101.8	07.1	102.7	07.2	103.7	07.3	86	
96.6	08.5	97.6	08.5	98.6	08.6	99.6	08.7	100.6	08.8	101.6	08.9	102.6	09.0	103.6	09.1	85	
96.5	09.6	97.5	09.6	98.5	09.7	99.5	09.8	100.5	09.9	101.5	10.0	102.5	10.1	103.5	10.2		7½
96.5	10.1	97.5	10.2	98.5	10.3	99.5	10.5	100.4	10.6	101.4	10.7	102.4	10.8	103.4	10.9	84	
96.3	11.8	97.3	11.9	98.3	12.1	99.3	12.2	100.2	12.3	101.2	12.4	102.2	12.6	103.2	12.7	83	
96.1	13.5	97.0	13.6	98.0	13.8	99.0	13.9	100.0	14.1	101.0	14.2	102.0	14.3	103.0	14.5	82	
95.9	14.2	96.9	14.4	97.9	14.5	98.9	14.7	99.9	14.8	100.9	15.0	101.9	15.1	102.9	15.3		7½
95.8	15.2	96.8	15.3	97.8	15.5	98.8	15.6	99.8	15.8	100.7	16.0	101.7	16.1	102.7	16.3	81	
95.5	16.8	96.5	17.0	97.5	17.2	98.5	17.4	99.5	17.5	100.5	17.7	101.4	17.9	102.4	18.1	80	
95.2	18.5	96.2	18.7	97.2	18.9	98.2	19.1	99.1	19.3	100.1	19.5	101.1	19.7	102.1	19.8	79	
95.1	18.9	96.1	19.1	97.1	19.3	98.1	19.5	99.1	19.7	100.0	19.9	101.0	20.1	102.0	20.3		7
94.9	20.2	95.9	20.4	96.8	20.6	97.8	20.8	98.8	21.0	99.8	21.2	100.7	21.4	101.7	21.6	78	
94.5	21.8	95.5	22.0	96.5	22.3	97.4	22.5	98.4	22.7	99.4	22.9	100.4	23.2	101.3	23.4	77	
94.1	23.5	95.1	23.7	96.1	24.0	97.0	24.2	98.0	24.4	99.0	24.7	99.9	24.9	100.9	25.2	76	
94.1	23.6	95.1	23.8	96.0	24.1	97.0	24.3	98.0	24.5	98.9	24.8	99.9	25.0	100.9	25.3		6¾
93.7	25.1	94.7	25.4	95.6	25.6	96.6	25.9	97.6	26.1	98.5	26.4	99.5	26.7	100.5	26.9	75	
93.2	26.7	94.2	27.0	95.2	27.3	96.1	27.6	97.1	27.8	98.0	28.1	99.0	28.4	100.0	28.7	74	
92.8	28.2	93.8	28.4	94.7	28.7	95.7	29.0	96.7	29.3	97.6	29.6	98.6	29.9	99.5	30.2		6½
92.8	28.4	93.7	28.7	94.7	28.9	95.6	29.2	96.6	29.5	97.5	29.8	98.5	30.1	99.5	30.4	73	
92.3	30.0	93.2	30.3	94.2	30.6	95.1	30.9	96.1	31.2	97.0	31.5	98.0	31.8	98.9	32.1	72	
91.7	31.6	92.7	31.9	93.6	32.2	94.6	32.6	95.5	32.9	96.4	33.2	97.4	33.5	98.3	33.9	71	
91.3	32.7	92.3	33.0	93.2	33.4	94.2	33.7	95.1	34.0	96.0	34.4	97.0	34.7	97.9	35.0		6½
91.2	33.2	92.1	33.5	93.0	33.9	94.0	34.2	94.9	34.5	95.8	34.9	96.8	35.2	97.7	35.6	70	
90.6	34.8	91.5	35.1	92.4	35.5	93.4	35.8	94.3	36.2	95.2	36.6	96.2	36.9	97.1	37.3	69	
89.9	36.3	90.9	36.7	91.8	37.1	92.7	37.5	93.6	37.8	94.6	38.2	95.5	38.6	96.4	39.0	68	
89.6	37.1	90.5	37.5	91.5	37.9	92.4	38.3	93.3	38.7	94.2	39.0	95.2	39.4	96.1	39.8		6
89.3	37.9	90.2	38.3	91.1	38.7	92.1	39.1	93.0	39.5	93.9	39.9	94.8	40.2	95.7	40.6	67	
88.6	39.5	89.5	39.9	90.4	40.3	91.4	40.7	92.3	41.1	93.2	41.5	94.1	41.9	95.0	42.3	66	
87.9	41.0	88.8	41.4	89.7	41.8	90.6	42.3	91.5	42.7	92.4	43.1	93.3	43.5	94.3	44.0	65	
87.7	41.5	88.6	41.9	89.5	42.3	90.4	42.8	91.3	43.2	92.2	43.6	93.1	44.0	94.0	44.5		5¾
87.2	42.5	88.1	43.0	89.0	43.4	89.9	43.8	90.8	44.3	91.7	44.7	92.6	45.2	93.5	45.6	64	
86.4	44.0	87.3	44.5	88.2	44.9	89.1	45.4	90.0	45.9	90.9	46.3	91.8	46.8	92.7	47.2	63	
85.6	45.5	86.5	46.0	87.4	46.5	88.3	46.9	89.2	47.4	90.1	47.9	90.9	48.4	91.8	48.8	62	
85.5	45.7	86.4	46.2	87.3	46.7	88.2	47.1	89.1	47.6	90.0	48.1	90.8	48.6	91.7	49.0		5½
84.8	47.0	85.7	47.5	86.6	48.0	87.5	48.5	88.3	49.0	89.2	49.5	90.1	49.9	91.0	50.4	61	
84.0	48.5	84.9	49.0	85.7	49.5	86.6	50.0	87.5	50.5	88.3	51.0	89.2	51.5	90.1	52.0	60	
83.2	49.9	84.1	50.4	84.9	50.9	85.8	51.4	86.6	51.9	87.5	52.4	88.3	53.0	89.2	53.5		5¼
83.1	50.0	84.0	50.5	84.9	51.0	85.7	51.5	86.6	52.0	87.4	52.5	88.3	53.0	89.1	53.6	59	
82.3	51.4	83.1	51.9	84.0	52.5	84.8	53.0	85.7	53.5	86.5	54.1	87.3	54.6	88.2	55.1	58	
81.4	52.8	82.2	53.4	83.0	53.9	83.9	54.5	84.7	55.0	85.5	55.6	86.4	56.1	87.2	56.6	57	
80.7	53.9	81.5	54.4	82.3	55.0	83.1	55.6	84.0	56.1	84.8	56.7	85.6	57.2	86.5	57.8		5
80.4	54.2	81.2	54.8	82.1	55.4	82.9	55.9	83.7	56.5	84.6	57.0	85.4	57.6	86.2	58.2	56	
79.5	55.6	80.3	56.2	81.1	56.8	81.9	57.4	82.7	57.9	83.6	58.5	84.4	59.1	85.2	59.7	55	
78.5	57.0	79.3	57.6	80.1	58.2	80.9	58.8	81.7	59.4	82.5	60.0	83.3	60.5	84.1	61.1	54	
77.9	57.8	78.7	58.4	79.5	59.0	80.3	59.6	81.1	60.2	81.9	60.8	82.7	61.4	83.5	62.0		4¾
77.5	58.4	78.3	59.0	79.1	59.6	79.9	60.2	80.7	60.8	81.5	61.4	82.3	62.0	83.1	62.6	53	
76.4	59.7	77.2	60.3	78.0	61.0	78.8	61.6	79.6	62.2	80.4	62.8	81.2	63.4	82.0	64.0	52	
75.4	61.0	76.2	61.7	76.9	62.3	77.7	62.9	78.5	63.6	79.3	64.2	80.0	64.8	80.8	65.4	51	
75.0	61.5	75.8	62.2	76.5	62.8	77.3	63.4	78.1	64.1	78.8	64.7	79.6	65.3	80.4	66.0		4½
74.3	62.4	75.1	63.0	75.8	63.6	76.6	64.3	77.4	64.9	78.1	65.6	78.9	66.2	79.7	66.8	50	
73.2	63.6	74.0	64.3	74.7	64.9	75.5	65.6	76.2	66.3	77.0	66.9	77.7	67.6	78.5	68.2	49	
72.1	64.9	72.8	65.6	73.6	66.2	74.3	66.9	75.1	67.6	75.8	68.3	76.5	68.9	77.3	69.6	48	
71.9	65.1	72.6	65.8	73.4	66.5	74.1	67.2	74.8	67.8	75.6	68.5	76.3	69.2	77.1	69.8		4¼
70.9	66.2	71.7	66.8	72.4	67.5	73.1	68.2	73.9	68.9	74.6	69.6	75.3	70.2	76.1	70.9	47	
69.8	67.4	70.5	68.1	71.2	68.8	71.9	69.5	72.7	70.2	73.4	70.9	74.1	71.5	74.8	72.2	46	
68.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	72.8	73.5	73.5	45	4
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
97		98		99		100		101		102		103		104			

DISTANCE.

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A GENERAL TRAVERSE TABLE, OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Crse. Points	Degrees	105 Diff. Lat.	105 Departure.	106 Diff. Lat.	106 Departure.	107 Diff. Lat.	107 Departure.	108 Diff. Lat.	108 Departure.	109 Diff. Lat.	109 Departure.	110 Diff. Lat.	110 Departure.	111 Diff. Lat.	111 Departure.	112 Diff. Lat.	112 Departure.	Degrees
0	0	105.0	00.0	106.0	00.0	107.0	00.0	108.0	00.0	109.0	00.0	110.0	00.0	111.0	00.0	112.0	00.0	90
	1	105.0	01.8	106.0	01.8	107.0	01.9	108.0	01.9	109.0	01.9	110.0	01.9	111.0	01.9	112.0	02.0	89
	2	104.9	03.7	105.9	03.7	106.9	03.7	107.9	03.8	108.9	03.8	109.9	03.8	110.9	03.9	111.9	03.9	88
0¼		104.9	05.2	105.9	05.2	106.9	05.3	107.9	05.3	108.9	05.4	109.9	05.4	110.9	05.5	111.9	05.5	
	3	104.9	05.5	105.9	05.5	106.9	05.6	107.9	05.7	108.9	05.7	109.8	05.8	110.8	05.8	111.8	05.9	87
	4	104.7	07.3	105.7	07.4	106.7	07.5	107.7	07.5	108.7	07.6	109.7	07.7	110.7	07.7	111.7	07.8	86
	5	104.6	09.2	105.6	09.2	106.6	09.3	107.6	09.4	108.6	09.5	109.6	09.6	110.6	09.7	111.6	09.8	85
0½		104.5	10.3	105.5	10.4	106.5	10.5	107.5	10.6	108.5	10.7	109.5	10.8	110.5	10.9	111.5	11.0	
	6	104.4	11.0	105.4	11.1	106.4	11.2	107.4	11.3	108.4	11.4	109.4	11.5	110.4	11.6	111.4	11.7	84
	7	104.2	12.8	105.2	12.9	106.2	13.0	107.2	13.2	108.2	13.3	109.2	13.4	110.2	13.5	111.2	13.6	83
	8	104.0	14.6	105.0	14.8	106.0	14.9	106.9	15.0	107.9	15.2	108.9	15.3	109.9	15.4	110.9	15.6	82
0¾		103.9	15.4	104.8	15.5	105.8	15.7	106.8	15.8	107.8	16.0	108.8	16.1	109.8	16.3	110.8	16.4	
	9	103.7	16.4	104.7	16.6	105.7	16.7	106.7	16.9	107.7	17.1	108.6	17.2	109.6	17.4	110.6	17.5	81
	10	103.4	18.2	104.4	18.4	105.4	18.6	106.4	18.8	107.3	18.9	108.3	19.1	109.3	19.3	110.3	19.4	80
	11	103.1	20.0	104.1	20.2	105.0	20.4	106.0	20.6	107.0	20.8	108.0	21.0	109.0	21.2	109.9	21.4	79
1		103.0	20.5	104.0	20.7	104.9	20.9	105.9	21.1	106.9	21.3	107.9	21.5	108.9	21.7	109.8	21.9	
	12	102.7	21.8	103.7	22.0	104.7	22.2	105.7	22.5	106.6	22.7	107.6	22.9	108.6	23.1	109.6	23.3	78
	13	102.3	23.6	103.3	23.8	104.3	24.1	105.2	24.3	106.2	24.5	107.2	24.7	108.2	25.0	109.1	25.2	77
	14	101.9	25.4	102.9	25.6	103.8	25.9	104.8	26.1	105.8	26.4	106.7	26.6	107.7	26.9	108.7	27.1	76
1¼		101.9	25.5	102.8	25.8	103.8	26.0	104.8	26.2	105.7	26.5	106.7	26.7	107.7	27.0	108.6	27.2	
	15	101.4	27.2	102.4	27.4	103.4	27.7	104.3	28.0	105.3	28.2	106.3	28.5	107.2	28.7	108.2	29.0	75
	16	100.9	28.9	101.9	29.2	102.9	29.5	103.8	29.8	104.8	30.0	105.7	30.3	106.7	30.6	107.7	30.9	74
1½		100.5	30.5	101.4	30.8	102.4	31.1	103.3	31.4	104.3	31.6	105.3	31.9	106.2	32.2	107.2	32.5	
	17	100.4	30.7	101.4	31.0	102.3	31.3	103.3	31.6	104.2	31.9	105.2	32.2	106.1	32.5	107.1	32.7	73
	18	99.9	32.4	100.8	32.8	101.8	33.1	102.7	33.4	103.7	33.7	104.6	34.0	105.6	34.3	106.5	34.6	72
	19	99.3	34.2	100.2	34.5	101.2	34.8	102.1	35.2	103.1	35.5	104.0	35.8	105.0	36.1	105.9	36.5	71
1¾		98.9	35.4	99.8	35.7	100.7	36.0	101.7	36.4	102.6	36.7	103.6	37.1	104.5	37.4	105.5	37.7	
	20	98.7	35.9	99.6	36.3	100.5	36.6	101.5	36.9	102.4	37.3	103.4	37.6	104.3	38.0	105.2	38.3	70
	21	98.0	37.6	99.0	38.0	99.9	38.3	100.8	38.7	101.8	39.1	102.7	39.4	103.6	39.8	104.6	40.1	69
	22	97.4	39.3	98.3	39.7	99.2	40.1	100.1	40.5	101.1	40.8	102.0	41.2	102.9	41.6	103.8	42.0	68
2		97.0	40.2	97.9	40.6	98.9	40.9	99.8	41.3	100.7	41.7	101.6	42.1	102.6	42.5	103.5	42.9	
	23	96.7	41.0	97.6	41.4	98.5	41.8	99.4	42.2	100.3	42.6	101.3	43.0	102.2	43.4	103.1	43.8	67
	24	95.9	42.7	96.8	43.1	97.7	43.5	98.7	43.9	99.6	44.3	100.5	44.7	101.4	45.1	102.3	45.6	66
	25	95.2	44.4	96.1	44.8	97.0	45.2	97.9	45.6	98.8	46.1	99.7	46.5	100.6	46.9	101.5	47.3	65
2¼		94.9	44.9	95.8	45.3	96.7	45.7	97.6	46.2	98.5	46.6	99.4	47.0	100.3	47.5	101.2	47.9	
	26	94.4	46.0	95.3	46.5	96.2	46.9	97.1	47.3	98.0	47.8	98.9	48.2	99.8	48.7	100.7	49.1	
	27	93.6	47.7	94.4	48.1	95.3	48.6	96.2	49.0	97.1	49.5	98.0	49.9	98.9	50.4	99.8	50.8	
	28	92.7	49.3	93.6	49.8	94.5	50.2	95.4	50.7	96.2	51.2	97.1	51.6	98.0	52.1	98.9	52.6	
2½		92.6	49.5	93.5	50.0	94.4	50.4	95.2	50.9	96.1	51.4	97.0	51.9	97.9	52.3	98.8	52.8	
	29	91.8	50.9	92.7	51.4	93.6	51.9	94.5	52.4	95.3	52.8	96.2	53.3	97.1	53.8	98.0	54.3	
	30	90.9	52.5	91.8	53.0	92.7	53.5	93.5	54.0	94.4	54.5	95.3	55.0	96.1	55.5	97.0	56.0	
2¾		90.1	54.0	90.9	54.5	91.8	55.0	92.6	55.5	93.5	56.0	94.4	56.6	95.2	57.1	96.1	57.6	
	31	90.0	54.1	90.9	54.6	91.7	55.1	92.6	55.6	93.4	56.1	94.3	56.7	95.1	57.2	96.0	57.7	
	32	89.0	55.6	89.9	56.2	90.7	56.7	91.6	57.2	92.4	57.8	93.3	58.3	94.1	58.8	95.0	59.4	
	33	88.1	57.2	88.9	57.7	89.7	58.3	90.6	58.8	91.4	59.4	92.3	59.9	93.1	60.5	93.9	61.0	
3		87.3	58.3	88.1	58.9	89.0	59.4	89.8	60.0	90.6	60.6	91.5	61.1	92.3	61.7	93.1	62.2	
	34	87.0	58.7	87.9	59.3	88.7	59.8	89.5	60.4	90.4	61.0	91.2	61.5	92.0	62.1	92.9	62.6	
	35	86.0	60.2	86.8	60.8	87.6	61.4	88.5	61.9	89.3	62.5	90.1	63.1	90.9	63.7	91.7	64.2	
	36	84.9	61.7	85.8	62.3	86.6	62.9	87.4	63.5	88.2	64.1	89.0	64.7	89.8	65.2	90.6	65.8	
3¼		84.3	62.5	85.1	63.1	85.9	63.7	86.7	64.3	87.5	64.9	88.4	65.5	89.2	66.1	90.0	66.7	
	37	83.9	63.2	84.7	63.8	85.5	64.4	86.3	65.0	87.1	65.6	87.8	66.2	88.6	66.8	89.4	67.4	
	38	82.7	64.6	83.5	65.3	84.3	65.9	85.1	66.5	85.9	67.1	86.7	67.7	87.5	68.3	88.3	69.0	
	39	81.6	66.1	82.4	66.7	83.2	67.3	83.9	68.0	84.7	68.6	85.5	69.2	86.3	69.9	87.0	70.5	
3½		81.2	66.6	81.9	67.2	82.7	67.9	83.5	68.5	84.3	69.1	85.0	69.8	85.8	70.4	86.6	71.1	
	40	80.4	67.5	81.2	68.1	82.0	68.8	82.7	69.4	83.5	70.1	84.3	70.7	85.0	71.3	85.8	72.0	
	41	79.2	68.9	80.0	69.5	80.8	70.2	81.5	70.9	82.3	71.5	83.0	72.2	83.8	72.8	84.5	73.5	
	42	78.0	70.3	78.8	70.9	79.5	71.6	80.3	72.3	81.0	72.9	81.7	73.6	82.5	74.3	83.2	74.9	
3¾		77.8	70.5	78.5	71.2	79.3	71.9	80.0	72.5	80.8	73.2	81.5	73.9	82.2	74.5	83.0	75.2	
	43	76.8	71.6	77.5	72.3	78.3	73.0	79.0	73.7	79.7	74.3	80.4	75.0	81.2	75.7	81.9	76.4	
	44	75.5	72.9	76.3	73.6	77.0	74.3	77.7	75.0	78.4	75.7	79.1	76.4	79.8	77.1	80.6	77.8	
4	45	74.2	74.2	75.0	75.0	75.7	75.7	76.4	76.4	77.1	77.1	77.8	77.8	78.5	78.5	79.2	79.2	
Points	Degrees	105 Departure.	105 Diff. Lat.	106 Departure.	106 Diff. Lat.	107 Departure.	107 Diff. Lat.	108 Departure.	108 Diff. Lat.	109 Departure.	109 Diff. Lat.	110 Departure.	110 Diff. Lat.	111 Departure.	111 Diff. Lat.	112 Departure.	112 Diff. Lat.	

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Crse. Points	Crse. Degrees	113 Diff. Lat.	113 Departure.	114 Diff. Lat.	114 Departure.	115 Diff. Lat.	115 Departure.	116 Diff. Lat.	116 Departure.	117 Diff. Lat.	117 Departure.	118 Diff. Lat.	118 Departure.	119 Diff. Lat.	119 Departure.	120 Diff. Lat.	120 Departure.	Crse. Degrees	Crse. Points
0		113.0	00.0	114.0	00.0	115.0	00.0	116.0	00.0	117.0	00.0	118.0	00.0	119.0	00.0	120.0	00.0	90	8
1		113.0	02.0	114.0	02.0	115.0	02.0	116.0	02.0	117.0	02.0	118.0	02.1	119.0	02.1	120.0	02.1	89	
2		112.9	03.9	113.9	04.0	114.9	04.0	115.9	04.0	116.9	04.1	117.9	04.1	118.9	04.2	119.9	04.2	88	
2½		112.9	05.5	113.9	05.6	114.9	05.6	115.9	05.7	116.9	05.7	117.9	05.8	118.9	05.8	119.9	05.9		7¾
3		112.8	05.9	113.8	06.0	114.8	06.0	115.8	06.1	116.8	06.1	117.8	06.2	118.8	06.2	119.8	06.3	87	
4		112.7	07.9	113.7	08.0	114.7	08.0	115.7	08.1	116.7	08.2	117.7	08.2	118.7	08.3	119.7	08.4	86	
5		112.6	09.8	113.6	09.9	114.6	10.0	115.6	10.1	116.6	10.2	117.6	10.3	118.5	10.4	119.5	10.5	85	
5½		112.5	11.1	113.5	11.2	114.4	11.3	115.4	11.4	116.4	11.5	117.4	11.6	118.4	11.7	119.4	11.8		7½
6		112.4	11.8	113.4	11.9	114.4	12.0	115.4	12.1	116.4	12.2	117.4	12.3	118.3	12.4	119.3	12.5	84	
7		112.2	13.8	113.2	13.9	114.1	14.0	115.1	14.1	116.1	14.3	117.1	14.4	118.1	14.5	119.1	14.6	83	
8		111.9	15.7	112.9	15.9	113.9	16.0	114.9	16.1	115.9	16.3	116.9	16.4	117.8	16.6	118.8	16.7	82	
8½		111.8	16.6	112.8	16.7	113.7	16.9	114.7	17.0	115.7	17.2	116.7	17.3	117.7	17.5	118.7	17.6		7¼
9		111.6	17.7	112.6	17.8	113.6	18.0	114.6	18.1	115.6	18.3	116.5	18.5	117.5	18.6	118.5	18.8	81	
10		111.3	19.6	112.3	19.8	113.3	20.0	114.2	20.1	115.2	20.3	116.2	20.5	117.2	20.7	118.2	20.8	80	
11		110.9	21.6	111.9	21.8	112.9	21.9	113.9	22.1	114.9	22.3	115.8	22.5	116.8	22.7	117.8	22.9	79	
11½		110.8	22.0	111.8	22.2	112.8	22.4	113.8	22.6	114.7	22.8	115.7	23.0	116.7	23.2	117.7	23.4		7
12		110.5	23.5	111.5	23.7	112.5	23.9	113.5	24.1	114.4	24.3	115.4	24.5	116.4	24.7	117.4	24.9	78	
13		110.1	25.4	111.1	25.6	112.1	25.9	113.0	26.1	114.0	26.3	115.0	26.5	116.0	26.8	116.9	27.0	77	
14		109.6	27.3	110.6	27.6	111.6	27.8	112.6	28.1	113.5	28.3	114.5	28.5	115.5	28.8	116.4	29.0	76	
14½		109.6	27.5	110.6	27.7	111.6	27.9	112.5	28.2	113.5	28.4	114.5	28.7	115.4	28.9	116.4	29.2		6¾
15		109.1	29.2	110.1	29.5	111.1	29.8	112.0	30.0	113.0	30.3	114.0	30.5	114.9	30.8	115.9	31.1	75	
16		108.6	31.1	109.6	31.4	110.5	31.7	111.5	32.0	112.5	32.2	113.4	32.5	114.4	32.8	115.4	33.1	74	
16½		108.1	32.8	109.1	33.1	110.0	33.4	111.0	33.7	112.0	34.0	112.9	34.3	113.9	34.5	114.8	34.8		6½
17		108.1	33.0	109.0	33.3	110.0	33.6	110.9	33.9	111.9	34.2	112.8	34.5	113.8	34.8	114.8	35.1	73	
18		107.5	34.9	108.4	35.2	109.4	35.5	110.3	35.8	111.3	36.2	112.2	36.5	113.2	36.8	114.1	37.1	72	
19		106.8	36.8	107.8	37.1	108.7	37.4	109.7	37.8	110.6	38.1	111.6	38.4	112.5	38.7	113.5	39.1	71	
19½		106.4	38.1	107.3	38.4	108.3	38.7	109.2	39.1	110.2	39.4	111.1	39.8	112.0	40.1	113.0	40.4		6¼
20		106.2	38.6	107.1	39.0	108.1	39.3	109.0	39.7	109.9	40.0	110.9	40.4	111.8	40.7	112.8	41.0	70	
21		105.5	40.5	106.4	40.9	107.4	41.2	108.3	41.6	109.2	41.9	110.2	42.3	111.1	42.6	112.0	43.0	69	
22		104.8	42.3	105.7	42.7	106.6	43.1	107.6	43.5	108.5	43.8	109.4	44.2	110.3	44.6	111.3	45.0	68	
23		104.4	43.2	105.3	43.6	106.2	44.0	107.2	44.4	108.1	44.8	109.0	45.2	109.9	45.5	110.9	45.9		6
23		104.0	44.2	104.9	44.5	105.9	44.9	106.8	45.3	107.7	45.7	108.6	46.1	109.5	46.5	110.5	46.9	67	
24		103.2	46.0	104.1	46.4	105.1	46.8	106.0	47.2	106.9	47.6	107.8	48.0	108.7	48.4	109.6	48.8	66	
25		102.4	47.8	103.3	48.2	104.2	48.6	105.1	49.0	106.0	49.4	106.9	49.9	107.9	50.3	108.8	50.7	65	
25½		102.2	48.3	103.1	48.7	104.0	49.2	104.9	49.6	105.8	50.0	106.7	50.5	107.6	50.9	108.5	51.3		5¾
26		101.6	49.5	102.5	50.0	103.4	50.4	104.3	50.9	105.2	51.3	106.1	51.7	107.0	52.2	107.9	52.6	64	
27		100.7	51.3	101.6	51.8	102.5	52.2	103.4	52.7	104.2	53.1	105.1	53.6	106.0	54.0	106.9	54.5	63	
28		99.8	53.1	100.7	53.5	101.5	54.0	102.4	54.5	103.3	54.9	104.2	55.4	105.1	55.9	106.0	56.3	62	
28½		99.7	53.3	100.5	53.7	101.4	54.2	102.3	54.7	103.2	55.2	104.1	55.6	104.9	56.1	105.8	56.6		5½
29		98.8	54.8	99.7	55.3	100.6	55.8	101.5	56.2	102.3	56.7	103.2	57.2	104.1	57.7	105.0	58.2	61	
30		97.9	56.5	98.7	57.0	99.6	57.5	100.5	58.0	101.3	58.5	102.2	59.0	103.1	59.5	103.9	60.0	60	
30½		96.9	58.1	97.8	58.6	98.6	59.1	99.5	59.6	100.4	60.2	101.2	60.7	102.1	61.2	102.9	61.7		5¼
31		96.9	58.2	97.7	58.7	98.6	59.2	99.4	59.7	100.3	60.3	101.1	60.8	102.0	61.3	102.9	61.8	59	
32		95.8	59.9	96.7	60.4	97.5	60.9	98.4	61.5	99.2	62.0	100.1	62.5	100.9	63.1	101.8	63.6	58	
33		94.8	61.5	95.6	62.1	96.4	62.6	97.3	63.2	98.1	63.7	99.0	64.3	99.8	64.8	100.6	65.4	57	
34		94.0	62.8	94.8	63.3	95.6	63.9	96.5	64.4	97.3	65.0	98.1	65.5	98.9	66.1	99.8	66.7		5
34		93.7	63.2	94.5	63.7	95.3	64.3	96.2	64.9	97.0	65.4	97.8	66.0	98.7	66.5	99.5	67.1	56	
35		92.6	64.8	93.4	65.4	94.2	66.0	95.0	66.5	95.8	67.1	96.7	67.7	97.5	68.3	98.3	68.8	55	
36		91.4	66.4	92.2	67.0	93.0	67.6	93.8	68.2	94.7	68.8	95.5	69.4	96.3	69.9	97.1	70.5	54	
36½		90.8	67.3	91.6	67.9	92.4	68.5	93.2	69.1	94.0	69.7	94.8	70.3	95.6	70.9	96.4	71.5		4¾
37		90.2	68.0	91.0	68.6	91.8	69.2	92.6	69.8	93.4	70.4	94.2	71.0	95.0	71.6	95.8	72.2	53	
38		89.0	69.6	89.8	70.2	90.6	70.8	91.4	71.4	92.2	72.0	93.0	72.6	93.8	73.3	94.6	73.9	52	
39		87.8	71.1	88.6	71.7	89.4	72.4	90.1	73.0	90.9	73.6	91.7	74.3	92.5	74.9	93.3	75.5	51	
39½		87.4	71.7	88.1	72.3	88.9	73.0	89.7	73.6	90.4	74.2	91.2	74.9	92.0	75.5	92.8	76.1		4½
40		86.6	72.6	87.3	73.3	88.1	73.9	88.9	74.6	89.6	75.2	90.4	75.8	91.2	76.5	91.9	77.1	50	
41		85.3	74.1	86.0	74.8	86.8	75.4	87.5	76.1	88.3	76.8	89.1	77.4	89.8	78.1	90.6	78.7	49	
42		84.0	75.6	84.7	76.3	85.5	77.0	86.2	77.6	86.9	78.3	87.7	79.0	88.4	79.6	89.2	80.3	48	
42½		83.7	75.9	84.5	76.6	85.2	77.2	86.0	77.9	86.7	78.6	87.4	79.2	88.2	79.9	88.9	80.6		4¼
43		82.6	77.1	83.4	77.7	84.1	78.4	84.8	79.1	85.6	79.8	86.3	80.5	87.0	81.2	87.8	81.8	47	
44		81.3	78.5	82.0	79.2	82.7	79.9	83.4	80.6	84.2	81.3	84.9	82.0	85.6	82.7	86.3	83.4	46	
45		79.9	79.9	80.6	80.6	81.3	81.3	82.0	82.0	82.7	82.7	83.4	83.4	84.1	84.1	84.9	84.9	45	
Points Degrees		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		113		114		115		116		117		118		119		120			

Crse. DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Crse. Points	Crse. Degrees	121 Diff. Lat.	121 Departure.	122 Diff. Lat.	122 Departure.	123 Diff. Lat.	123 Departure.	124 Diff. Lat.	124 Departure.	125 Diff. Lat.	125 Departure.	126 Diff. Lat.	126 Departure.	127 Diff. Lat.	127 Departure.	128 Diff. Lat.	128 Departure.	Degrees Points
0	0	121.0	00.0	122.0	00.0	123.0	00.0	124.0	00.0	125.0	00.0	126.0	00.0	127.0	00.0	128.0	00.0	90 0
	1	121.0	02.1	122.0	02.1	123.0	02.1	124.0	02.2	125.0	02.2	126.0	02.2	127.0	02.2	128.0	02.2	89
	2	120.9	04.2	121.9	04.3	122.9	04.3	123.9	04.3	124.9	04.4	125.9	04.4	126.9	04.4	127.9	04.5	88
0¼		120.9	05.9	121.9	06.0	122.9	06.0	123.9	06.1	124.9	06.1	125.8	06.2	126.8	06.2	127.8	06.3	7
	3	120.8	06.3	121.8	06.4	122.8	06.4	123.8	06.5	124.8	06.5	125.8	06.6	126.8	06.6	127.8	06.7	8
	4	120.7	08.4	121.7	08.5	122.7	08.6	123.7	08.6	124.7	08.7	125.7	08.8	126.7	08.9	127.7	08.9	86
	5	120.5	10.5	121.5	10.6	122.5	10.7	123.5	10.8	124.5	10.9	125.5	11.0	126.5	11.1	127.5	11.2	85
0½		120.4	11.9	121.4	12.0	122.4	12.1	123.4	12.2	124.4	12.3	125.4	12.3	126.4	12.4	127.4	12.5	7
	6	120.3	12.6	121.3	12.8	122.3	12.9	123.3	13.0	124.3	13.1	125.3	13.2	126.3	13.3	127.3	13.4	84
	7	120.1	14.7	121.1	14.9	122.1	15.0	123.1	15.1	124.1	15.2	125.1	15.4	126.1	15.5	127.0	15.6	83
	8	119.8	16.8	120.8	17.0	121.8	17.1	122.8	17.3	123.8	17.4	124.8	17.5	125.8	17.7	126.8	17.8	82
0¾		119.7	17.7	120.7	17.9	121.7	18.0	122.7	18.2	123.6	18.3	124.6	18.5	125.6	18.6	126.6	18.8	7
	9	119.5	18.9	120.5	19.1	121.5	19.2	122.5	19.4	123.5	19.6	124.4	19.7	125.4	19.9	126.4	20.0	81
	10	119.2	21.0	120.1	21.2	121.1	21.4	122.1	21.5	123.1	21.7	124.1	21.9	125.1	22.1	126.1	22.2	80
	11	118.8	23.1	119.8	23.3	120.7	23.5	121.7	23.7	122.7	23.9	123.7	24.0	124.7	24.2	125.6	24.4	79
1		118.7	23.6	119.7	23.8	120.6	24.0	121.6	24.2	122.6	24.4	123.6	24.6	124.6	24.8	125.5	25.0	7
	12	118.4	25.2	119.3	25.4	120.3	25.6	121.3	25.8	122.3	26.0	123.2	26.2	124.2	26.4	125.2	26.6	78
	13	117.9	27.2	118.9	27.4	119.8	27.7	120.8	27.9	121.8	28.1	122.8	28.3	123.7	28.6	124.7	28.8	77
	14	117.4	29.3	118.4	29.5	119.3	29.8	120.3	30.0	121.3	30.2	122.3	30.5	123.2	30.7	124.2	31.0	76
1¼		117.4	29.4	118.3	29.6	119.3	29.9	120.3	30.1	121.3	30.4	122.2	30.6	123.2	30.9	124.2	31.1	6
	15	116.9	31.3	117.8	31.6	118.8	31.8	119.8	32.1	120.7	32.4	121.7	32.6	122.7	32.9	123.6	33.1	75
	16	116.3	33.4	117.3	33.6	118.2	33.9	119.2	34.2	120.2	34.5	121.1	34.7	122.1	35.0	123.0	35.3	74
1½		115.8	35.1	116.7	35.4	117.7	35.7	118.7	36.0	119.6	36.3	120.6	36.6	121.5	36.9	122.5	37.2	6
	17	115.7	35.4	116.7	35.7	117.6	36.0	118.6	36.3	119.5	36.5	120.5	36.8	121.5	37.1	122.4	37.4	73
	18	115.1	37.4	116.0	37.7	117.0	38.0	117.9	38.3	118.9	38.6	119.8	38.9	120.8	39.2	121.7	39.6	72
	19	114.4	39.4	115.4	39.7	116.3	40.0	117.2	40.4	118.2	40.7	119.1	41.0	120.1	41.3	121.0	41.7	71
1¾		113.9	40.8	114.9	41.1	115.8	41.4	116.8	41.8	117.7	42.1	118.6	42.4	119.6	42.8	120.5	43.1	6
	20	113.7	41.4	114.6	41.7	115.6	42.1	116.5	42.4	117.5	42.8	118.4	43.1	119.3	43.4	120.3	43.8	70
	21	113.0	43.4	113.9	43.7	114.8	44.1	115.8	44.4	116.7	44.8	117.6	45.2	118.6	45.5	119.5	45.9	69
	22	112.2	45.3	113.1	45.7	114.0	46.1	115.0	46.5	115.9	46.8	116.8	47.2	117.8	47.6	118.7	47.9	68
2		111.8	46.3	112.7	46.7	113.6	47.1	114.6	47.5	115.5	47.8	116.4	48.2	117.3	48.6	118.3	49.0	6
	23	111.4	47.3	112.3	47.7	113.2	48.1	114.1	48.5	115.1	48.8	116.0	49.2	116.9	49.6	117.8	50.0	67
	24	110.5	49.2	111.5	49.6	112.4	50.0	113.3	50.4	114.2	50.8	115.1	51.2	116.0	51.7	116.9	52.1	66
	25	109.7	51.1	110.6	51.6	111.5	52.0	112.4	52.4	113.3	52.8	114.2	53.2	115.1	53.7	116.0	54.1	65
2¼		109.4	51.7	110.3	52.2	111.2	52.6	112.1	53.0	113.0	53.4	113.9	53.9	114.8	54.3	115.7	54.7	5
	26	108.8	53.0	109.7	53.5	110.6	53.9	111.5	54.4	112.3	54.8	113.2	55.2	114.1	55.7	115.0	56.1	64
	27	107.8	54.9	108.7	55.4	109.6	55.8	110.5	56.3	111.4	56.7	112.3	57.2	113.2	57.7	114.0	58.1	63
	28	106.8	56.8	107.7	57.3	108.6	57.7	109.5	58.2	110.4	58.7	111.3	59.2	112.1	59.6	113.0	60.1	62
2½		106.7	57.0	107.6	57.5	108.5	58.0	109.4	58.5	110.2	58.9	111.1	59.4	112.0	59.9	112.9	60.3	5
	29	105.8	58.7	106.7	59.1	107.6	59.6	108.5	60.1	109.3	60.6	110.2	61.1	111.1	61.6	112.0	62.1	61
	30	104.8	60.5	105.7	61.0	106.5	61.5	107.4	62.0	108.3	62.5	109.1	63.0	110.0	63.5	110.9	64.0	60
2¾		103.8	62.2	104.6	62.7	105.5	63.2	106.4	63.7	107.2	64.3	108.1	64.8	108.9	65.3	109.8	65.8	5
	31	103.7	62.3	104.6	62.8	105.4	63.3	106.3	63.9	107.1	64.4	108.0	64.9	108.9	65.4	109.7	65.9	59
	32	102.6	64.1	103.5	64.7	104.3	65.2	105.2	65.7	106.0	66.2	106.9	66.8	107.7	67.3	108.6	67.8	58
	33	101.5	65.9	102.3	66.4	103.2	67.0	104.0	67.5	104.8	68.1	105.7	68.6	106.6	69.2	107.3	69.7	57
3		100.6	67.2	101.4	67.8	102.3	68.3	103.1	68.9	103.9	69.4	104.8	70.0	105.6	70.5	106.4	71.1	5
	34	100.3	67.7	101.1	68.2	102.0	68.8	102.8	69.3	103.6	69.9	104.5	70.5	105.3	71.0	106.1	71.6	56
	35	99.1	69.4	99.9	70.0	100.8	70.5	101.6	71.1	102.4	71.7	103.2	72.3	104.0	72.8	104.9	73.4	55
	36	97.9	71.1	98.7	71.7	99.5	72.3	100.3	72.9	101.1	73.5	101.9	74.1	102.7	74.6	103.6	75.2	54
3¼		97.2	72.1	98.0	72.7	98.8	73.3	99.6	73.9	100.4	74.5	101.2	75.1	102.0	75.7	102.8	76.2	4
	37	96.6	72.8	97.4	73.4	98.2	74.0	99.0	74.6	99.8	75.2	100.6	75.8	101.4	76.4	102.2	77.0	53
	38	95.3	74.5	96.1	75.1	96.9	75.7	97.7	76.3	98.5	77.0	99.3	77.6	100.1	78.2	100.9	78.8	52
	39	94.0	76.1	94.8	76.8	95.6	77.4	96.4	78.0	97.1	78.7	97.9	79.3	98.7	79.9	99.5	80.6	51
3½		93.5	76.8	94.3	77.4	95.1	78.0	95.9	78.7	96.6	79.3	97.4	79.9	98.2	80.6	98.9	81.2	4
	40	92.7	77.8	93.5	78.4	94.2	79.1	95.0	79.7	95.8	80.3	96.5	81.0	97.3	81.6	98.1	82.3	50
	41	91.3	79.4	92.1	80.0	92.8	80.7	93.6	81.4	94.3	82.0	95.1	82.7	95.8	83.3	96.6	84.0	49
	42	89.9	81.0	90.7	81.6	91.4	82.3	92.1	83.0	92.9	83.6	93.6	84.3	94.4	85.0	95.1	85.6	48
3¾		89.7	81.3	90.4	81.9	91.1	82.6	91.9	83.3	92.6	83.9	93.4	84.6	94.1	85.3	94.8	86.0	4
	43	88.5	82.5	89.2	83.2	90.0	83.9	90.7	84.6	91.4	85.2	92.2	85.9	92.9	86.6	93.6	87.3	47
	44	87.0	84.1	87.8	84.7	88.5	85.4	89.2	86.1	89.9	86.8	90.6	87.5	91.4	88.2	92.1	88.9	46
4	45	85.6	85.6	86.3	86.3	87.0	87.0	87.7	87.7	88.4	88.4	89.1	89.1	89.8	89.8	90.5	90.5	45
Points	Degrees	Departure.	Diff. Lat.	Departure	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	
		121		122		123		124		125		126		127		128		

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Points	Degrees	129 Diff. Lat.	129 Departure.	130 Diff. Lat.	130 Departure.	131 Diff. Lat.	131 Departure.	132 Diff. Lat.	132 Departure.	133 Diff. Lat.	133 Departure.	134 Diff. Lat.	134 Departure.	135 Diff. Lat.	135 Departure.	136 Diff. Lat.	136 Departure.	Degrees	Points
	0	129.0	00.0	130.0	00.0	131.0	00.0	132.0	00.0	133.0	00.0	134.0	00.0	135.0	00.0	136.0	00.0	90	8
	1	129.0	02.3	130.0	02.3	131.0	02.3	132.0	02.3	133.0	02.3	134.0	02.3	135.0	02.4	136.0	02.4	89	
	2	128.9	04.5	129.9	04.5	130.9	04.6	131.9	04.6	132.9	04.6	133.9	04.7	134.9	04.7	135.9	04.7	88	
		128.8	06.3	129.8	06.4	130.8	06.4	131.8	06.5	132.8	06.5	133.8	06.6	134.8	06.6	135.8	06.7		7¼
	3	128.8	06.8	129.8	06.8	130.8	06.9	131.8	06.9	132.8	07.0	133.8	07.0	134.8	07.1	135.8	07.1	87	
	4	128.7	09.0	129.7	09.1	130.7	09.1	131.7	09.2	132.7	09.3	133.7	09.3	134.7	09.4	135.7	09.5	86	
	5	128.5	11.2	129.5	11.3	130.5	11.4	131.5	11.5	132.5	11.6	133.5	11.7	134.5	11.8	135.5	11.9	85	
		128.4	12.6	129.4	12.7	130.4	12.8	131.4	12.9	132.4	13.0	133.4	13.1	134.3	13.2	135.3	13.3		7½
	6	128.3	13.5	129.3	13.6	130.3	13.7	131.3	13.8	132.3	13.9	133.3	14.0	134.3	14.1	135.3	14.2	84	
	7	128.0	15.7	129.0	15.8	130.0	16.0	131.0	16.1	132.0	16.2	133.0	16.3	134.0	16.5	135.0	16.6	83	
	8	127.7	18.0	128.7	18.1	129.7	18.2	130.7	18.4	131.7	18.5	132.7	18.6	133.7	18.8	134.7	18.9	82	
		127.6	18.9	128.6	19.1	129.6	19.2	130.6	19.4	131.6	19.5	132.5	19.7	133.5	19.8	134.5	20.0		7¼
	9	127.4	20.2	128.4	20.3	129.4	20.5	130.4	20.6	131.4	20.8	132.4	21.0	133.3	21.1	134.3	21.3	81	
	10	127.0	22.4	128.0	22.6	129.0	22.7	130.0	22.9	131.0	23.1	132.0	23.3	132.9	23.4	133.9	23.6	80	
	11	126.6	24.6	127.6	24.8	128.6	25.0	129.6	25.2	130.6	25.4	131.5	25.6	132.5	25.8	133.5	26.0	79	
		126.5	25.2	127.5	25.4	128.5	25.6	129.5	25.8	130.4	26.0	131.4	26.1	132.4	26.3	133.4	26.5		7
	12	126.2	26.8	127.2	27.0	128.1	27.2	129.1	27.4	130.1	27.7	131.1	27.9	132.0	28.1	133.0	28.3	78	
	13	125.7	29.0	126.7	29.2	127.6	29.5	128.6	29.7	129.6	29.9	130.6	30.1	131.5	30.4	132.5	30.6	77	
	14	125.2	31.2	126.1	31.4	127.1	31.7	128.1	31.9	129.0	32.2	130.0	32.4	131.0	32.7	132.0	32.9	76	
		125.1	31.3	126.1	31.6	127.1	31.8	128.0	32.1	129.0	32.3	130.0	32.6	131.0	32.8	131.9	33.0		6¾
	15	124.6	33.4	125.6	33.6	126.5	33.9	127.5	34.2	128.5	34.4	129.4	34.7	130.4	34.9	131.4	35.2	75	
	16	124.0	35.6	125.0	35.8	125.9	36.1	126.9	36.4	127.8	36.7	128.8	36.9	129.8	37.2	130.7	37.5	74	
		123.4	37.4	124.4	37.7	125.4	38.0	126.3	38.3	127.3	38.6	128.2	38.9	129.2	39.2	130.1	39.5		6½
	17	123.4	37.7	124.3	38.0	125.3	38.3	126.2	38.6	127.2	38.9	128.1	39.2	129.1	39.5	130.1	39.8	73	
	18	122.7	39.9	123.6	40.2	124.6	40.5	125.5	40.8	126.5	41.1	127.4	41.4	128.4	41.7	129.3	42.0	72	
	19	122.0	42.0	122.9	42.3	123.9	42.6	124.8	43.0	125.8	43.3	126.7	43.6	127.6	44.0	128.6	44.3	71	
		121.5	43.5	122.4	43.8	123.3	44.1	124.3	44.5	125.2	44.8	126.2	45.1	127.1	45.5	128.0	45.8		6¼
	20	121.2	44.1	122.2	44.5	123.1	44.8	124.0	45.1	125.0	45.5	125.9	45.8	126.9	46.2	127.8	46.5	70	
	21	120.4	46.2	121.4	46.6	122.3	46.9	123.2	47.3	124.2	47.7	125.1	48.0	126.0	48.4	127.0	48.7	69	
	22	119.6	48.3	120.5	48.7	121.5	49.1	122.4	49.4	123.3	49.8	124.2	50.2	125.2	50.6	126.1	50.9	68	
		119.2	49.4	120.1	49.7	121.0	50.0	122.0	50.5	122.9	50.9	123.8	51.3	124.7	51.7	125.6	52.0		6
	23	118.7	50.4	119.7	50.8	120.6	51.2	121.5	51.6	122.4	52.0	123.3	52.4	124.3	52.7	125.2	53.1	67	
	24	117.8	52.5	118.8	52.9	119.7	53.3	120.6	53.7	121.5	54.1	122.4	54.5	123.3	54.9	124.2	55.3	66	
	25	116.9	54.5	117.8	54.9	118.7	55.4	119.6	55.8	120.5	56.2	121.4	56.6	122.4	57.1	123.3	57.5	65	
		116.6	55.2	117.5	55.6	118.4	56.0	119.3	56.4	120.2	56.9	121.1	57.3	122.0	57.7	122.9	58.1		
	26	115.9	56.5	116.8	57.0	117.7	57.4	118.6	57.9	119.5	58.3	120.4	58.7	121.3	59.2	122.2	59.6	64	
	27	114.9	58.6	115.8	59.0	116.7	59.5	117.6	59.9	118.5	60.4	119.4	60.8	120.3	61.3	121.2	61.7	63	
	28	113.9	60.6	114.8	61.0	115.7	61.5	116.5	62.0	117.4	62.4	118.3	62.9	119.2	63.4	120.1	63.8	62	
		113.8	60.8	114.6	61.3	115.5	61.8	116.4	62.2	117.3	62.7	118.2	63.2	119.1	63.6	119.9	64.1		5½
	29	112.8	62.5	113.7	63.0	114.6	63.5	115.4	64.0	116.3	64.5	117.2	65.0	118.1	65.4	118.9	65.9	61	
	30	111.7	64.5	112.6	65.0	113.4	65.5	114.3	66.0	115.2	66.5	116.0	67.0	116.9	67.5	117.8	68.0	60	
		110.6	66.3	111.5	66.8	112.4	67.3	113.2	67.9	114.1	68.4	114.9	68.9	115.8	69.4	116.7	69.9		5¼
	31	110.6	66.4	111.4	67.0	112.3	67.5	113.1	68.0	114.0	68.5	114.9	69.0	115.7	69.5	116.6	70.0	59	
	32	109.4	68.4	110.2	68.9	111.1	69.4	111.9	69.9	112.8	70.5	113.6	71.0	114.5	71.5	115.3	72.1	58	
	33	108.2	70.3	109.0	70.8	109.9	71.3	110.7	71.9	111.5	72.4	112.4	73.0	113.2	73.5	114.1	74.1	57	
		107.3	71.7	108.1	72.2	108.9	72.8	109.8	73.3	110.6	73.9	111.4	74.4	112.2	75.0	113.0	75.5		5
	34	106.9	72.1	107.8	72.7	108.6	73.3	109.4	73.8	110.3	74.4	111.1	74.9	111.9	75.5	112.7	76.1	56	
	35	105.7	74.0	106.5	74.6	107.3	75.1	108.1	75.7	108.9	76.3	109.8	76.9	110.6	77.4	111.4	78.0	55	
	36	104.4	75.8	105.2	76.4	106.0	77.0	106.8	77.6	107.6	78.2	108.4	78.8	109.2	79.4	110.0	79.9	54	
		103.6	76.8	104.4	77.4	105.2	78.0	106.0	78.6	106.8	79.2	107.6	79.8	108.4	80.4	109.2	81.0		4¾
	37	103.0	77.6	103.8	78.2	104.6	78.8	105.4	79.4	106.2	80.0	107.0	80.6	107.8	81.2	108.6	81.8	53	
	38	101.7	79.4	102.4	80.0	103.2	80.7	104.0	81.3	104.8	81.9	105.6	82.5	106.4	83.1	107.2	83.7	52	
	39	100.3	81.2	101.0	81.8	101.8	82.4	102.6	83.1	103.4	83.7	104.1	84.3	104.9	85.0	105.7	85.6	51	
		99.7	81.8	100.5	82.5	101.3	83.1	102.0	83.7	102.8	84.4	103.6	85.0	104.4	85.6	105.1	86.3		4½
	40	98.8	82.9	99.6	83.6	100.4	84.2	101.1	84.8	101.9	85.5	102.6	86.1	103.4	86.8	104.2	87.4	50	
	41	97.4	84.6	98.1	85.3	98.9	85.9	99.6	86.6	100.4	87.3	101.1	87.9	101.9	88.6	102.6	89.2	49	
	42	95.9	86.3	96.6	87.0	97.4	87.7	98.1	88.3	98.8	89.0	99.6	89.7	100.3	90.3	101.1	91.0	48	
		95.6	86.6	96.3	87.3	97.1	88.0	97.8	88.6	98.5	89.3	99.3	90.0	100.0	90.7	100.8	91.3		4¼
	43	94.3	88.0	95.1	88.7	95.8	89.3	96.5	90.0	97.3	90.7	98.0	91.4	98.7	92.1	99.5	92.8	47	
	44	92.8	89.6	93.5	90.3	94.2	91.0	95.0	91.7	95.7	92.4	96.4	93.1	97.1	93.8	97.8	94.5	46	
	45	91.2	91.2	91.9	91.9	92.6	92.6	93.3	93.3	94.0	94.0	94.8	94.8	95.5	95.5	96.2	96.2	45	4
Degrees.		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees.	Points
		129		130		131		132		133		134		135		136			

DISTANCE.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Degrees	DISTANCE. 137 Diff. Lat.	137 Departure.	138 Diff. Lat.	138 Departure.	139 Diff. Lat.	139 Departure.	140 Diff. Lat.	140 Departure.	141 Diff. Lat.	141 Departure.	142 Diff. Lat.	142 Departure.	143 Diff. Lat.	143 Departure.	144 Diff. Lat.	144 Departure.	Degrees	Crse. Points
0	0	137.0	00.0	138.0	00.0	139.0	00.0	140.0	00.0	141.0	00.0	142.0	00.0	143.0	00.0	144.0	00.0	90	8
	1	137.0	02.4	138.0	02.4	139.0	02.4	140.0	02.4	141.0	02.5	142.0	02.5	143.0	02.5	144.0	02.5	89	
	2	136.9	04.8	137.9	04.8	138.9	04.9	139.9	04.9	140.9	04.9	141.9	05.0	142.9	05.0	143.9	05.0	88	
0¼		136.8	06.7	137.8	06.8	138.8	06.8	139.8	06.9	140.8	06.9	141.8	07.0	142.8	07.0	143.8	07.1		7¾
	3	136.8	07.2	137.8	07.2	138.8	07.3	139.8	07.3	140.8	07.4	141.8	07.4	142.8	07.5	143.8	07.5	87	
	4	136.7	09.6	137.7	09.6	138.7	09.7	139.7	09.8	140.7	09.8	141.7	09.9	142.7	10.0	143.6	10.0	86	
	5	136.5	11.9	137.5	12.0	138.5	12.1	139.5	12.2	140.5	12.3	141.5	12.4	142.5	12.5	143.5	12.6	85	
0½		136.3	13.4	137.3	13.5	138.3	13.6	139.3	13.7	140.3	13.8	141.3	13.9	142.3	14.0	143.3	14.1		7½
	6	136.2	14.3	137.2	14.4	138.2	14.5	139.2	14.6	140.2	14.7	141.2	14.8	142.2	14.9	143.2	15.1	84	
	7	136.0	16.7	137.0	16.8	138.0	16.9	139.0	17.1	139.9	17.2	140.9	17.3	141.9	17.4	142.9	17.5	83	
	8	135.7	19.1	136.7	19.2	137.7	19.3	138.6	19.5	139.6	19.6	140.6	19.8	141.6	19.9	142.6	20.0	82	
0¾		135.5	20.1	136.5	20.2	137.5	20.4	138.5	20.5	139.5	20.7	140.5	20.8	141.4	21.0	142.4	21.1		7¾
	9	135.3	21.4	136.3	21.6	137.3	21.7	138.3	21.9	139.3	22.1	140.3	22.2	141.2	22.4	142.2	22.5	81	
	10	134.9	23.8	135.9	24.0	136.9	24.1	137.9	24.3	138.9	24.5	139.8	24.7	140.8	24.8	141.8	25.0	80	
	11	134.5	26.1	135.5	26.3	136.4	26.5	137.4	26.7	138.4	26.9	139.4	27.1	140.4	27.3	141.4	27.5	79	
1		134.4	26.7	135.3	26.9	136.3	27.1	137.3	27.3	138.3	27.5	139.3	27.7	140.2	27.9	141.2	28.1		7
	12	134.0	28.5	135.0	28.7	136.0	28.9	136.9	29.1	137.9	29.3	138.9	29.5	139.9	29.7	140.9	29.9	78	
	13	133.5	30.8	134.5	31.0	135.4	31.3	136.4	31.5	137.4	31.7	138.4	31.9	139.3	32.2	140.3	32.4	77	
	14	132.9	33.1	133.9	33.4	134.9	33.6	135.8	33.9	136.8	34.1	137.8	34.4	138.8	34.6	139.7	34.8	76	
1¼		132.9	33.3	133.9	33.5	134.8	33.8	135.8	34.0	136.8	34.3	137.7	34.5	138.7	34.7	139.7	35.0		6¾
	15	132.3	35.5	133.3	35.7	134.3	36.0	135.2	36.2	136.2	36.5	137.2	36.8	138.1	37.0	139.1	37.3	75	
	16	131.7	37.8	132.7	38.0	133.6	38.3	134.6	38.6	135.5	38.9	136.5	39.1	137.5	39.4	138.4	39.7	74	
1½		131.1	39.8	132.1	40.1	133.0	40.3	134.0	40.6	134.9	40.9	135.9	41.2	136.8	41.5	137.8	41.8		6½
	17	131.0	40.1	132.0	40.3	132.9	40.6	133.9	40.9	134.8	41.2	135.8	41.5	136.8	41.8	137.7	42.1	73	
	18	130.3	42.3	131.2	42.6	132.2	43.0	133.1	43.3	134.1	43.6	135.1	43.9	136.0	44.2	137.0	44.5	72	
	19	129.5	44.6	130.5	44.9	131.4	45.3	132.4	45.6	133.3	45.9	134.3	46.2	135.2	46.6	136.2	46.9	71	
1¾		129.0	46.2	129.9	46.5	130.9	46.8	131.8	47.2	132.8	47.5	133.7	47.8	134.6	48.2	135.6	48.5		6¼
	20	128.7	46.9	129.7	47.2	130.6	47.5	131.6	47.9	132.5	48.2	133.4	48.6	134.4	48.9	135.3	49.3	70	
	21	127.9	49.1	128.8	49.5	129.8	49.8	130.7	50.2	131.6	50.5	132.6	50.9	133.5	51.2	134.4	51.6	69	
	22	127.0	51.3	128.0	51.7	128.9	52.1	129.8	52.4	130.7	52.8	131.7	53.2	132.6	53.6	133.5	53.9	68	
2		126.6	52.4	127.5	52.8	128.4	53.2	129.3	53.6	130.3	54.0	131.2	54.3	132.1	54.7	133.0	55.1		6
	23	126.1	53.5	127.0	53.9	128.0	54.3	128.9	54.7	129.8	55.1	130.7	55.5	131.6	55.9	132.6	56.3	67	
	24	125.2	55.7	126.1	56.1	127.0	56.5	127.9	56.9	128.8	57.3	129.7	57.8	130.6	58.2	131.6	58.6	66	
	25	124.2	57.9	125.1	58.3	126.0	58.7	126.9	59.2	127.8	59.6	128.7	60.0	129.6	60.4	130.5	60.9	65	
2¼		123.8	58.6	124.8	59.0	125.7	59.4	126.6	59.9	127.5	60.3	128.4	60.7	129.3	61.1	130.2	61.6		5¾
	26	123.1	60.1	124.0	60.5	124.9	60.9	125.8	61.4	126.7	61.8	127.6	62.2	128.5	62.7	129.4	63.1	64	
	27	122.1	62.2	123.0	62.7	123.8	63.1	124.7	63.6	125.6	64.0	126.5	64.5	127.4	64.9	128.3	65.4	63	
	28	121.0	64.3	121.8	64.8	122.7	65.3	123.6	65.7	124.5	66.2	125.4	66.7	126.3	67.1	127.1	67.6	62	
2½		120.8	64.6	121.7	65.1	122.6	65.5	123.5	66.0	124.4	66.5	125.2	66.9	126.1	67.4	127.0	67.9		5½
	29	119.8	66.4	120.7	66.9	121.6	67.4	122.4	67.9	123.3	68.4	124.2	68.8	125.1	69.3	125.9	69.8	61	
	30	118.6	68.5	119.5	69.0	120.4	69.5	121.2	70.0	122.1	70.5	123.0	71.0	123.8	71.5	124.7	72.0	60	
2¾		117.5	70.4	118.4	70.9	119.2	71.5	120.1	72.0	120.9	72.5	121.8	73.0	122.7	73.5	123.5	74.0		5¼
	31	117.4	70.6	118.3	71.1	119.1	71.6	120.0	72.1	120.9	72.6	121.7	73.1	122.6	73.7	123.4	74.2	59	
	32	116.2	72.6	117.0	73.1	117.9	73.7	118.7	74.2	119.6	74.7	120.4	75.2	121.3	75.8	122.1	76.3	58	
	33	114.9	74.6	115.7	75.2	116.6	75.7	117.4	76.2	118.3	76.8	119.1	77.3	119.9	77.9	120.8	78.4	57	
3		113.9	76.1	114.7	76.7	115.6	77.2	116.4	77.8	117.2	78.3	118.1	78.9	118.9	79.4	119.7	80.0		5
	34	113.6	76.6	114.4	77.2	115.2	77.7	116.1	78.3	116.9	78.8	117.7	79.4	118.6	80.0	119.4	80.5	56	
	35	112.2	78.6	113.0	79.2	113.9	79.7	114.7	80.3	115.5	80.9	116.3	81.4	117.1	82.0	118.0	82.6	55	
	36	110.8	80.5	111.6	81.1	112.5	81.7	113.3	82.3	114.1	82.9	114.9	83.5	115.7	84.1	116.5	84.6	54	
3¼		110.0	81.6	110.8	82.2	111.6	82.8	112.4	83.4	113.3	84.0	114.1	84.6	114.9	85.2	115.7	85.8		4¾
	37	109.4	82.4	110.2	83.1	111.0	83.7	111.8	84.3	112.6	84.9	113.4	85.5	114.2	86.1	115.0	86.7	53	
	38	108.0	84.3	108.7	85.0	109.5	85.6	110.3	86.2	111.1	86.8	111.9	87.4	112.7	88.0	113.5	88.7	52	
	39	106.5	86.2	107.2	86.8	108.0	87.5	108.8	88.1	109.6	88.7	110.4	89.4	111.1	90.0	111.9	90.6	51	
3½		105.9	86.9	106.7	87.5	107.4	88.2	108.2	88.8	109.0	89.4	109.8	90.1	110.5	90.7	111.3	91.4		4½
	40	104.9	88.1	105.7	88.7	106.5	89.3	107.2	90.0	108.0	90.6	108.8	91.3	109.5	91.9	110.3	92.6	50	
	41	103.4	89.9	104.1	90.5	104.9	91.2	105.7	91.8	106.4	92.5	107.2	93.2	107.9	93.8	108.7	94.5	49	
	42	101.8	91.7	102.6	92.3	103.3	93.0	104.0	93.7	104.8	94.3	105.5	95.0	106.3	95.7	107.0	96.4	48	
3¾		101.5	92.0	102.3	92.7	103.0	93.3	103.7	94.0	104.5	94.7	105.2	95.4	106.0	96.0	106.7	96.7		4¼
	43	100.2	93.4	100.9	94.1	101.7	94.8	102.4	95.5	103.1	96.2	103.9	96.8	104.6	97.5	105.3	98.2	47	
	44	98.5	95.2	99.3	95.9	100.0	96.6	100.7	97.3	101.4	97.9	102.1	98.6	102.9	99.3	103.6	100.0	46	
4	45	96.9	96.9	97.6	97.6	98.3	98.3	99.0	99.0	99.7	99.7	100.4	100.4	101.1	101.1	101.8	101.8	45	4
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
Crse.		137		138		139		140		141		142		143		144			
		DISTANCE.																	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	DISTANCE. 145 Diff. Lat.	145 Departure.	146 Diff. Lat.	146 Departure.	147 Diff. Lat.	147 Departure.	148 Diff. Lat.	148 Departure.	149 Diff. Lat.	149 Departure.	150 Diff. Lat.	150 Departure.	151 Diff. Lat.	151 Departure.	152 Diff. Lat.	152 Departure.	Crse. Degrees	Crse. Points
0	0	145.0	00.0	146.0	00.0	147.0	00.0	148.0	00.0	149.0	00.0	150.0	00.0	151.0	00.0	152.0	00.0	90	8
	1	145.0	02.5	146.0	02.5	147.0	02.6	148.0	02.6	149.0	02.6	150.0	02.6	151.0	02.6	152.0	02.7	89	
	2	144.9	05.1	145.9	05.1	146.9	05.1	147.9	05.2	148.9	05.2	149.9	05.2	150.9	05.3	151.9	05.3	88	
½		144.8	07.1	145.8	07.2	146.8	07.2	147.8	07.3	148.8	07.3	149.8	07.4	150.8	07.4	151.8	07.5		7¾
	3	144.8	07.6	145.8	07.6	146.8	07.7	147.8	07.7	148.8	07.8	149.8	07.9	150.8	07.9	151.8	08.0	87	
	4	144.6	10.1	145.6	10.2	146.6	10.3	147.6	10.3	148.6	10.4	149.6	10.5	150.6	10.5	151.6	10.6	86	
	5	144.4	12.6	145.4	12.7	146.4	12.8	147.4	12.9	148.4	13.0	149.4	13.1	150.4	13.2	151.4	13.2	85	
¼		144.3	14.2	145.3	14.3	146.3	14.4	147.3	14.5	148.3	14.6	149.3	14.7	150.3	14.8	151.3	14.9		7½
	6	144.2	15.2	145.2	15.3	146.2	15.4	147.2	15.5	148.2	15.6	149.2	15.7	150.2	15.8	151.2	15.9	84	
	7	143.9	17.7	144.9	17.8	145.9	17.9	146.9	18.0	147.9	18.2	148.9	18.3	149.9	18.4	150.9	18.5	83	
	8	143.6	20.2	144.6	20.3	145.6	20.5	146.6	20.6	147.5	20.7	148.5	20.9	149.5	21.0	150.5	21.2	82	
¾		143.4	21.3	144.4	21.4	145.4	21.6	146.4	21.7	147.4	21.9	148.4	22.0	149.4	22.2	150.3	22.3		7¾
	9	143.2	22.7	144.2	22.8	145.2	23.0	146.2	23.2	147.2	23.3	148.2	23.5	149.1	23.6	150.1	23.8	81	
	10	142.8	25.2	143.8	25.4	144.8	25.5	145.8	25.7	146.7	25.9	147.7	26.0	148.7	26.2	149.7	26.4	80	
	11	142.3	27.7	143.3	27.9	144.3	28.0	145.3	28.2	146.3	28.4	147.2	28.6	148.2	28.8	149.2	29.0	79	
		142.2	28.3	143.2	28.5	144.2	28.7	145.2	28.9	146.1	29.1	147.1	29.3	148.1	29.5	149.1	29.7		7
	12	141.8	30.1	142.8	30.4	143.8	30.6	144.8	30.8	145.7	31.0	146.7	31.2	147.7	31.4	148.7	31.6	78	
	13	141.3	32.6	142.3	32.8	143.2	33.1	144.2	33.3	145.2	33.5	146.2	33.7	147.1	34.0	148.1	34.2	77	
	14	140.7	35.1	141.7	35.3	142.6	35.6	143.6	35.8	144.6	36.0	145.5	36.3	146.5	36.5	147.5	36.8	76	
¼		140.7	35.2	141.6	35.5	142.6	35.7	143.6	36.0	144.5	36.2	145.5	36.4	146.5	36.7	147.4	36.9		6¾
	15	140.1	37.5	141.0	37.8	142.0	38.0	143.0	38.3	143.9	38.6	144.9	38.8	145.9	39.1	146.8	39.3	75	
	16	139.4	40.0	140.3	40.2	141.3	40.5	142.3	40.8	143.2	41.1	144.2	41.3	145.2	41.6	146.1	41.9	74	
½		138.8	42.1	139.7	42.4	140.7	42.7	141.6	43.0	142.6	43.3	143.5	43.5	144.5	43.8	145.5	44.1		6½
	17	138.7	42.4	139.6	42.7	140.6	43.0	141.5	43.3	142.5	43.6	143.4	43.9	144.4	44.1	145.4	44.4	73	
	18	137.9	44.8	138.9	45.1	139.8	45.4	140.8	45.7	141.7	46.0	142.7	46.4	143.6	46.7	144.6	47.0	72	
	19	137.1	47.2	138.0	47.5	139.0	47.9	139.9	48.2	140.9	48.5	141.8	48.8	142.8	49.2	143.7	49.5	71	
¾		136.5	48.8	137.5	49.2	138.4	49.5	139.3	49.9	140.3	50.2	141.2	50.5	142.2	50.9	143.1	51.2		6¼
	20	136.3	49.6	137.2	49.9	138.1	50.3	139.1	50.6	140.0	51.0	141.0	51.3	141.9	51.6	142.8	52.0	70	
	21	135.4	52.0	136.3	52.3	137.2	52.7	138.2	53.0	139.1	53.4	140.0	53.8	141.0	54.1	141.9	54.5	69	
	22	134.4	54.3	135.4	54.7	136.3	55.1	137.2	55.4	138.2	55.8	139.1	56.2	140.0	56.6	140.9	56.9	68	
		134.0	55.5	134.9	55.9	135.8	56.3	136.7	56.6	137.7	57.0	138.6	57.4	139.5	57.8	140.4	58.2		6
	23	133.5	56.7	134.4	57.0	135.3	57.4	136.2	57.8	137.2	58.2	138.1	58.6	139.0	59.0	139.9	59.4	67	
	24	132.5	59.0	133.4	59.4	134.3	59.8	135.2	60.2	136.1	60.6	137.0	61.0	137.9	61.4	138.9	61.8	66	
	25	131.4	61.3	132.3	61.7	133.2	62.1	134.1	62.5	135.0	63.0	135.9	63.4	136.9	63.8	137.8	64.2	65	
		131.1	62.0	132.0	62.4	132.9	62.9	133.8	63.3	134.7	63.7	135.6	64.1	136.5	64.6	137.4	65.0		5¾
	26	130.3	63.6	131.2	64.0	132.1	64.4	133.0	64.9	133.9	65.3	134.8	65.8	135.7	66.2	136.6	66.6	64	
	27	129.2	65.8	130.1	66.3	131.0	66.7	131.9	67.2	132.8	67.6	133.7	68.1	134.5	68.6	135.4	69.0	63	
	28	128.0	68.1	128.9	68.5	129.8	69.0	130.7	69.5	131.6	70.0	132.4	70.4	133.3	70.9	134.2	71.4	62	
		127.9	68.4	128.8	68.8	129.6	69.3	130.5	69.8	131.4	70.2	132.3	70.7	133.2	71.2	134.1	71.7		5½
	29	126.8	70.3	127.7	70.8	128.6	71.3	129.4	71.8	130.3	72.2	131.2	72.7	132.1	73.2	132.9	73.7	61	
	30	125.6	72.5	126.4	73.0	127.3	73.5	128.2	74.0	129.0	74.5	129.9	75.0	130.8	75.5	131.6	76.0	60	
		124.4	74.5	125.2	75.1	126.1	75.6	126.9	76.1	127.8	76.6	128.7	77.1	129.5	77.6	130.4	78.1		5¼
	31	124.3	74.7	125.1	75.2	126.0	75.7	126.9	76.2	127.7	76.7	128.6	77.3	129.4	77.8	130.3	78.3	59	
	32	123.0	76.8	123.8	77.4	124.7	77.9	125.5	78.4	126.4	79.0	127.2	79.5	128.1	80.0	128.9	80.5	58	
	33	121.6	79.0	122.4	79.5	123.3	80.1	124.1	80.6	125.0	81.2	125.8	81.7	126.6	82.2	127.5	82.8	57	
		120.6	80.5	121.4	81.1	122.2	81.7	123.1	82.2	123.9	82.8	124.7	83.3	125.6	83.9	126.4	84.4		5
	34	120.2	81.1	121.1	81.6	121.9	82.2	122.7	82.8	123.5	83.3	124.4	83.9	125.2	84.4	126.0	85.0	56	
	35	118.8	83.2	119.6	83.7	120.4	84.3	121.2	84.9	122.1	85.5	122.9	86.0	123.7	86.6	124.5	87.2	55	
	36	117.3	85.2	118.1	85.8	118.9	86.4	119.7	87.0	120.5	87.6	121.4	88.2	122.2	88.8	123.0	89.3	54	
		116.5	86.4	117.3	87.0	118.1	87.6	118.9	88.2	119.7	88.8	120.5	89.4	121.3	90.0	122.1	90.5		4¾
	37	115.8	87.3	116.6	87.9	117.4	88.5	118.2	89.1	119.0	89.7	119.8	90.3	120.6	90.9	121.4	91.5	53	
	38	114.3	89.3	115.0	89.9	115.8	90.5	116.6	91.1	117.4	91.7	118.2	92.3	119.0	93.0	119.8	93.6	52	
	39	112.7	91.3	113.5	91.9	114.2	92.5	115.0	93.1	115.8	93.8	116.6	94.4	117.3	95.0	118.1	95.7	51	
		112.1	92.0	112.9	92.6	113.6	93.3	114.4	93.9	115.2	94.5	116.0	95.2	116.7	95.8	117.5	96.4		4½
	40	111.1	93.2	111.8	93.8	112.6	94.5	113.4	95.1	114.1	95.8	114.9	96.4	115.7	97.1	116.4	97.7	50	
	41	109.4	95.1	110.2	95.8	110.9	96.4	111.7	97.1	112.5	97.8	113.2	98.4	114.0	99.1	114.7	99.7	49	
	42	107.8	97.0	108.5	97.7	109.2	98.4	110.0	99.0	110.7	99.7	111.5	100.4	112.2	101.0	113.0	101.7	48	
		107.4	97.4	108.2	98.0	108.9	98.7	109.7	99.4	110.4	100.1	111.1	100.7	111.9	101.4	112.6	102.1		4¼
	43	106.0	98.9	106.8	99.6	107.5	100.3	108.2	100.9	109.0	101.6	109.7	102.3	110.4	103.0	111.2	103.7	47	
	44	104.3	100.7	105.0	101.4	105.7	102.1	106.5	102.8	107.2	103.5	107.9	104.2	108.6	104.9	109.3	105.6	46	
	45	102.5	102.5	103.2	103.2	103.9	103.9	104.7	104.7	105.4	105.4	106.1	106.1	106.8	106.8	107.5	107.5	45	4
Degrees		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
		145		146		147		148		149		150		151		152			
Crse.		DISTANCE.																Crse.	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	Distance 153 Diff. Lat.	153 Departure.	154 Diff. Lat.	154 Departure.	155 Diff. Lat.	155 Departure.	156 Diff. Lat.	156 Departure.	157 Diff. Lat.	157 Departure.	158 Diff. Lat.	158 Departure.	159 Diff. Lat.	159 Departure.	160 Diff. Lat.	160 Departure.	Crse. Degrees	Crse. Points
0	0	153.0	00.0	154.0	00.0	155.0	00.0	156.0	00.0	157.0	00.0	158.0	00.0	159.0	00.0	160.0	00.0	90	8
	1	153.0	02.7	154.0	02.7	155.0	02.7	156.0	02.7	157.0	02.7	158.0	02.8	159.0	02.8	160.0	02.8	89	
	2	152.9	05.3	153.9	05.4	154.9	05.4	155.9	05.4	156.9	05.5	157.9	05.5	158.9	05.5	159.9	05.6	88	
0¼		152.8	07.5	153.8	07.6	154.8	07.6	155.8	07.7	156.8	07.7	157.8	07.8	158.8	07.8	159.8	07.9		7¼
	3	152.8	08.0	153.8	08.1	154.8	08.1	155.8	08.2	156.8	08.2	157.8	98.3	158.8	08.3	159.8	08.4	87	
	4	152.6	10.7	153.6	10.7	154.6	10.8	155.6	10.9	156.6	11.0	157.6	11.0	158.6	11.1	159.6	11.2	86	
	5	152.4	13.3	153.4	13.4	154.4	13.5	155.4	13.6	156.4	13.7	157.4	13.8	158.4	13.9	159.4	13.9	85	
0½		152.3	15.0	153.3	15.1	154.3	15.2	155.2	15.3	156.2	15.4	157.2	15.5	158.2	15.6	159.2	15.7		7½
	6	152.2	16.0	153.2	16.1	154.2	16.2	155.1	16.3	156.1	16.4	157.1	16.5	158.1	16.6	159.1	16.7	84	
	7	151.9	18.6	152.9	18.8	153.8	18.9	154.8	19.0	155.8	19.1	156.8	19.3	157.8	19.4	158.8	19.5	83	
	8	151.5	21.3	152.5	21.4	153.5	21.6	154.5	21.7	155.5	21.9	156.5	22.0	157.5	22.1	158.4	22.3	82	
0¾		151.3	22.4	152.3	22.6	153.3	22.7	154.3	22.9	155.3	23.0	156.3	23.2	157.3	23.3	158.3	23.5		7¾
	9	151.1	23.9	152.1	24.1	153.1	24.2	154.1	24.4	155.1	24.6	156.1	24.7	157.0	24.9	158.0	25.0	81	
	10	150.7	26.6	151.7	26.7	152.6	26.9	153.6	27.1	154.6	27.3	155.6	27.4	156.6	27.6	157.6	27.8	80	
	11	150.2	29.2	151.2	29.4	152.2	29.6	153.1	29.8	154.1	30.0	155.1	30.1	156.1	30.3	157.1	30.5	79	
1		150.1	29.9	151.0	30.0	152.0	30.2	153.0	30.4	154.0	30.6	155.0	30.8	155.9	31.0	156.9	31.2		8
	12	149.7	31.8	150.6	32.0	151.6	32.2	152.6	32.4	153.6	32.6	154.5	32.9	155.5	33.1	156.5	33.3	78	
	13	149.1	34.4	150.1	34.6	151.0	34.9	152.0	35.1	153.0	35.3	154.0	35.5	154.9	35.8	155.9	36.0	77	
	14	148.5	37.0	149.4	37.3	150.4	37.5	151.4	37.7	152.3	38.0	153.3	38.2	154.3	38.5	155.2	38.7	76	
1¼		148.4	37.2	149.4	37.4	150.4	37.7	151.3	37.9	152.3	38.1	153.3	38.4	154.2	38.6	155.2	38.9		8¼
	15	147.8	39.6	148.8	39.9	149.7	40.1	150.7	40.4	151.7	40.6	152.6	40.9	153.6	41.2	154.5	41.4	75	
	16	147.1	42.1	148.0	42.4	149.0	42.7	150.0	43.0	150.9	43.3	151.9	43.6	152.8	43.8	153.8	44.1	74	
1½		146.4	44.4	147.4	44.7	148.3	45.0	149.3	45.3	150.2	45.6	151.2	45.9	152.2	46.2	153.1	46.4		8½
	17	146.3	44.7	147.3	45.0	148.2	45.3	149.2	45.6	150.1	45.9	151.1	46.2	152.1	46.5	153.0	46.8	73	
	18	145.5	47.3	146.5	47.6	147.4	47.9	148.4	48.2	149.3	48.5	150.3	48.8	151.2	49.1	152.2	49.4	72	
	19	144.7	49.8	145.6	50.1	146.6	50.5	147.5	50.8	148.4	51.1	149.4	51.4	150.3	51.8	151.3	52.1	71	
1¾		144.1	51.5	145.0	51.9	145.9	52.2	146.9	52.6	147.8	52.9	148.8	53.2	149.7	53.6	150.6	53.9		8¾
	20	143.8	52.3	144.7	52.7	145.7	53.0	146.6	53.4	147.5	53.7	148.5	54.0	149.4	54.4	150.4	54.7	70	
	21	142.8	54.8	143.8	55.2	144.7	55.5	145.6	55.9	146.6	56.3	147.5	56.6	148.4	57.0	149.4	57.3	69	
	22	141.9	57.3	142.8	57.7	143.7	58.1	144.6	58.4	145.6	58.8	146.5	59.2	147.4	59.6	148.3	59.9	68	
2		141.4	58.6	142.3	58.9	143.2	59.3	144.1	59.7	145.0	60.1	146.0	60.5	146.9	60.8	147.8	61.2		9
	23	140.8	59.8	141.8	60.2	142.7	60.6	143.6	61.0	144.5	61.3	145.4	61.7	146.4	62.1	147.3	62.5	67	
	24	139.8	62.2	140.7	62.6	141.6	63.0	142.5	63.5	143.4	63.9	144.3	64.3	145.3	64.7	146.2	65.1	66	
	25	138.7	64.7	139.6	65.1	140.5	65.5	141.4	65.9	142.3	66.4	143.2	66.8	144.1	67.2	145.0	67.6	65	
2¼		138.3	65.4	139.2	65.8	140.1	66.3	141.0	66.7	141.9	67.1	142.8	67.6	143.7	68.0	144.6	68.4		9¼
	26	137.5	67.1	138.4	67.5	139.3	67.9	140.2	68.4	141.1	68.8	142.0	69.3	142.9	69.7	143.8	70.2	64	
	27	136.3	69.5	137.2	69.9	138.1	70.4	139.0	70.8	139.9	71.3	140.8	71.7	141.7	72.2	142.6	72.6	63	
	28	135.1	71.8	136.0	72.3	136.9	72.8	137.7	73.2	138.6	73.7	139.5	74.2	140.4	74.6	141.3	75.1	62	
2½		134.9	72.1	135.8	72.6	136.7	73.1	137.6	73.5	138.5	74.0	139.3	74.5	140.2	75.0	141.1	75.4		9½
	29	133.8	74.2	134.7	74.7	135.6	75.1	136.4	75.6	137.3	76.1	138.2	76.6	139.1	77.1	139.9	77.6	61	
	30	132.5	76.5	133.4	77.0	134.2	77.5	135.1	78.0	136.0	78.5	136.8	79.0	137.7	79.5	138.6	80.0	60	
2¾		131.2	78.7	132.1	79.2	132.9	79.7	133.8	80.2	134.7	80.7	135.5	81.2	136.4	81.7	137.2	82.2		9¾
	31	131.1	78.8	132.0	79.3	132.9	79.8	133.7	80.3	134.6	80.9	135.4	81.4	136.3	81.9	137.1	82.4	59	
	32	129.8	81.1	130.6	81.6	131.4	82.1	132.3	82.7	133.1	83.2	134.0	83.7	134.8	84.3	135.7	84.8	58	
	33	128.3	83.3	129.2	83.9	130.0	84.4	130.8	85.0	131.7	85.5	132.5	86.1	133.3	86.6	134.2	87.1	57	
3		127.2	85.0	128.0	85.5	128.9	86.1	129.7	86.7	130.5	87.2	131.4	87.8	132.2	88.3	133.0	88.9		10
	34	126.8	85.6	127.7	86.1	128.5	86.7	129.3	87.2	130.2	87.8	131.0	88.4	131.8	88.9	132.6	89.5	56	
	35	125.3	87.8	126.1	88.3	127.0	88.9	127.8	89.5	128.6	90.1	129.4	90.6	130.2	91.2	131.1	91.8	55	
	36	123.8	89.9	124.6	90.5	125.4	91.1	126.2	91.7	127.0	92.3	127.8	92.9	128.6	93.5	129.4	94.0	54	
3¼		122.9	91.1	123.7	91.7	124.5	92.3	125.3	92.9	126.1	93.5	126.9	94.1	127.7	94.7	128.5	95.3		10¼
	37	122.2	92.1	123.0	92.7	123.8	93.3	124.6	93.9	125.4	94.5	126.2	95.1	127.0	95.7	127.8	96.3	53	
	38	120.6	94.2	121.4	94.8	122.1	95.4	122.9	96.0	123.7	96.7	124.5	97.3	125.3	97.9	126.1	98.5	52	
	39	118.9	96.3	119.7	96.9	120.5	97.5	121.2	98.2	122.0	98.8	122.8	99.4	123.6	100.1	124.3	100.7	51	
3½		118.3	97.1	119.0	97.7	119.8	98.3	120.6	99.0	121.4	99.6	122.1	100.2	122.9	100.9	123.7	101.5		10½
	40	117.2	98.3	118.0	99.0	118.7	99.6	119.5	100.3	120.3	100.9	121.0	101.6	121.8	102.2	122.6	102.9	50	
	41	115.5	100.4	116.2	101.0	117.0	101.7	117.7	102.3	118.5	103.0	119.2	103.7	120.0	104.3	120.8	105.0	49	
	42	113.7	102.4	114.4	103.0	115.2	103.7	115.9	104.4	116.7	105.1	117.4	105.7	118.2	106.4	118.9	107.1	48	
3¾		113.4	102.7	114.1	103.4	114.8	104.1	115.6	104.8	116.3	105.4	117.1	106.1	117.8	106.8	118.6	107.4		11¼
	43	111.9	104.3	112.6	105.0	113.4	105.7	114.1	106.4	114.8	107.1	115.6	107.8	116.3	108.4	117.0	109.1	47	
	44	110.1	106.3	110.8	107.0	111.5	107.7	112.2	108.4	112.9	109.1	113.7	109.8	114.4	110.5	115.1	111.2	46	
4	45	108.2	108.2	108.9	108.9	109.6	109.6	110.3	110.3	111.0	111.0	111.7	111.7	112.4	112.4	113.1	113.1	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		153		154		155		156		157		158		159		160			
Crse.		Distance																Crse.	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	Distance 161 Diff. Lat.	161 Departure	162 Diff. Lat.	162 Departure	163 Diff. Lat.	163 Departure	164 Diff. Lat.	164 Departure	165 Diff. Lat.	165 Departure	166 Diff. Lat.	166 Departure	167 Diff. Lat.	167 Departure	168 Diff. Lat.	168 Departure	Crse. Degrees	Crse. Points
0	0	161.0	00.0	162.0	00.0	163.0	00.0	164.0	00.0	165.0	00.0	166.0	00.0	167.0	00.0	168.0	00.0	90	8
	1	161.0	02.8	162.0	02.8	163.0	02.8	164.0	02.9	165.0	02.9	166.0	02.9	167.0	02.9	168.0	02.9	89	
	2	160.9	05.6	161.9	05.7	162.9	05.7	163.9	05.7	164.9	05.8	165.9	05.8	166.9	05.8	167.9	05.9	88	
0¼		160.8	07.9	161.8	08.0	162.8	08.0	163.8	08.1	164.8	08.1	165.8	08.2	166.8	08.2	167.8	08.2		7¼
	3	160.8	08.4	161.8	08.5	162.8	08.5	163.8	08.6	164.8	08.6	165.8	08.7	166.8	08.7	167.8	08.8	87	
	4	160.6	11.2	161.6	11.3	162.6	11.4	163.6	11.4	164.6	11.5	165.6	11.6	166.6	11.6	167.6	11.7	86	
	5	160.4	14.0	161.4	14.1	162.4	14.2	163.4	14.3	164.4	14.4	165.4	14.5	166.4	14.6	167.4	14.6	85	
0½		160.2	15.8	161.2	15.9	162.2	16.0	163.2	16.1	164.2	16.2	165.2	16.3	166.2	16.4	167.2	16.5		7½
	6	160.1	16.8	161.1	16.9	162.1	17.0	163.1	17.1	164.1	17.2	165.1	17.4	166.1	17.5	167.1	17.6	84	
	7	159.8	19.6	160.8	19.7	161.8	19.9	162.8	20.0	163.8	20.1	164.8	20.2	165.8	20.4	166.7	20.5	83	
	8	159.4	22.4	160.4	22.5	161.4	22.7	162.4	22.8	163.4	23.0	164.4	23.1	165.4	23.2	166.4	23.4	82	
0¾		159.3	23.6	160.2	23.8	161.2	23.9	162.2	24.1	163.2	24.2	164.2	24.4	165.2	24.5	166.2	24.6		7¾
	9	159.0	25.2	160.0	25.3	161.0	25.5	162.0	25.7	163.0	25.8	164.0	26.0	164.9	26.1	165.9	26.3	81	
	10	158.6	28.0	159.5	28.1	160.5	28.3	161.5	28.5	162.5	28.7	163.5	28.8	164.5	29.0	165.4	29.2	80	
	11	158.0	30.7	159.0	30.9	160.0	31.1	161.0	31.3	162.0	31.5	163.0	31.7	163.9	31.9	164.9	32.1	79	
1		157.9	31.4	158.9	31.6	159.9	31.8	160.8	32.0	161.8	32.2	162.8	32.4	163.8	32.6	164.8	32.8		7
	12	157.5	33.5	158.5	33.7	159.4	33.9	160.4	34.1	161.4	34.3	162.4	34.5	163.4	34.7	164.3	34.9	78	
	13	156.9	36.2	157.8	36.4	158.8	36.7	159.8	36.9	160.8	37.1	161.7	37.3	162.7	37.6	163.7	37.8	77	
	14	156.2	38.9	157.2	39.2	158.2	39.4	159.1	39.7	160.1	39.9	161.1	40.2	162.0	40.4	163.0	40.6	76	
1¼		156.2	39.1	157.1	39.4	158.1	39.6	159.1	39.8	160.1	40.1	161.0	40.3	162.0	40.6	163.0	40.8		6¾
	15	155.5	41.7	156.5	41.9	157.4	42.2	158.4	42.4	159.4	42.7	160.3	43.0	161.3	43.2	162.3	43.5	75	
	16	154.8	44.4	155.7	44.7	156.7	44.9	157.6	45.2	158.6	45.5	159.6	45.8	160.5	46.0	161.5	46.3	74	
1½		154.1	46.7	155.0	47.0	156.0	47.3	156.9	47.6	157.9	47.9	158.9	48.2	159.8	48.5	160.8	48.8		6½
	17	154.0	47.1	154.9	47.4	155.9	47.7	156.8	47.9	157.8	48.2	158.7	48.5	159.7	48.8	160.7	49.1	73	
	18	153.1	49.8	154.1	50.1	155.0	50.4	156.0	50.7	156.9	51.0	157.9	51.3	158.8	51.6	159.8	51.9	72	
	19	152.2	52.4	153.2	52.7	154.1	53.1	155.1	53.4	156.0	53.7	157.0	54.0	157.9	54.4	158.8	54.7	71	
1¾		151.6	54.2	152.5	54.6	153.5	54.9	154.4	55.2	155.4	55.6	156.3	55.9	157.2	56.3	158.2	56.6		6¼
	20	151.3	55.1	152.2	55.4	153.2	55.7	154.1	56.1	155.0	56.4	156.0	56.8	156.9	57.1	157.9	57.5	70	
	21	150.3	57.7	151.2	58.1	152.2	58.4	153.1	58.8	154.0	59.1	155.0	59.5	155.9	59.8	156.8	60.2	69	
	22	149.3	60.3	150.2	60.7	151.1	61.1	152.1	61.4	153.0	61.8	153.9	62.2	154.8	62.6	155.8	62.9	68	
1		148.7	61.6	149.7	62.0	150.6	62.4	151.5	62.8	152.4	63.1	153.4	63.5	154.3	63.9	155.2	64.3		6
	23	148.2	62.9	149.1	63.3	150.0	63.7	151.0	64.1	151.9	64.5	152.8	64.9	153.7	65.3	154.6	65.6	67	
	24	147.1	65.5	148.0	65.9	148.9	66.3	149.8	66.7	150.7	67.1	151.6	67.5	152.6	67.9	153.5	68.3	66	
	25	145.9	68.0	146.8	68.5	147.7	68.9	148.6	69.3	149.5	69.7	150.4	70.2	151.4	70.6	152.3	71.0	65	
1¼		145.5	68.8	146.4	69.3	147.4	69.7	148.3	70.1	149.2	70.5	150.1	71.0	151.0	71.4	151.9	71.8		5¾
	26	144.7	70.6	145.6	71.0	146.5	71.5	147.4	71.9	148.3	72.3	149.2	72.8	150.1	73.2	151.0	73.6	64	
	27	143.5	73.1	144.3	73.5	145.2	74.0	146.1	74.5	147.0	74.9	147.9	75.4	148.8	75.8	149.7	76.3	63	
	28	142.2	75.6	143.0	76.1	143.9	76.5	144.8	77.0	145.7	77.5	146.6	77.9	147.5	78.4	148.3	78.9	62	
1½		142.0	75.9	142.9	76.4	143.8	76.8	144.6	77.3	145.5	77.8	146.4	78.3	147.3	78.7	148.2	79.2		5½
	29	140.8	78.1	141.7	78.5	142.6	79.0	143.4	79.5	144.3	80.0	145.2	80.5	146.1	81.0	146.9	81.4	61	
	30	139.4	80.5	140.3	81.0	141.2	81.5	142.0	82.0	142.9	82.5	143.8	83.0	144.6	83.5	145.5	84.0	60	
1¾		138.1	82.8	139.0	83.3	139.8	83.8	140.7	84.3	141.5	84.8	142.4	85.3	143.2	85.9	144.1	86.4		5¼
	31	138.0	82.9	138.9	83.4	139.7	84.0	140.6	84.5	141.4	85.0	142.3	85.5	143.1	86.0	144.0	86.5	59	
	32	136.5	85.3	137.4	85.8	138.2	86.4	139.1	86.9	139.9	87.4	140.8	88.0	141.6	88.5	142.5	89.0	58	
	33	135.0	87.7	135.9	88.2	136.7	88.8	137.5	89.3	138.4	89.9	139.2	90.4	140.1	91.0	140.9	91.5	57	
2		133.9	89.4	134.7	90.0	135.5	90.5	136.4	91.1	137.2	91.7	138.0	92.2	138.9	92.8	139.7	93.3		5
	34	133.5	90.0	134.3	90.6	135.1	91.1	136.0	91.7	136.8	92.3	137.6	92.8	138.4	93.4	139.3	93.9	56	
	35	131.9	92.3	132.7	92.9	133.5	93.5	134.3	94.1	135.2	94.6	136.0	95.2	136.8	95.8	137.6	96.4	55	
	36	130.3	94.6	131.1	95.2	131.9	95.8	132.7	96.4	133.5	97.0	134.3	97.6	135.1	98.2	135.9	98.7	54	
2¼		129.3	95.9	130.1	96.5	130.9	97.1	131.7	97.7	132.5	98.3	133.3	98.9	134.1	99.5	134.9	100.1		4¾
	37	128.6	96.9	129.4	97.5	130.2	98.1	131.0	98.7	131.8	99.3	132.6	99.9	133.4	100.5	134.2	101.1	53	
	38	126.9	99.1	127.7	99.7	128.4	100.4	129.2	101.0	130.0	101.6	130.8	102.2	131.6	102.8	132.4	103.4	52	
	39	125.1	101.3	125.9	101.9	126.7	102.6	127.5	103.2	128.2	103.8	129.0	104.5	129.8	105.1	130.6	105.7	51	
2½		124.5	102.1	125.2	102.8	126.0	103.4	126.8	104.0	127.5	104.7	128.3	105.3	129.1	105.9	129.9	106.6		4½
	40	123.3	103.5	124.1	104.1	124.9	104.8	125.6	105.4	126.4	106.1	127.2	106.7	127.9	107.3	128.7	108.0	50	
	41	121.5	105.6	122.3	106.3	123.0	106.9	123.8	107.6	124.5	108.2	125.3	108.9	126.0	109.6	126.8	110.2	49	
	42	119.6	107.7	120.4	108.4	121.1	109.1	121.9	109.7	122.6	110.4	123.4	111.1	124.1	111.7	124.8	112.4	48	
2¾		119.3	108.1	120.0	108.8	120.8	109.5	121.5	110.1	122.3	110.8	123.0	111.5	123.7	112.2	124.5	112.8		4¼
	43	117.7	109.8	118.5	110.5	119.2	111.2	119.9	111.8	120.7	112.5	121.4	113.2	122.1	113.9	122.9	114.6	47	
	44	115.8	111.8	116.5	112.5	117.3	113.2	118.0	113.9	118.7	114.6	119.4	115.3	120.1	116.0	120.8	116.7	46	
	45	113.8	113.8	114.6	114.6	115.3	115.3	116.0	116.0	116.7	116.7	117.4	117.4	118.1	118.1	118.8	118.8	45	4
Crse. Points	Crse. Degrees	Departure 161	Diff. Lat.	Departure 162	Diff. Lat.	Departure 163	Diff. Lat.	Departure 164	Diff. Lat.	Departure 165	Diff. Lat.	Departure 166	Diff. Lat.	Departure 167	Diff. Lat.	Departure 168	Diff. Lat.	Crse. Degrees	Crse. Points

Distance

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Degrees	DISTANCE. 169 Diff. Lat.	169 Departure.	170 Diff. Lat.	170 Departure.	171 Diff. Lat.	171 Departure.	172 Diff. Lat.	172 Departure.	173 Diff. Lat.	173 Departure.	174 Diff. Lat.	174 Departure.	175 Diff. Lat.	175 Departure.	176 Diff. Lat.	176 Departure.	Degrees	Crse. Points
	0	169.0	00.0	170.0	00.0	171.0	00.0	172.0	00.0	173.0	00.0	174.0	00.0	175.0	00.0	176.0	00.0	90	
	1	169.0	02.9	170.0	03.0	171.0	03.0	172.0	03.0	173.0	03.0	174.0	03.0	175.0	03.1	176.0	03.1	89	
	2	168.9	05.9	169.9	05.9	170.9	06.0	171.9	06.0	172.9	06.0	173.9	06.1	174.9	06.1	175.9	06.1	88	
0¼		168.8	08.3	169.8	08.3	170.8	08.4	171.8	08.4	172.8	08.5	173.8	08.5	174.8	08.6	175.8	08.6		7¾
	3	168.8	08.8	169.8	08.9	170.8	08.9	171.8	09.0	172.8	09.1	173.8	09.1	174.8	09.2	175.8	09.2	87	
	4	168.6	11.8	169.6	11.9	170.6	11.9	171.6	12.0	172.6	12.1	173.6	12.1	174.6	12.2	175.6	12.3	86	
	5	168.4	14.7	169.4	14.8	170.3	14.9	171.3	15.0	172.3	15.1	173.3	15.2	174.3	15.3	175.3	15.3	85	
0½		168.2	16.6	169.2	16.7	170.2	16.8	171.2	16.9	172.2	17.0	173.2	17.1	174.2	17.2	175.2	17.3		7½
	6	168.1	17.7	169.1	17.8	170.1	17.9	171.1	18.0	172.1	18.1	173.0	18.2	174.0	18.3	175.0	18.4	84	
	7	167.7	20.6	168.7	20.7	169.7	20.8	170.7	21.0	171.7	21.1	172.7	21.2	173.7	21.3	174.7	21.4	83	
	8	167.4	23.5	168.3	23.7	169.3	23.8	170.3	23.9	171.3	24.1	172.3	24.2	173.3	24.4	174.3	24.5	82	
0¾		167.2	24.8	168.2	24.9	169.1	25.1	170.1	25.2	171.1	25.4	172.1	25.5	173.1	25.7	174.1	25.8		7¼
	9	166.9	26.4	167.9	26.6	168.9	26.8	169.9	26.9	170.9	27.1	171.9	27.2	172.8	27.4	173.8	27.5	81	
	10	166.4	29.3	167.4	29.5	168.4	29.7	169.4	29.9	170.4	30.0	171.4	30.2	172.3	30.4	173.3	30.6	80	
	11	165.9	32.2	166.9	32.4	167.9	32.6	168.8	32.8	169.8	33.0	170.8	33.2	171.8	33.4	172.8	33.6	79	
1		165.7	33.0	166.7	33.2	167.7	33.4	168.7	33.6	169.7	33.8	170.7	34.0	171.6	34.1	172.6	34.3		7
	12	165.3	35.1	166.3	35.3	167.3	35.6	168.2	35.8	169.2	36.0	170.2	36.2	171.2	36.4	172.2	36.6	78	
	13	164.7	38.0	165.6	38.2	166.6	38.5	167.6	38.7	168.6	38.9	169.5	39.1	170.5	39.4	171.5	39.6	77	
	14	164.0	40.9	165.0	41.1	165.9	41.4	166.9	41.6	167.9	41.9	168.8	42.1	169.8	42.3	170.8	42.6	76	
1¼		163.9	41.1	164.9	41.3	165.9	41.5	166.8	41.8	167.8	42.0	168.8	42.3	169.8	42.5	170.7	42.8		6¾
	15	163.2	43.7	164.2	44.0	165.2	44.3	166.1	44.5	167.1	44.8	168.1	45.0	169.0	45.3	170.0	45.6	75	
	16	162.5	46.6	163.4	46.9	164.4	47.1	165.3	47.4	166.3	47.7	167.3	48.0	168.2	48.2	169.2	48.5	74	
1½		161.7	49.1	162.7	49.3	163.6	49.6	164.6	49.9	165.6	50.2	166.5	50.5	167.5	50.8	168.4	51.1		6½
	17	161.6	49.4	162.6	49.7	163.5	50.0	164.5	50.3	165.4	50.6	166.4	50.9	167.4	51.2	168.3	51.5	73	
	18	160.7	52.2	161.7	52.5	162.6	52.8	163.6	53.2	164.5	53.5	165.5	53.8	166.4	54.1	167.4	54.4	72	
	19	159.8	55.0	160.7	55.3	161.7	55.7	162.6	56.0	163.6	56.3	164.5	56.6	165.5	57.0	166.4	57.3	71	
1¾		159.1	56.9	160.1	57.3	161.0	57.6	161.9	57.9	162.9	58.3	163.8	58.6	164.8	59.0	165.7	59.3		6¼
	20	158.8	57.8	159.7	58.1	160.7	58.5	161.6	58.8	162.6	59.2	163.5	59.5	164.4	59.9	165.4	60.2	70	
	21	157.8	60.6	158.7	60.9	159.6	61.3	160.6	61.6	161.5	62.0	162.4	62.4	163.4	62.7	164.3	63.1	69	
	22	156.7	63.3	157.6	63.7	158.5	64.1	159.5	64.4	160.4	64.8	161.3	65.2	162.3	65.6	163.2	65.9	68	
2		156.1	64.7	157.1	65.1	158.0	65.4	158.9	65.8	159.8	66.2	160.8	66.6	161.7	67.0	162.6	67.4		6
	23	155.6	66.0	156.5	66.4	157.4	66.8	158.3	67.2	159.2	67.6	160.2	68.0	161.1	68.4	162.0	68.8	67	
	24	154.4	68.7	155.3	69.1	156.2	69.6	157.1	70.0	158.0	70.4	159.0	70.8	159.9	71.2	160.8	71.6	66	
	25	153.2	71.4	154.1	71.8	155.0	72.3	155.9	72.7	156.8	73.1	157.7	73.5	158.6	74.0	159.5	74.4	65	
2¼		152.8	72.3	153.7	72.7	154.6	73.1	155.5	73.5	156.4	74.0	157.3	74.4	158.2	74.8	159.1	75.2		5¾
	26	151.9	74.1	152.8	74.5	153.7	75.0	154.6	75.4	155.5	75.8	156.4	76.3	157.3	76.7	158.2	77.2	64	
	27	150.6	76.7	151.5	77.2	152.4	77.6	153.3	78.1	154.1	78.5	155.0	79.0	155.9	79.4	156.8	79.9	63	
	28	149.2	79.3	150.1	79.8	151.0	80.3	151.9	80.7	152.7	81.2	153.6	81.7	154.5	82.2	155.4	82.6	62	
2½		149.0	79.7	149.9	80.1	150.8	80.6	151.7	81.1	152.6	81.6	153.5	82.0	154.8	82.5	155.2	83.0		5½
	29	147.8	81.9	148.7	82.4	149.6	82.9	150.4	83.4	151.3	83.9	152.2	84.4	153.1	84.8	153.9	85.3	61	
	30	146.4	84.5	147.2	85.0	148.1	85.5	149.0	86.0	149.8	86.5	150.7	87.0	151.6	87.5	152.4	88.0	60	
2¾		145.0	86.9	145.8	87.4	146.7	87.9	147.5	88.4	148.4	88.9	149.2	89.5	150.1	90.0	151.0	90.5		5¼
	31	144.9	87.0	145.7	87.6	146.6	88.1	147.4	88.6	148.3	89.1	149.1	89.6	150.0	90.1	150.9	90.6	59	
	32	143.3	89.6	144.2	90.1	145.0	90.6	145.9	91.1	146.7	91.7	147.6	92.2	148.4	92.7	149.3	93.3	58	
	33	141.7	92.0	142.6	92.6	143.4	93.1	144.3	93.7	145.1	94.2	145.9	94.8	146.8	95.3	147.6	95.9	57	
3		140.5	93.9	141.3	94.4	142.2	95.0	143.0	95.5	143.8	96.1	144.7	96.7	145.5	97.2	146.3	97.8		5
	34	140.1	94.5	140.9	95.1	141.8	95.6	142.6	96.2	143.4	96.7	144.3	97.3	145.1	97.9	145.9	98.4	56	
	35	138.4	96.9	139.3	97.5	140.1	98.1	140.9	98.7	141.7	99.2	142.5	99.8	143.4	100.4	144.2	100.9	55	
	36	136.7	99.3	137.5	99.9	138.3	100.5	139.2	101.0	140.0	101.7	140.8	102.3	141.6	102.9	142.4	103.5	54	
3¼		135.7	100.7	136.5	101.3	137.3	101.9	138.2	102.5	139.0	103.1	139.8	103.7	140.6	104.2	141.4	104.8		4¾
	37	135.0	101.7	135.8	102.3	136.6	102.9	137.4	103.5	138.2	104.1	139.0	104.7	139.8	105.3	140.6	105.9	53	
	38	133.2	104.0	134.0	104.7	134.7	105.3	135.5	105.9	136.3	106.5	137.1	107.1	137.9	107.7	138.7	108.4	52	
	39	131.3	106.4	132.1	107.0	132.9	107.6	133.7	108.2	134.4	108.9	135.2	109.5	136.0	110.1	136.8	110.8	51	
3½		130.6	107.2	131.4	107.8	132.2	108.5	133.0	109.1	133.7	109.8	134.5	110.4	135.3	111.0	136.0	111.7		4½
	40	129.5	108.6	130.2	109.3	131.0	109.9	131.8	110.6	132.5	111.2	133.3	111.8	134.1	112.5	134.8	113.1	50	
	41	127.5	110.9	128.3	111.5	129.1	112.2	129.8	112.8	130.6	113.5	131.3	114.2	132.1	114.8	132.8	115.5	49	
	42	125.6	113.1	126.3	113.8	127.1	114.4	127.8	115.1	128.6	115.8	129.3	116.4	130.1	117.1	130.8	117.8	48	
3¾		125.2	113.5	126.0	114.2	126.7	114.8	127.4	115.5	128.2	116.2	128.9	116.9	129.7	117.5	130.4	118.2		4¼
	43	123.6	115.3	124.3	115.9	125.1	116.6	125.8	117.3	126.5	118.0	127.3	118.7	128.0	119.3	128.7	120.0	47	
	44	121.6	117.4	122.3	118.1	123.0	118.8	123.7	119.5	124.4	120.2	125.2	120.9	125.9	121.6	126.6	122.3	46	
4	45	119.5	119.5	120.2	120.2	120.9	120.9	121.6	121.6	122.3	122.3	123.0	123.0	123.7	123.7	124.4	124.4	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		169		170		171		172		173		174		175		176			
Crse.		DISTANCE.																	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Degrees	177 Diff. Lat.	177 Departure.	178 Diff. Lat.	178 Departure.	179 Diff. Lat.	179 Departure.	180 Diff. Lat.	180 Departure.	181 Diff. Lat.	181 Departure.	182 Diff. Lat.	182 Departure.	183 Diff. Lat.	183 Departure.	184 Diff. Lat.	184 Departure.	Degrees	Crse. Points
	0	177.0	00.0	178.0	00.0	179.0	00.0	180.0	00.0	181.0	00.0	182.0	00.0	183.0	00.0	184.0	00.0	90	8
	1	177.0	03.1	178.0	03.1	179.0	03.1	180.0	03.1	181.0	03.2	182.0	03.2	183.0	03.2	184.0	03.2	89	
	2	176.9	06.2	177.9	06.2	178.9	06.2	179.9	06.3	180.9	06.3	181.9	06.4	182.9	06.4	183.9	06.4	88	
7½		176.8	08.7	177.8	08.7	178.8	08.8	179.8	08.8	180.8	08.9	181.8	08.9	182.8	09.0	183.8	09.0		7½
	3	176.8	09.3	177.8	09.3	178.8	09.4	179.8	09.4	180.8	09.5	181.8	09.5	182.7	09.6	183.7	09.6	87	
	4	176.6	12.3	177.6	12.4	178.6	12.5	179.6	12.6	180.6	12.6	181.6	12.7	182.6	12.8	183.6	12.8	86	
	5	176.3	15.4	177.3	15.5	178.3	15.6	179.3	15.7	180.3	15.8	181.3	15.9	182.3	15.9	183.3	16.0	85	
7½		176.1	17.4	177.1	17.4	178.1	17.5	179.1	17.6	180.1	17.7	181.1	17.8	182.1	17.9	183.1	18.0		7½
	6	176.0	18.5	177.0	18.6	178.0	18.7	179.0	18.8	180.0	18.9	181.0	19.0	182.0	19.1	183.0	19.2	84	
	7	175.7	21.6	176.7	21.7	177.7	21.8	178.7	21.9	179.7	22.1	180.6	22.2	181.6	22.3	182.6	22.4	83	
	8	175.3	24.6	176.3	24.8	177.3	24.9	178.2	25.1	179.2	25.2	180.2	25.3	181.2	25.5	182.2	25.6	82	
7¾		175.1	26.0	176.1	26.1	177.1	26.3	178.0	26.4	179.0	26.6	180.0	26.7	181.0	26.8	182.0	27.0		7¾
	9	174.8	27.7	175.8	27.8	176.8	28.0	177.8	28.2	178.8	28.3	179.8	28.5	180.7	28.6	181.7	28.8	81	
	10	174.3	30.7	175.3	30.9	176.3	31.1	177.3	31.3	178.3	31.4	179.2	31.6	180.2	31.8	181.2	32.0	80	
	11	173.7	33.8	174.7	34.0	175.7	34.2	176.7	34.3	177.7	34.5	178.7	34.7	179.6	34.9	180.6	35.1	79	
		173.6	34.5	174.6	34.7	175.6	34.9	176.5	35.1	177.5	35.3	178.5	35.5	179.5	35.7	180.5	35.9		7
	12	173.1	36.8	174.1	37.0	175.1	37.2	176.1	37.4	177.0	37.6	178.0	37.8	179.0	38.0	180.0	38.3	78	
	13	172.5	39.8	173.4	40.0	174.4	40.3	175.4	40.5	176.4	40.7	177.3	40.9	178.3	41.2	179.3	41.4	77	
	14	171.7	42.8	172.7	43.1	173.7	43.3	174.7	43.5	175.5	43.8	176.6	44.0	177.6	44.3	178.5	44.5	76	
6¼		171.7	43.0	172.7	43.3	173.6	43.5	174.6	43.7	175.6	44.0	176.5	44.2	177.5	44.5	178.5	44.7		6¼
	15	171.0	45.8	171.9	46.1	172.9	46.3	173.9	46.6	174.8	46.8	175.8	47.1	176.8	47.4	177.7	47.6	75	
	16	170.1	48.8	171.1	49.1	172.1	49.3	173.0	49.6	174.0	49.9	174.9	50.2	175.9	50.4	176.9	50.7	74	
6½		169.4	51.4	170.3	51.7	171.3	52.0	172.2	52.3	173.2	52.5	174.2	52.8	175.1	53.1	176.1	53.4		6½
	17	169.3	51.7	170.2	52.0	171.2	52.3	172.1	52.6	173.1	52.9	174.0	53.2	175.0	53.5	176.0	53.8	73	
	18	168.3	54.7	169.3	55.0	170.2	55.3	171.2	55.6	172.1	55.9	173.1	56.2	174.0	56.6	175.0	56.9	72	
	19	167.4	57.6	168.3	58.0	169.2	58.3	170.2	58.6	171.1	58.9	172.1	59.3	173.0	59.6	174.0	59.9	71	
6¼		166.7	59.6	167.6	60.0	168.5	60.3	169.5	60.6	170.4	61.0	171.4	61.3	172.3	61.7	173.2	62.0		6¼
	20	166.3	60.5	167.3	60.9	168.2	61.2	169.1	61.6	170.1	61.9	171.0	62.2	172.0	62.6	172.9	62.9	70	
	21	165.2	63.4	166.2	63.8	167.1	64.1	168.0	64.5	169.0	64.9	169.9	65.2	170.8	65.6	171.8	65.9	69	
	22	164.1	66.3	165.0	66.7	166.0	67.1	166.9	67.4	167.8	67.8	168.7	68.2	169.7	68.6	170.6	68.9	68	
6		163.5	67.7	164.5	68.1	165.4	68.5	166.3	68.9	167.2	69.3	168.1	69.6	169.1	70.0	170.0	70.4		6
	23	162.9	69.2	163.8	69.6	164.8	69.9	165.7	70.3	166.6	70.7	167.5	71.1	168.5	71.5	169.4	71.9	67	
	24	161.7	72.0	162.6	72.4	163.5	72.8	164.4	73.2	165.4	73.6	166.3	74.0	167.2	74.4	168.1	74.8	66	
	25	160.4	74.8	161.3	75.2	162.2	75.6	163.1	76.1	164.0	76.5	164.9	76.9	165.9	77.3	166.8	77.8	65	
5½		160.0	75.7	160.9	76.1	161.8	76.5	162.7	77.0	163.6	77.4	164.5	77.8	165.4	78.2	166.3	78.7		5½
	26	159.1	77.6	160.0	78.0	160.9	78.5	161.8	78.9	162.7	79.3	163.6	79.8	164.5	80.2	165.4	80.7	64	
	27	157.7	80.4	158.6	80.8	159.5	81.3	160.4	81.7	161.3	82.2	162.2	82.6	163.1	83.1	163.9	83.5	63	
	28	156.3	83.1	157.2	83.6	158.0	84.0	158.9	84.5	159.8	85.0	160.7	85.4	161.6	85.9	162.5	86.4	62	
5½		156.1	83.4	157.0	83.9	157.9	84.4	158.7	84.9	159.6	85.3	160.5	85.8	161.4	86.3	162.3	86.7		5½
	29	154.8	85.8	155.7	86.3	156.6	86.8	157.4	87.3	158.3	87.8	159.2	88.2	160.1	88.7	160.9	89.2	61	
	30	153.3	88.5	154.2	89.0	155.0	89.5	155.9	90.0	156.8	90.5	157.6	91.0	158.5	91.5	159.3	92.0	60	
5¼		151.8	91.0	152.7	91.5	153.5	92.0	154.4	92.5	155.2	93.1	156.1	93.6	157.0	94.1	157.8	94.6		5¼
	31	151.7	91.2	152.6	91.7	153.4	92.2	154.3	92.7	155.1	93.2	156.0	93.7	156.9	94.3	157.7	94.8	59	
	32	150.1	93.8	151.0	94.3	151.8	94.9	152.6	95.4	153.5	95.9	154.3	96.4	155.2	97.0	156.0	97.5	58	
	33	148.4	96.4	149.3	96.9	150.1	97.5	151.0	98.0	151.8	98.6	152.6	99.1	153.5	99.7	154.3	100.2	57	
5		147.2	98.3	148.0	98.9	148.8	99.4	149.7	100.0	150.5	100.5	151.3	101.1	152.2	101.7	153.0	102.2		5
	34	146.7	99.0	147.6	99.5	148.4	100.1	149.2	100.7	150.1	101.2	150.9	101.8	151.7	102.3	152.5	102.9	56	
	35	145.0	101.5	145.8	102.1	146.6	102.7	147.4	103.2	148.3	103.8	149.1	104.4	149.9	105.0	150.7	105.5	55	
	36	143.2	104.0	144.0	104.6	144.8	105.2	145.6	105.8	146.4	106.4	147.2	107.0	148.1	107.6	148.9	108.2	54	
4¾		142.2	105.4	143.0	106.0	143.8	106.6	144.6	107.2	145.4	107.8	146.2	108.4	147.0	109.0	147.8	109.6		4¾
	37	141.4	106.5	142.2	107.1	143.0	107.7	143.8	108.3	144.6	108.9	145.4	109.5	146.2	110.1	146.9	110.7	53	
	38	139.5	109.0	140.3	109.6	141.1	110.2	141.8	110.8	142.6	111.4	143.4	112.1	144.2	112.7	145.0	113.3	52	
	39	137.6	111.4	138.3	112.0	139.1	112.6	139.9	113.3	140.7	113.9	141.4	114.5	142.2	115.2	143.0	115.8	51	
4½		136.8	112.3	137.6	112.9	138.4	113.6	139.1	114.2	139.9	114.8	140.7	115.5	141.5	116.1	142.2	116.7		4½
	40	135.6	113.8	136.4	114.4	137.1	115.1	137.9	115.7	138.7	116.3	139.4	117.0	140.2	117.6	141.0	118.3	50	
	41	133.6	116.1	134.3	116.8	135.1	117.4	135.8	118.1	136.6	118.7	137.4	119.4	138.1	120.1	138.9	120.7	49	
	42	131.5	118.4	132.3	119.1	133.0	119.8	133.8	120.4	134.5	121.1	135.3	121.8	136.0	122.5	136.7	123.1	48	
4¼		131.1	118.9	131.9	119.5	132.6	120.2	133.4	120.9	134.1	121.6	134.9	122.2	135.6	122.9	136.3	123.6		4¼
	43	129.4	120.7	130.2	121.4	130.9	122.1	131.6	122.8	132.4	123.4	133.1	124.1	133.8	124.8	134.6	125.5	47	
	44	127.3	123.0	128.0	123.6	128.8	124.3	129.5	125.0	130.2	125.7	130.9	126.4	131.6	127.1	132.4	127.8	46	
	45	125.2	125.2	125.9	125.9	126.6	126.6	127.3	127.3	128.0	128.0	128.7	128.7	129.4	129.4	130.1	130.1	45	4
	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
		177		178		179		180		181		182		183		184			Crse.

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Crse. Points	Degrees	185 Diff. Lat.	185 Departure.	186 Diff. Lat.	186 Departure.	187 Diff. Lat.	187 Departure.	188 Diff. Lat.	188 Departure.	189 Diff. Lat.	189 Departure.	190 Diff. Lat.	190 Departure.	191 Diff. Lat.	191 Departure.	192 Diff. Lat.	192 Departure.	Crse. Degrees	Points
0	0	185.0	00.0	186.0	00.0	187.0	00.0	188.0	00.0	189.0	00.0	190.0	00.0	191.0	00.0	192.0	00.0	90	8
	1	185.0	03.2	186.0	03.2	187.0	03.3	188.0	03.3	189.0	03.3	190.0	03.3	191.0	03.3	192.0	03.4	89	
	2	184.9	06.5	185.9	06.5	186.9	06.5	187.9	06.6	188.9	06.6	189.9	06.6	190.9	06.7	191.9	06.7	88	
0¼		184.8	09.1	185.8	09.1	186.8	09.2	187.8	09.2	188.8	09.3	189.8	09.3	190.8	09.4	191.8	09.4		7
	3	184.7	09.7	185.7	09.7	186.7	09.8	187.7	09.8	188.7	09.9	189.7	09.9	190.7	10.0	191.7	10.0	87	
	4	184.5	12.9	185.5	13.0	186.5	13.0	187.5	13.1	188.5	13.2	189.5	13.3	190.5	13.3	191.5	13.4	86	
	5	184.3	16.1	185.3	16.2	186.3	16.3	187.3	16.4	188.3	16.5	189.3	16.6	190.3	16.6	191.3	16.7	85	
0½		184.1	18.1	185.1	18.2	186.1	18.3	187.1	18.4	188.1	18.5	189.1	18.6	190.1	18.7	191.1	18.8		7
	6	184.0	19.3	185.0	19.4	186.0	19.5	187.0	19.7	188.0	19.8	189.0	19.9	190.0	20.0	190.9	20.1	84	
	7	183.6	22.5	184.6	22.7	185.6	22.8	186.6	22.9	187.6	23.0	188.6	23.2	189.6	23.3	190.6	23.4	83	
	8	183.2	25.7	184.2	25.9	185.2	26.0	186.2	26.2	187.2	26.3	188.2	26.4	189.1	26.6	190.1	26.7	82	
0¾		183.0	27.1	184.0	27.3	185.0	27.4	186.0	27.6	186.9	27.7	187.9	27.9	188.9	28.0	189.9	28.2		7
	9	182.7	28.9	183.7	29.1	184.7	29.3	185.7	29.4	186.7	29.6	187.7	29.7	188.6	29.9	189.6	30.0	81	
	10	182.2	32.1	183.2	32.3	184.2	32.5	185.1	32.6	186.1	32.8	187.1	33.0	188.1	33.2	189.1	33.3	80	
	11	181.6	35.3	182.6	35.5	183.6	35.7	184.5	35.9	185.5	36.1	186.5	36.3	187.5	36.4	188.5	36.6	79	
1		181.4	36.1	182.4	36.3	183.4	36.5	184.4	36.7	185.4	36.9	186.3	37.1	187.3	37.3	188.3	37.5		7
	12	181.0	38.5	181.9	38.7	182.9	38.9	183.9	39.1	184.9	39.3	185.8	39.5	186.8	39.7	187.8	39.9	78	
	13	180.3	41.6	181.2	41.8	182.2	42.1	183.2	42.3	184.2	42.5	185.1	42.7	186.1	43.0	187.1	43.2	77	
	14	179.5	44.8	180.5	45.0	181.4	45.2	182.4	45.5	183.4	45.7	184.4	46.0	185.3	46.2	186.3	46.4	76	
1¼		179.5	45.0	180.4	45.2	181.4	45.4	182.4	45.7	183.3	45.9	184.3	46.2	185.3	46.4	186.2	46.7		6
	15	178.7	47.9	179.7	48.1	180.6	48.4	181.6	48.7	182.6	48.9	183.5	49.2	184.5	49.4	185.5	49.7	75	
	16	177.8	51.0	178.8	51.3	179.8	51.5	180.7	51.8	181.7	52.1	182.6	52.4	183.6	52.6	184.6	52.9	74	
1½		177.0	53.7	178.0	54.0	178.9	54.3	179.9	54.6	180.9	54.9	181.8	55.2	182.8	55.4	183.7	55.7		6
	17	176.9	54.1	177.9	54.4	178.8	54.7	179.8	55.0	180.7	55.3	181.7	55.6	182.7	55.8	183.6	56.1	73	
	18	175.9	57.2	176.9	57.5	177.8	57.8	178.8	58.1	179.7	58.4	180.7	58.7	181.7	59.0	182.6	59.3	72	
	19	174.9	60.2	175.9	60.6	176.8	60.9	177.8	61.2	178.7	61.5	179.6	61.9	180.6	62.2	181.5	62.5	71	
1¾		174.2	62.3	175.1	62.7	176.1	63.0	177.0	63.3	178.0	63.7	178.9	64.0	179.8	64.3	180.8	64.7		6
	20	173.8	63.3	174.8	63.6	175.7	64.0	176.7	64.3	177.6	64.6	178.5	65.0	179.5	65.3	180.4	65.7	70	
	21	172.7	66.3	173.6	66.7	174.6	67.0	175.5	67.4	176.4	67.7	177.4	68.1	178.3	68.4	179.2	68.8	69	
	22	171.5	69.3	172.5	69.7	173.4	70.1	174.3	70.4	175.2	70.8	176.2	71.2	177.1	71.5	178.0	71.9	68	
2		170.9	70.8	171.8	71.2	172.8	71.6	173.7	71.9	174.6	72.3	175.5	72.7	176.5	73.1	177.4	73.5		6
	23	170.3	72.3	171.2	72.7	172.1	73.1	173.1	73.5	174.0	73.8	174.9	74.2	175.8	74.6	176.7	75.0	67	
	24	169.0	75.2	169.9	75.7	170.8	76.1	171.7	76.5	172.7	76.9	173.6	77.3	174.5	77.7	175.4	78.1	66	
	25	167.7	78.2	168.6	78.6	169.5	79.0	170.4	79.5	171.3	79.9	172.2	80.3	173.1	80.7	174.0	81.1	65	
2¼		167.2	79.1	168.1	79.5	169.0	80.0	169.9	80.4	170.9	80.8	171.8	81.2	172.7	81.7	173.6	82.1		5
	26	166.3	81.1	167.2	81.5	168.1	82.0	169.0	82.4	169.9	82.9	170.8	83.3	171.7	83.7	172.6	84.2	64	
	27	164.8	84.0	165.7	84.4	166.6	84.9	167.5	85.4	168.4	85.8	169.3	86.3	170.2	86.7	171.1	87.2	63	
	28	163.3	86.9	164.2	87.3	165.1	87.8	166.0	88.3	166.9	88.7	167.8	89.2	168.6	89.7	169.5	90.1	62	
2½		163.2	87.2	164.0	87.7	164.9	88.2	165.8	88.6	166.7	89.1	167.6	89.6	168.4	90.0	169.3	90.5		5
	29	161.8	89.7	162.7	90.2	163.6	90.7	164.4	91.1	165.3	91.6	166.2	92.1	167.1	92.6	167.9	93.1	61	
	30	160.2	92.5	161.1	93.0	161.9	93.5	162.8	94.0	163.7	94.5	164.5	95.0	165.4	95.5	166.3	96.0	60	
2¾		158.7	95.1	159.5	95.6	160.4	96.1	161.3	96.7	162.1	97.2	163.0	97.7	163.8	98.2	164.7	98.7		5
	31	158.6	95.3	159.4	95.8	160.3	96.3	161.1	96.8	162.0	97.3	162.9	97.9	163.7	98.4	164.6	98.9	59	
	32	156.9	98.0	157.7	98.6	158.6	99.1	159.4	99.6	160.3	100.2	161.1	100.7	162.0	101.2	162.8	101.7	58	
	33	155.2	100.8	156.0	101.3	156.8	101.8	157.7	102.4	158.5	102.9	159.3	103.5	160.2	104.0	161.0	104.6	57	
3		153.8	102.8	154.7	103.3	155.5	103.9	156.3	104.4	157.1	105.0	158.0	105.5	158.8	106.1	159.6	106.7		5
	34	153.4	103.5	154.2	104.0	155.0	104.6	155.9	105.1	156.7	105.7	157.5	106.2	158.3	106.8	159.2	107.4	56	
	35	151.5	106.1	152.4	106.7	153.2	107.3	154.0	107.8	154.8	108.4	155.6	109.0	156.5	109.6	157.3	110.1	55	
	36	149.7	108.7	150.5	109.3	151.3	109.9	152.1	110.5	152.9	111.1	153.7	111.7	154.5	112.3	155.3	112.9	54	
3¼		148.6	110.2	149.4	110.8	150.2	111.4	151.0	112.0	151.8	112.6	152.6	113.2	153.4	113.8	154.2	114.4		5
	37	147.7	111.3	148.5	111.9	149.3	112.5	150.1	113.1	150.9	113.7	151.7	114.3	152.5	114.9	153.3	115.5	53	
	38	145.8	113.9	146.6	114.5	147.4	115.1	148.1	115.7	148.9	116.4	149.7	117.0	150.5	117.6	151.3	118.2	52	
	39	143.8	116.4	144.5	117.1	145.3	117.7	146.1	118.3	146.9	118.9	147.7	119.6	148.4	120.2	149.2	120.8	51	
3½		143.0	117.4	143.8	118.0	144.6	118.6	145.3	119.3	146.1	119.9	146.9	120.5	147.6	121.2	148.4	121.8		5
	40	141.7	118.9	142.5	119.6	143.3	120.2	144.0	120.8	144.8	121.5	145.5	122.1	146.3	122.8	147.1	123.4	50	
	41	139.6	121.4	140.4	122.0	141.1	122.7	141.9	123.3	142.6	124.0	143.4	124.7	144.1	125.3	144.9	126.0	49	
	42	137.5	123.8	138.2	124.5	139.0	125.1	139.7	125.8	140.5	126.5	141.2	127.1	141.9	127.8	142.7	128.5	48	
3¾		137.0	124.2	137.8	124.9	138.6	125.6	139.3	126.3	140.0	126.9	140.8	127.6	141.5	128.3	142.3	128.9		4
	43	135.3	126.2	136.0	126.9	136.8	127.5	137.5	128.2	138.2	128.9	139.0	129.6	139.7	130.3	140.4	130.9	47	
	44	133.1	128.5	133.8	129.2	134.5	129.9	135.2	130.6	136.0	131.3	136.7	132.0	137.4	132.7	138.1	133.4	46	
4	45	130.8	130.8	131.5	131.5	132.2	132.2	132.9	132.9	133.6	133.6	134.4	134.4	135.1	135.1	135.8	135.8	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		185		186		187		188		189		190		191		192			

Crse. DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Course. Points	Degrees	193 Diff. Lat.	193 Departure	194 Diff. Lat.	194 Departure	195 Diff. Lat.	195 Departure	196 Diff. Lat.	196 Departure	197 Diff. Lat.	197 Departure	198 Diff. Lat.	198 Departure	199 Diff. Lat.	199 Departure	200 Diff. Lat.	200 Departure	Course. Degrees	Points
	0	193.0	00.0	194.0	00.0	195.0	00.0	196.0	00.0	197.0	00.0	198.0	00.0	199.0	00.0	200.0	00.0	90	8
	1	193.0	03.4	194.0	03.4	195.0	03.4	196.0	03.4	197.0	03.4	198.0	03.5	199.0	03.5	200.0	03.5	89	
	2	192.9	06.7	193.9	06.8	194.9	06.8	195.9	06.8	196.9	06.9	197.9	06.9	198.9	06.9	199.9	07.0	88	
¼		192.8	09.5	193.8	09.5	194.8	09.6	195.8	09.6	196.8	09.7	197.8	09.7	198.8	09.8	199.8	09.8		7¾
	3	192.7	10.1	193.7	10.2	194.7	10.2	195.7	10.3	196.7	10.3	197.7	10.4	198.7	10.4	199.7	10.5	87	
	4	192.5	13.5	193.5	13.5	194.5	13.6	195.5	13.7	196.5	13.7	197.5	13.8	198.5	13.9	199.5	14.0	86	
	5	192.3	16.8	193.3	16.9	194.3	17.0	195.3	17.1	196.3	17.2	197.2	17.3	198.2	17.3	199.2	17.4	85	
½		192.1	18.9	193.1	19.0	194.1	19.1	195.1	19.2	196.1	19.3	197.0	19.4	198.0	19.5	199.0	19.6		7½
	6	191.9	20.2	192.9	20.3	193.9	20.4	194.9	20.5	195.9	20.6	196.9	20.7	197.9	20.8	198.9	20.9	84	
	7	191.6	23.5	192.6	23.6	193.5	23.8	194.5	23.9	195.5	24.0	196.5	24.1	197.5	24.3	198.5	24.4	83	
	8	191.1	26.9	192.1	27.0	193.1	27.1	194.1	27.3	195.1	27.4	196.1	27.6	197.1	27.7	198.1	27.8	82	
¾		190.9	28.3	191.9	28.5	192.9	28.6	193.9	28.8	194.9	28.9	195.9	29.0	196.8	29.2	197.8	29.3		7¾
	9	190.6	30.2	191.6	30.3	192.6	30.5	193.6	30.7	194.6	30.8	195.6	31.0	196.5	31.1	197.5	31.3	81	
	10	190.1	33.5	191.1	33.7	192.0	33.9	193.0	34.0	194.0	34.2	195.0	34.4	196.0	34.6	197.0	34.7	80	
	11	189.5	36.8	190.4	37.0	191.4	37.2	192.4	37.4	193.4	37.6	194.4	37.8	195.3	38.0	196.3	38.2	79	
		189.3	37.7	190.3	37.8	191.2	38.0	192.2	38.2	193.2	38.4	194.2	38.6	195.2	38.8	196.2	39.0		7
	12	188.8	40.1	189.8	40.3	190.7	40.5	191.7	40.8	192.7	41.0	193.7	41.2	194.7	41.4	195.6	41.6	78	
	13	188.1	43.4	189.0	43.6	190.0	43.9	191.0	44.1	192.0	44.3	192.9	44.5	193.9	44.8	194.9	45.0	77	
	14	187.3	46.7	188.2	46.9	189.2	47.2	190.2	47.4	191.1	47.7	192.1	47.9	193.1	48.1	194.1	48.4	76	
¼		187.2	46.9	188.2	47.1	189.2	47.4	190.1	47.6	191.1	47.9	192.1	48.1	193.0	48.4	194.0	48.6		6¾
	15	186.4	50.0	187.4	50.2	188.4	50.5	189.3	50.7	190.3	51.0	191.3	51.2	192.2	51.5	193.2	51.8	75	
	16	185.5	53.2	186.5	53.5	187.4	53.7	188.4	54.0	189.4	54.3	190.3	54.6	191.3	54.9	192.3	55.1	74	
½		184.7	56.0	185.6	56.3	186.6	56.6	187.6	56.9	188.5	57.2	189.5	57.5	190.4	57.8	191.4	58.1		6½
	17	184.6	56.4	185.5	56.7	186.5	57.0	187.4	57.3	188.4	57.6	189.3	57.9	190.3	58.2	191.3	58.5	73	
	18	183.6	59.6	184.5	59.9	185.5	60.3	186.4	60.6	187.4	60.9	188.3	61.2	189.3	61.5	190.2	61.8	72	
	19	182.5	62.8	183.4	63.2	184.4	63.5	185.3	63.8	186.3	64.1	187.2	64.5	188.2	64.8	189.1	65.1	71	
¼		181.7	65.0	182.7	65.4	183.6	65.7	184.5	66.0	185.5	66.4	186.4	66.7	187.4	67.0	188.3	67.4		6¼
	20	181.4	66.0	182.3	66.4	183.2	66.7	184.2	67.0	185.1	67.4	186.1	67.7	187.0	68.1	187.9	68.4	70	
	21	180.2	69.2	181.1	69.5	182.0	69.9	183.0	70.2	183.9	70.6	184.8	71.0	185.8	71.3	186.7	71.7	69	
	22	178.9	72.3	179.9	72.7	180.8	73.0	181.7	73.4	182.7	73.8	183.6	74.2	184.5	74.5	185.4	74.9	68	
		178.3	73.9	179.2	74.2	180.2	74.6	181.1	75.0	182.0	75.4	182.9	75.8	183.9	76.2	184.8	76.5		6
	23	177.7	75.4	178.6	75.8	179.5	76.2	180.3	76.6	181.3	77.0	182.2	77.4	183.1	77.8	184.0	78.1	67	
	24	176.3	78.5	177.2	78.9	178.1	79.3	179.1	79.7	180.0	80.1	180.9	80.5	181.8	80.9	182.7	81.3	66	
	25	174.9	81.6	175.8	82.0	176.7	82.4	177.6	82.8	178.5	83.3	179.4	83.7	180.4	84.1	181.3	84.5	65	
¼		174.5	82.5	175.4	82.9	176.3	83.4	177.2	83.8	178.1	84.2	179.0	84.7	179.9	85.1	180.8	85.5		5¾
	26	173.5	84.6	174.4	85.0	175.3	85.5	176.2	85.9	177.1	86.4	178.0	86.8	178.9	87.2	179.8	87.7	64	
	27	172.0	87.6	172.9	88.1	173.7	88.5	174.6	89.0	175.5	89.4	176.4	89.9	177.3	90.3	178.2	90.8	63	
	28	170.4	90.6	171.3	91.1	172.2	91.5	173.1	92.0	173.9	92.5	174.8	93.0	175.7	93.4	176.6	93.9	62	
½		170.2	91.0	171.1	91.5	172.0	91.9	172.9	92.4	173.7	92.9	174.6	93.3	175.5	93.8	176.4	94.3		5½
	29	168.8	93.6	169.7	94.1	170.6	94.5	171.4	95.0	172.3	95.5	173.2	96.0	174.0	96.5	174.9	97.0	61	
	30	167.1	96.5	168.0	97.0	168.9	97.5	169.7	98.0	170.6	98.5	171.5	99.0	172.3	99.5	173.2	100.0	60	
¼		165.5	99.2	166.4	99.7	167.3	100.3	168.1	100.8	169.0	101.3	169.8	101.8	170.7	102.3	171.5	102.8		5¼
	31	165.4	99.4	166.3	99.9	167.1	100.4	168.0	100.9	168.9	101.5	169.7	102.0	170.6	102.5	171.4	103.0	59	
	32	163.7	102.3	164.5	102.8	165.4	103.3	166.2	103.9	167.1	104.4	167.9	104.9	168.8	105.5	169.6	106.0	58	
	33	161.9	105.1	162.7	105.7	163.5	106.2	164.4	106.7	165.2	107.3	166.1	107.8	166.9	108.4	167.7	108.9	57	
		160.5	107.2	161.3	107.8	162.1	108.3	163.0	108.9	163.8	109.4	164.6	110.0	165.5	110.5	166.3	111.1		5
	34	160.0	107.9	160.8	108.5	161.7	109.0	162.5	109.6	163.3	110.2	164.1	110.7	165.0	111.3	165.8	111.8	56	
	35	158.1	110.7	158.9	111.3	159.7	111.8	160.6	112.4	161.4	113.0	162.2	113.6	163.0	114.1	163.8	114.7	55	
	36	156.1	113.4	156.9	114.0	157.8	114.6	158.6	115.2	159.4	115.8	160.2	116.4	161.0	117.0	161.8	117.6	54	
¼		155.0	115.0	155.8	115.6	156.6	116.2	157.4	116.8	158.2	117.4	159.0	117.9	159.8	118.5	160.6	119.1		4¾
	37	154.1	116.2	154.9	116.8	155.7	117.4	156.5	118.0	157.3	118.6	158.1	119.2	158.9	119.8	159.7	120.4	53	
	38	152.1	118.8	152.9	119.4	153.7	120.1	154.5	120.7	155.2	121.3	156.0	121.9	156.8	122.5	157.6	123.1	52	
	39	150.0	121.5	150.8	122.1	151.5	122.7	152.3	123.3	153.1	124.0	153.9	124.6	154.7	125.2	155.4	125.9	51	
½		149.2	122.4	150.0	123.1	150.7	123.7	151.5	124.3	152.3	125.0	153.1	125.6	153.8	126.2	154.6	126.9		4½
	40	147.8	124.1	148.6	124.7	149.4	125.3	150.1	126.0	150.9	126.6	151.7	127.3	152.4	127.9	153.2	128.6	50	
	41	145.7	126.6	146.4	127.3	147.2	127.9	147.9	128.6	148.7	129.2	149.4	129.9	150.2	130.6	150.9	131.2	49	
	42	143.4	129.1	144.2	129.8	144.9	130.5	145.7	131.1	146.4	131.8	147.1	132.5	147.9	133.2	148.6	133.8	48	
¼		143.0	129.6	143.7	130.3	144.5	131.0	145.2	131.6	146.0	132.3	146.7	133.0	147.4	133.6	148.2	134.3		4¼
	43	141.2	131.6	141.9	132.3	142.6	133.0	143.3	133.7	144.1	134.4	144.8	135.0	145.5	135.7	146.3	136.4	47	
	44	138.8	134.1	139.6	134.8	140.3	135.5	141.0	136.2	141.7	136.8	142.4	137.5	143.1	138.2	143.9	138.9	46	
	45	136.5	136.5	137.2	137.2	137.9	137.9	138.6	138.6	139.3	139.3	140.0	140.0	140.7	140.7	141.4	141.4	45	4
Course. Points	Degrees	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Degrees	Points
		193		194		195		196		197		198		199		200		Course.	

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.		DISTANCE.																			
Points	Degrees	201		202		203		204		205		206		207		208		Degrees	Points
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat	Departure.	Diff. Lat	Departure.	Diff. Lat.	Departure.		
0	0	201.0	00.0	202.0	00.0	203.0	00.0	204.0	00.0	205.0	00.0	206.0	00.0	207.0	00.0	208.0	00.0	90	
	1	201.0	03.5	202.0	03.5	203.0	03.5	204.0	03.6	205.0	03.6	206.0	03.6	207.0	03.6	208.0	03.6	89	
	2	200.9	07.0	201.9	07.0	202.9	07.1	203.9	07.1	204.9	07.2	205.9	07.2	206.9	07.2	207.9	07.3	88	
0¼		200.8	09.9	201.8	09.9	202.8	10.0	203.8	10.0	204.8	10.1	205.8	10.1	206.8	10.2	207.8	10.2		
	3	200.7	10.5	201.7	10.6	202.7	10.6	203.7	10.7	204.7	10.7	205.7	10.8	206.7	10.8	207.7	10.9	87	
	4	200.5	14.0	201.5	14.1	202.5	14.2	203.5	14.2	204.5	14.3	205.5	14.4	206.5	14.4	207.5	14.5	86	
	5	200.2	17.5	201.2	17.6	202.2	17.7	203.2	17.8	204.2	17.9	205.2	18.0	206.2	18.0	207.2	18.1	85	
0½		200.0	19.7	201.0	19.8	202.0	19.9	203.0	20.0	204.0	20.1	205.0	20.2	206.0	20.3	207.0	20.4		
	6	199.9	21.0	200.9	21.1	201.9	21.2	202.9	21.3	203.9	21.4	204.9	21.5	205.9	21.6	206.9	21.7	84	
	7	199.5	24.5	200.5	24.6	201.5	24.7	202.5	24.9	203.5	25.0	204.5	25.1	205.5	25.2	206.4	25.3	83	
	8	199.0	28.0	200.0	28.1	201.0	28.3	202.0	28.4	203.0	28.5	204.0	28.7	205.0	28.8	206.0	28.9	82	
0¾		198.8	29.5	199.8	29.6	200.8	29.8	201.8	29.9	202.8	30.1	203.8	30.2	204.8	30.4	205.7	30.5		
	9	198.5	31.4	199.5	31.6	200.5	31.8	201.5	31.9	202.5	32.1	203.5	32.2	204.5	32.4	205.4	32.5	81	
	10	197.9	34.9	198.9	35.1	199.9	35.3	200.9	35.4	201.9	35.6	202.9	35.8	203.9	35.9	204.8	36.1	80	
	11	197.3	38.4	198.3	38.5	199.3	38.7	200.3	38.9	201.2	39.1	202.2	39.3	203.2	39.5	204.2	39.7	79	
1		197.1	39.2	198.1	39.4	199.1	39.6	200.1	39.8	201.1	40.0	202.0	40.2	203.0	40.4	204.0	40.6		
	12	196.6	41.8	197.6	42.0	198.6	42.2	199.5	42.4	200.5	42.6	201.5	42.8	202.5	43.0	203.5	43.2	78	
	13	195.8	45.2	196.8	45.4	197.8	45.7	198.8	45.9	199.7	46.1	200.7	46.3	201.7	46.6	202.7	46.8	77	
	14	195.0	48.6	196.0	48.9	197.0	49.1	197.9	49.4	198.9	49.6	199.9	49.8	200.9	50.1	201.8	50.3	76	
1¼		195.0	48.8	195.9	49.1	196.9	49.3	197.9	49.6	198.9	49.8	199.8	50.1	200.8	50.3	201.8	50.5		
	15	194.2	52.0	195.1	52.3	196.1	52.5	197.0	52.8	198.0	53.1	199.0	53.3	199.9	53.6	200.9	53.8	75	
	16	193.2	55.4	194.2	55.7	195.1	56.0	196.1	56.2	197.1	56.5	198.0	56.8	199.0	57.1	199.9	57.3	74	
1½		192.3	58.3	193.3	58.6	194.3	58.9	195.2	59.2	196.2	59.5	197.1	59.8	198.1	60.1	199.0	60.4		
	17	192.2	58.8	193.2	59.1	194.1	59.4	195.1	59.6	196.0	59.9	197.0	60.2	198.0	60.5	198.9	60.8	73	
	18	191.2	62.1	192.1	62.4	193.1	62.7	194.0	63.0	195.0	63.3	195.9	63.7	196.9	64.0	197.8	64.3	72	
	19	190.0	65.4	191.0	65.8	191.9	66.1	192.9	66.4	193.8	66.7	194.8	67.1	195.7	67.4	196.7	67.7	71	
1¾		189.3	67.7	190.2	68.1	191.1	68.4	192.1	68.7	193.0	69.1	194.0	69.4	194.9	69.7	195.8	70.1		
	20	188.9	68.7	189.8	69.1	190.8	69.4	191.7	69.8	192.6	70.1	193.6	70.5	194.5	70.8	195.5	71.1	70	
	21	187.6	72.0	188.6	72.4	189.5	72.7	190.5	73.1	191.4	73.5	192.3	73.8	193.3	74.2	194.2	74.5	69	
	22	186.4	75.3	187.3	75.7	188.2	76.0	189.1	76.4	190.1	76.8	191.0	77.2	191.9	77.5	192.9	77.9	68	
2		185.7	76.9	186.6	77.3	187.5	77.7	188.5	78.1	189.4	78.5	190.3	78.8	191.2	79.2	192.2	79.6		
	23	185.0	78.5	185.9	78.9	186.9	79.3	187.8	79.7	188.7	80.1	189.6	80.5	190.5	80.9	191.5	81.3	67	
	24	183.6	81.8	184.5	82.2	185.4	82.6	186.4	83.0	187.3	83.4	188.2	83.8	189.1	84.2	190.0	84.6	66	
	25	182.2	84.9	183.1	85.4	184.0	85.8	184.9	86.2	185.8	86.6	186.7	87.1	187.6	87.5	188.5	87.9	65	
2¼		181.7	85.9	182.6	86.4	183.5	86.8	184.4	87.2	185.3	87.6	186.2	88.1	187.1	88.5	188.0	88.9		
	26	180.7	88.1	181.6	88.6	182.5	89.0	183.4	89.4	184.3	89.9	185.2	90.3	186.1	90.7	186.9	91.2	64	
	27	179.1	91.3	180.0	91.7	180.9	92.2	181.8	92.6	182.7	93.1	183.5	93.5	184.4	94.0	185.3	94.4	63	
	28	177.5	94.4	178.4	94.8	179.2	95.3	180.1	95.8	181.0	96.2	181.9	96.7	182.8	97.2	183.7	97.7	62	
2½		177.3	94.8	178.1	95.2	179.0	95.7	179.9	96.2	180.8	96.6	181.7	97.1	182.6	97.6	183.4	98.1		
	29	175.8	97.4	176.7	97.9	177.5	98.4	178.4	98.9	179.3	99.4	180.2	99.9	181.0	100.4	181.9	100.8	61	
	30	174.1	100.5	174.9	101.0	175.8	101.5	176.7	102.0	177.5	102.5	178.4	103.0	179.3	103.5	180.1	104.0	60	
2¾		172.4	103.3	173.3	103.8	174.1	104.4	175.0	104.9	175.8	105.4	176.7	105.9	177.5	106.4	178.4	106.9		
	31	173.3	103.5	173.1	104.0	174.0	104.6	174.9	105.1	175.7	105.6	176.6	106.1	177.4	106.6	178.3	107.1	59	
	32	170.5	106.5	171.3	107.0	172.2	107.6	173.0	108.1	173.8	108.6	174.7	109.2	175.5	109.7	176.4	110.2	58	
	33	168.6	109.5	169.4	110.0	170.3	110.6	171.1	111.1	171.9	111.7	172.8	112.2	173.6	112.7	174.4	113.3	57	
3		167.1	111.7	168.0	112.2	168.8	112.8	169.6	113.3	170.5	113.9	171.3	114.4	172.1	115.0	172.9	115.5		
	34	166.6	112.4	167.5	113.0	168.3	113.5	169.1	114.1	170.0	114.6	170.8	115.2	171.6	115.8	172.4	116.3	56	
	35	164.6	115.3	165.5	115.9	166.3	116.4	167.1	117.0	167.9	117.6	168.7	118.2	169.6	118.7	170.4	119.3	55	
	36	162.6	118.1	163.4	118.7	164.2	119.3	165.0	119.9	165.8	120.5	166.7	121.1	167.5	121.7	168.3	122.3	54	
3¼		161.4	119.7	162.2	120.3	163.1	120.9	163.9	121.5	164.7	122.1	165.5	122.7	166.3	123.3	167.1	123.9		
	37	160.5	121.0	161.3	121.6	162.1	122.2	162.9	122.8	163.7	123.4	164.5	124.0	165.3	124.6	166.1	125.2	53	
	38	158.4	123.7	159.2	124.4	160.0	125.0	160.8	125.6	161.5	126.2	162.3	126.8	163.1	127.4	163.9	128.1	52	
	39	156.2	126.5	157.0	127.1	157.8	127.8	158.5	128.4	159.3	129.0	160.1	129.6	160.9	130.3	161.6	130.9	51	
3½		155.4	127.5	156.1	128.1	156.9	128.8	157.7	129.4	158.5	130.1	159.2	130.7	160.0	131.3	160.8	132.0		
	40	154.0	129.2	154.7	129.8	155.5	130.5	156.3	131.1	157.0	131.8	157.8	132.4	158.6	133.1	159.3	133.7	50	
	41	151.7	131.9	152.5	132.5	153.2	133.2	154.0	133.8	154.7	134.5	155.5	135.1	156.2	135.8	157.0	136.5	49	
	42	149.4	134.5	150.1	135.2	150.9	135.8	151.6	136.5	152.3	137.2	153.1	137.8	153.8	138.5	154.6	139.2	48	
3¾		148.9	135.0	149.7	135.7	150.4	136.3	151.2	137.0	151.9	137.7	152.6	138.3	153.4	139.0	154.1	139.7		
	43	147.0	137.1	147.7	137.8	148.5	138.4	149.2	139.1	149.9	139.8	150.7	140.5	151.4	141.2	152.1	141.9	47	
	44	144.6	139.6	145.3	140.3	146.0	141.0	146.7	141.7	147.5	142.4	148.2	143.1	148.9	143.8	149.6	144.5	46	
4	45	142.1	142.1	142.8	142.8	143.5	143.5	144.2	144.2	145.0	145.0	145.7	145.7	146.4	146.4	147.1	147.1		
Points	Degrees	Departure.	Diff. Lat	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Depar. ture.	Diff. Lat.	Departure.	Diff. Lat	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		201		202		203		204		205		206		207		208			
Crse.		DISTANCE.																	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.

Degrees	209		210		211		212		213		214		215		216	
	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.
0	209.0	00.0	210.0	00.0	211.0	00.0	212.0	00.0	213.0	00.0	214.0	00.0	215.0	00.0	216.0	00.0
1	209.0	03.6	210.0	03.7	211.0	03.7	212.0	03.7	213.0	03.7	214.0	03.7	215.0	03.8	216.0	03.8
2	208.9	07.3	209.9	07.3	210.9	07.4	211.9	07.4	212.9	07.4	213.9	07.5	214.9	07.5	215.9	07.5
	208.8	10.3	209.8	10.3	210.7	10.4	211.7	10.4	212.7	10.5	213.7	10.5	214.7	10.6	215.7	10.6
3	208.7	10.9	209.7	11.0	210.7	11.0	211.7	11.1	212.7	11.1	213.7	11.2	214.7	11.3	215.7	11.3
4	208.5	14.6	209.5	14.6	210.5	14.7	211.5	14.8	212.5	14.9	213.5	14.9	214.5	15.0	215.5	15.1
5	208.2	18.2	209.2	18.3	210.2	18.4	211.2	18.5	212.2	18.6	213.2	18.7	214.2	18.7	215.2	18.8
	208.0	20.5	209.0	20.6	210.0	20.7	211.0	20.8	212.0	20.9	213.0	21.0	214.0	21.1	215.0	21.2
6	207.9	21.8	208.8	22.0	209.8	22.1	210.8	22.2	211.8	22.3	212.8	22.4	213.8	22.5	214.8	22.6
7	207.4	25.5	208.4	25.6	209.4	25.7	210.4	25.8	211.4	26.0	212.4	26.1	213.4	26.2	214.4	26.3
8	207.0	29.1	208.0	29.2	208.9	29.4	209.9	29.5	210.9	29.6	211.9	29.8	212.9	29.9	213.9	30.1
	206.7	30.7	207.7	30.8	208.7	30.9	209.7	31.1	210.7	31.2	211.7	31.4	212.7	31.5	213.7	31.7
9	206.4	32.7	207.4	32.9	208.4	33.0	209.4	33.2	210.4	33.3	211.4	33.5	212.4	33.6	213.3	33.8
10	205.8	36.3	206.8	36.5	207.8	36.6	208.8	36.8	209.8	37.0	210.7	37.2	211.7	37.3	212.7	37.5
11	205.2	39.9	206.1	40.1	207.1	40.3	208.1	40.5	209.1	40.6	210.1	40.8	211.0	41.0	212.0	41.2
	205.0	40.8	206.0	41.0	206.9	41.2	207.9	41.4	208.9	41.6	209.9	41.7	210.9	41.9	211.8	42.1
12	204.4	43.5	205.4	43.7	206.4	43.9	207.4	44.1	208.3	44.3	209.3	44.5	210.3	44.7	211.3	44.9
13	203.6	47.0	204.6	47.2	205.6	47.5	206.6	47.7	207.5	47.9	208.5	48.1	209.5	48.4	210.5	48.6
14	202.8	50.6	203.8	50.8	204.7	51.0	205.7	51.3	206.7	51.5	207.6	51.8	208.6	52.0	209.6	52.3
	202.7	50.8	203.7	51.0	204.7	51.3	205.6	51.5	206.6	51.8	207.6	52.0	208.6	52.2	209.5	52.5
15	201.9	54.1	202.8	54.4	203.8	54.6	204.8	54.9	205.7	55.1	206.7	55.4	207.7	55.6	208.6	55.9
16	200.9	57.6	201.9	57.9	202.8	58.2	203.8	58.4	204.7	58.7	205.7	59.0	206.7	59.3	207.6	59.5
	200.0	60.7	201.0	61.0	201.9	61.3	202.9	61.5	203.8	61.8	204.8	62.1	205.7	62.4	206.7	62.7
17	199.0	61.1	200.8	61.4	201.8	61.7	202.7	62.0	203.7	62.3	204.6	62.6	205.6	62.9	206.6	63.2
18	198.8	64.6	199.7	64.9	200.7	65.2	201.6	65.5	202.6	65.8	203.5	66.1	204.5	66.4	205.4	66.7
19	197.6	68.0	198.6	68.4	199.5	68.7	200.4	69.0	201.4	69.3	202.3	69.7	203.3	70.0	204.2	70.3
	196.8	70.4	197.7	70.7	198.7	71.1	199.6	71.4	200.5	71.8	201.5	72.1	202.4	72.4	203.4	72.8
20	196.4	71.5	197.3	71.8	198.3	72.2	199.2	72.5	200.2	72.9	201.1	73.2	202.0	73.5	203.0	73.9
21	195.1	74.9	196.1	75.3	197.0	75.6	197.9	76.0	198.9	76.3	199.8	76.7	200.7	77.0	201.7	77.4
22	193.8	78.3	194.7	78.7	195.6	79.0	196.6	79.4	197.5	79.8	198.4	80.2	199.3	80.5	200.3	80.9
	193.1	80.0	194.0	80.4	194.9	80.7	195.9	81.1	196.8	81.5	197.7	81.9	198.6	82.3	199.6	82.7
23	192.4	81.7	193.3	82.1	194.2	82.4	195.1	82.8	196.1	83.2	197.0	83.6	197.9	84.0	198.8	84.4
24	190.9	85.0	191.8	85.4	192.8	85.8	193.7	86.2	194.6	86.6	195.5	87.0	196.4	87.4	197.3	87.9
25	189.4	88.3	190.3	88.7	191.2	89.2	192.1	89.6	193.0	90.0	193.9	90.4	194.9	90.9	195.8	91.3
	188.9	89.4	189.8	89.8	190.7	90.2	191.6	90.6	192.5	91.1	193.5	91.5	194.4	91.9	195.3	92.4
26	187.8	91.6	188.7	92.1	189.6	92.5	190.5	92.9	191.4	93.4	192.3	93.8	193.2	94.2	194.1	94.7
27	186.2	94.9	187.1	95.3	188.0	95.8	188.9	96.2	189.8	96.7	190.7	97.2	191.6	97.6	192.5	98.1
28	184.5	98.1	185.4	98.6	186.3	99.1	187.2	99.5	188.1	100.0	189.0	100.5	189.8	100.9	190.7	101.4
	184.3	98.5	185.2	99.0	186.1	99.5	187.0	99.9	187.8	100.4	188.7	100.9	189.6	101.4	190.5	101.8
29	182.8	101.3	183.7	101.8	184.5	102.3	185.4	102.8	186.3	103.3	187.2	103.7	188.0	104.2	188.9	104.7
30	181.0	104.5	181.9	105.0	182.7	105.5	183.6	106.0	184.5	106.5	185.3	107.0	186.2	107.5	187.1	108.0
	179.3	107.4	180.1	108.0	181.0	108.5	181.8	109.0	182.7	109.5	183.6	110.0	184.4	110.5	185.3	111.0
31	179.1	107.6	180.0	108.2	180.9	108.7	181.7	109.2	182.6	109.7	183.4	110.2	184.3	110.7	185.1	111.2
32	177.2	110.8	178.1	111.3	178.9	111.8	179.8	112.3	180.6	112.9	181.5	113.4	182.3	113.9	183.2	114.5
33	175.3	113.8	176.1	114.4	177.0	114.9	177.8	115.5	178.6	116.0	179.5	116.6	180.3	117.1	181.2	117.6
	173.8	116.1	174.6	116.7	175.4	117.2	176.3	117.8	177.1	118.3	177.9	118.9	178.8	119.4	179.6	120.0
34	173.3	116.9	174.1	117.4	174.9	118.0	175.8	118.5	176.6	119.1	177.4	119.7	178.2	120.2	179.1	120.8
35	171.2	119.9	172.0	120.5	172.8	121.0	173.7	121.6	174.5	122.2	175.3	122.7	176.1	123.3	176.9	123.9
36	169.1	122.8	169.9	123.4	170.7	124.0	171.5	124.6	172.3	125.2	173.1	125.8	173.9	126.4	174.7	127.0
	167.9	124.5	168.7	125.1	169.5	125.7	170.3	126.3	171.1	126.9	171.9	127.5	172.7	128.1	173.5	128.7
37	166.9	125.8	167.7	126.4	168.5	127.0	169.3	127.6	170.1	128.2	170.9	128.8	171.7	129.4	172.5	130.0
38	164.7	128.7	165.5	129.3	166.3	129.9	167.1	130.5	167.8	131.1	168.6	131.8	169.4	132.4	170.2	133.0
39	162.4	131.5	163.2	132.2	164.0	132.8	164.8	133.4	165.5	134.0	166.3	134.7	167.1	135.3	167.9	135.9
	161.6	132.6	162.3	133.2	163.1	133.9	163.9	134.5	164.7	135.1	165.4	135.8	166.2	136.4	167.0	137.0
40	160.1	134.3	160.9	135.0	161.6	135.6	162.4	136.3	163.2	136.9	163.9	137.6	164.7	138.2	165.5	138.8
41	157.7	137.1	158.5	137.8	159.2	138.4	160.0	139.1	160.8	139.7	161.5	140.4	162.3	141.1	163.0	141.7
42	155.3	139.8	156.1	140.5	156.8	141.2	157.5	141.9	158.3	142.5	159.0	143.2	159.8	143.9	160.5	144.5
	154.9	140.4	155.6	141.0	156.3	141.7	157.1	142.4	157.8	143.0	158.6	143.7	159.3	144.4	160.0	145.1
43	152.9	142.5	153.6	143.2	154.3	143.9	155.0	144.6	155.8	145.3	156.5	145.9	157.2	146.6	158.0	147.3
44	150.3	145.2	151.1	145.9	151.8	146.6	152.5	147.3	153.2	148.0	153.9	148.7	154.7	149.4	155.4	150.0
45	147.8	147.8	148.5	148.5	149.2	149.2	149.9	149.9	150.6	150.6	151.3	151.3	152.0	152.0	152.7	152.7
Degrees	Departure.	Diff. Lat.	Departure	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.
	209		210		211		212		213		214		215		216	

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse.	Points / Degrees	DISTANCE. 217 Diff. Lat.	217 Departure.	218 Diff. Lat.	218 Departure.	219 Diff. Lat.	219 Departure.	220 Diff. Lat.	220 Departure.	221 Diff. Lat.	221 Departure.	222 Diff. Lat.	222 Departure.	223 Diff. Lat.	223 Departure.	224 Diff. Lat.	224 Departure.	Crse.
0	0	217.0	00.0	218.0	00.0	219.0	00.0	220.0	00.0	221.0	00.0	222.0	00.0	223.0	00.0	224.0	00.0	90
	1	217.0	03.8	218.0	03.8	219.0	03.8	220.0	03.8	221.0	03.9	222.0	03.9	223.0	03.9	224.0	03.9	89
	2	216.9	07.6	217.9	07.6	218.9	07.6	219.9	07.7	220.9	07.7	221.9	07.7	222.9	07.8	223.9	07.8	88
0¼		216.7	10.7	217.7	10.7	218.7	10.8	219.7	10.8	220.7	10.8	221.7	10.9	222.7	10.9	223.7	11.0	
	3	216.7	11.4	217.7	11.4	218.7	11.5	219.7	11.5	220.7	11.6	221.7	11.6	222.7	11.7	223.7	11.7	87
	4	216.5	15.1	217.5	15.2	218.5	15.3	219.5	15.3	220.5	15.4	221.5	15.5	222.5	15.6	223.5	15.6	86
	5	216.2	18.9	217.2	19.0	218.2	19.1	219.2	19.2	220.2	19.3	221.2	19.3	222.2	19.4	223.1	19.5	85
0½		216.0	21.3	216.9	21.4	217.9	21.5	218.9	21.6	219.9	21.7	220.9	21.8	221.9	21.9	222.9	22.0	
	6	215.8	22.7	216.8	22.8	217.8	22.9	218.8	23.0	219.8	23.1	220.8	23.2	221.8	23.3	222.8	23.4	84
	7	215.4	26.4	216.4	26.6	217.4	26.7	218.4	26.8	219.4	26.9	220.3	27.1	221.3	27.2	222.3	27.3	83
	8	214.9	30.2	215.9	30.3	216.9	30.5	217.9	30.6	218.8	30.8	219.8	30.9	220.8	31.0	221.8	31.2	82
0¾		214.6	31.8	215.6	32.0	216.6	32.1	217.6	32.3	218.6	32.4	219.6	32.6	220.6	32.7	221.6	32.9	
	9	214.3	33.9	215.3	34.1	216.3	34.3	217.3	34.4	218.3	34.6	219.3	34.7	220.3	34.9	221.2	35.0	81
	10	213.7	37.7	214.7	37.9	215.7	38.0	216.7	38.2	217.6	38.4	218.6	38.5	219.6	38.7	220.6	38.9	80
	11	213.0	41.4	214.0	41.6	215.0	41.8	216.0	42.0	216.9	42.2	217.9	42.4	218.9	42.6	219.9	42.7	79
1		212.8	42.3	213.8	42.5	214.8	42.7	215.8	42.9	216.7	43.1	217.7	43.3	218.7	43.5	219.7	43.7	
	12	212.3	45.1	213.2	45.3	214.2	45.5	215.2	45.7	216.2	45.9	217.1	46.2	218.1	46.4	219.1	46.6	78
	13	211.4	48.8	212.4	49.0	213.4	49.3	214.4	49.5	215.3	49.7	216.3	49.9	217.3	50.2	218.3	50.4	77
	14	210.6	52.5	211.5	52.7	212.5	53.0	213.5	53.2	214.4	53.5	215.4	53.7	216.4	53.9	217.3	54.2	76
1¼		210.5	52.7	211.5	53.0	212.4	53.2	213.4	53.5	214.4	53.7	215.3	53.9	216.3	54.2	217.3	54.4	
	15	209.6	56.2	210.6	56.4	211.5	56.7	212.5	56.9	213.5	57.2	214.4	57.5	215.4	57.7	216.4	58.0	75
	16	208.6	59.8	209.6	60.1	210.5	60.4	211.5	60.6	212.4	60.9	213.4	61.2	214.4	61.5	215.3	61.7	74
1½		207.7	63.0	208.6	63.3	209.6	63.6	210.5	63.9	211.5	64.2	212.4	64.4	213.4	64.7	214.4	65.0	
	17	207.5	63.4	208.5	63.7	209.4	64.0	210.4	64.3	211.3	64.6	212.3	64.9	213.3	65.2	214.2	65.5	73
	18	206.4	67.1	207.3	67.4	208.3	67.7	209.2	68.0	210.2	68.3	211.1	68.6	212.1	68.9	213.0	69.2	72
	19	205.2	70.6	206.1	71.0	207.1	71.3	208.0	71.6	209.0	72.0	209.9	72.3	210.9	72.6	211.8	72.9	71
1¾		204.3	73.1	205.3	73.4	206.2	73.8	207.1	74.1	208.1	74.5	209.0	74.8	210.0	75.1	210.9	75.5	
	20	203.9	74.2	204.9	74.6	205.8	74.9	206.7	75.2	207.7	75.6	208.6	75.9	209.6	76.3	210.5	76.6	70
	21	202.6	77.8	203.5	78.1	204.5	78.5	205.4	78.8	206.3	79.2	207.3	79.6	208.2	79.9	209.1	80.3	69
	22	201.2	81.3	202.1	81.7	203.1	82.0	204.0	82.4	204.9	82.8	205.8	83.2	206.8	83.5	207.7	83.9	68
2		200.5	83.0	201.4	83.4	202.3	83.8	203.3	84.2	204.2	84.6	205.1	85.0	206.0	85.3	206.9	85.7	
	23	199.7	84.8	200.7	85.2	201.6	85.6	202.5	86.0	203.4	86.4	204.4	86.7	205.3	87.1	206.2	87.5	67
	24	198.2	88.3	199.2	88.7	200.1	89.1	201.0	89.5	201.9	89.9	202.8	90.3	203.7	90.7	204.6	91.1	66
	25	196.7	91.7	197.6	92.1	198.5	92.6	199.4	93.0	200.3	93.4	201.2	93.8	202.1	94.2	203.0	94.7	65
2¼		196.2	92.8	197.1	93.2	198.0	93.6	198.9	94.1	199.8	94.5	200.7	94.9	201.6	95.3	202.5	95.8	
	26	195.0	95.1	195.9	95.6	196.8	96.0	197.7	96.4	198.6	96.9	199.5	97.3	200.4	97.8	201.3	98.2	64
	27	193.3	98.5	194.2	99.0	195.1	99.4	196.0	99.9	196.9	100.3	197.8	100.8	198.7	101.2	199.6	101.7	63
	28	191.6	101.9	192.5	102.3	193.4	102.8	194.2	103.3	195.1	103.8	196.0	104.2	196.9	104.7	197.8	105.2	62
2½		191.4	102.3	192.3	102.8	193.1	103.2	194.0	103.7	194.9	104.2	195.8	104.7	196.7	105.1	197.6	105.6	
	29	189.8	105.2	190.7	105.7	191.5	106.2	192.4	106.7	193.3	107.1	194.2	107.6	195.0	108.1	195.9	108.6	61
	30	187.9	108.5	188.8	109.0	189.7	109.5	190.5	110.0	191.4	110.5	192.3	111.0	193.1	111.5	194.0	112.0	60
2¾		186.1	111.6	187.0	112.1	187.8	112.6	188.7	113.1	189.6	113.6	190.4	114.1	191.3	114.6	192.1	115.2	
	31	186.0	111.8	186.9	112.3	187.7	112.8	188.6	113.3	189.4	113.8	190.3	114.3	191.1	114.9	192.0	115.4	59
	32	184.0	115.0	184.9	115.5	185.7	116.1	186.6	116.6	187.4	117.1	188.3	117.6	189.1	118.2	190.0	118.7	58
	33	182.0	118.2	182.8	118.7	183.7	119.3	184.5	119.8	185.3	120.4	186.2	120.9	187.0	121.5	187.9	122.0	57
3		180.4	120.5	181.3	121.1	182.1	121.7	182.9	122.2	183.8	122.8	184.6	123.3	185.4	123.9	186.2	124.4	
	34	179.9	121.3	180.7	121.9	181.6	122.5	182.4	123.0	183.2	123.6	184.0	124.1	184.9	124.7	185.7	125.3	56
	35	177.8	124.5	178.6	125.0	179.4	125.6	180.2	126.2	181.0	126.8	181.9	127.3	182.7	127.9	183.5	128.5	55
	36	175.6	127.5	176.4	128.1	177.2	128.7	178.0	129.3	178.8	129.9	179.6	130.5	180.4	131.1	181.2	131.7	54
3¼		174.3	129.3	175.1	129.9	175.9	130.5	176.7	131.1	177.5	131.6	178.3	132.2	179.1	132.8	179.9	133.4	
	37	173.3	130.6	174.1	131.2	174.9	131.8	175.7	132.4	176.5	133.0	177.3	133.6	178.1	134.2	178.9	134.8	53
	38	171.0	133.6	171.8	134.2	172.6	134.8	173.4	135.4	174.2	136.1	174.9	136.7	175.7	137.3	176.5	137.9	52
	39	168.6	136.6	169.4	137.2	170.2	137.8	171.0	138.5	171.7	139.1	172.5	139.7	173.3	140.3	174.1	141.0	51
3½		167.7	137.7	168.5	138.3	169.3	138.9	170.1	139.6	170.8	140.2	171.6	140.8	172.4	141.5	173.2	142.1	
	40	166.2	139.5	167.0	140.1	167.8	140.8	168.5	141.4	169.3	142.1	170.1	142.7	170.8	143.3	171.6	144.0	50
	41	163.8	142.4	164.5	143.0	165.3	143.7	166.0	144.3	166.8	145.0	167.5	145.6	168.3	146.3	169.1	147.0	49
	42	161.3	145.2	162.0	145.9	162.7	146.5	163.5	147.2	164.2	147.9	165.0	148.5	165.7	149.2	166.5	149.9	48
3¾		160.8	145.7	161.5	146.4	162.3	147.1	163.0	147.7	163.8	148.4	164.5	149.1	165.2	149.8	166.0	150.4	
	43	158.7	148.0	159.4	148.7	160.2	149.4	160.9	150.0	161.6	150.7	162.4	151.4	163.1	152.1	163.8	152.8	47
	44	156.1	150.7	156.8	151.4	157.5	152.1	158.3	152.8	159.0	153.5	159.7	154.2	160.4	154.9	161.1	155.6	46
4	45	153.4	153.4	154.1	154.1	154.9	154.9	155.6	155.6	156.3	156.3	157.0	157.0	157.7	157.7	158.4	158.4	45
Points / Degrees		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees
Crse.		217		218		219		220		221		222		223		224		

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	DISTANCE. 225 Diff. Lat.	225 Departure.	226 Diff. Lat.	226 Departure.	227 Diff. Lat.	227 Departure.	228 Diff. Lat.	228 Departure.	229 Diff. Lat.	229 Departure.	230 Diff. Lat.	230 Departure.	231 Diff. Lat.	231 Departure.	232 Diff. Lat.	232 Departure.	Crse. Degrees	Crse. Points
0	0	225.0	00.0	226.0	00.0	227.0	00.0	228.0	00.0	229.0	00.0	230.0	00.0	231.0	00.0	232.0	00.0	90	8
	1	225.0	03.9	226.0	03.9	227.0	04.0	228.0	04.0	229.0	04.0	230.0	04.0	231.0	04.0	232.0	04.0	89	
	2	224.9	07.9	225.9	07.9	226.9	07.9	227.9	08.0	228.9	08.0	229.9	08.0	230.9	08.1	231.9	08.1	88	
0¼		224.7	11.0	225.7	11.1	226.7	11.1	227.7	11.2	228.7	11.2	229.7	11.3	230.7	11.3	231.7	11.4		7¾
	3	224.7	11.8	225.7	11.8	226.7	11.9	227.7	11.9	228.7	12.0	229.7	12.0	230.7	12.1	231.7	12.1	87	
	4	224.5	15.7	225.4	15.8	226.4	15.8	227.4	15.9	228.4	16.0	229.4	16.0	230.4	16.1	231.4	16.2	86	
	5	224.1	19.6	225.1	19.7	226.1	19.8	227.1	19.9	228.1	20.0	229.1	20.0	230.1	20.1	231.1	20.2	85	
0½		223.9	22.1	224.9	22.2	225.9	22.2	226.9	22.3	227.9	22.4	228.9	22.5	229.9	22.6	230.9	22.7		7½
	6	223.8	23.5	224.8	23.6	225.8	23.7	226.8	23.8	227.7	23.9	228.7	24.0	229.7	24.1	230.7	24.3	84	
	7	223.3	27.4	224.3	27.5	225.3	27.7	226.3	27.8	227.3	27.9	228.3	28.0	229.3	28.2	230.3	28.3	83	
	8	222.8	31.3	223.8	31.5	224.8	31.6	225.8	31.7	226.8	31.9	227.8	32.0	228.8	32.1	229.7	32.3	82	
0¾		222.6	33.0	223.5	33.2	224.5	33.3	225.5	33.4	226.5	33.6	227.5	33.7	228.5	33.9	229.5	34.0		7¼
	9	222.2	35.2	223.2	35.4	224.2	35.5	225.2	35.7	226.2	35.8	227.2	36.0	228.2	36.1	229.1	36.3	81	
	10	221.6	39.1	222.6	39.2	223.6	39.4	224.5	39.6	225.5	39.8	226.5	39.9	227.5	40.1	228.5	40.3	80	
	11	220.9	42.9	221.8	43.1	222.8	43.3	223.8	43.5	224.8	43.7	225.8	43.9	226.8	44.1	227.7	44.3	79	
1		220.7	43.9	221.7	44.1	222.6	44.3	223.6	44.5	224.6	44.7	225.6	44.9	226.6	45.1	227.5	45.3		7
	12	220.1	46.8	221.1	47.0	222.0	47.2	223.0	47.4	224.0	47.6	225.0	47.8	226.0	48.0	226.9	48.2	78	
	13	219.2	50.6	220.2	50.8	221.2	51.1	222.2	51.3	223.1	51.5	224.1	51.7	225.1	52.0	226.1	52.2	77	
	14	218.3	54.4	219.3	54.7	220.3	54.9	221.2	55.2	222.2	55.4	223.2	55.6	224.1	55.9	225.1	56.1	76	
1¼		218.3	54.7	219.2	54.9	220.2	55.2	221.2	55.4	222.1	55.6	223.1	55.9	224.1	56.1	225.0	56.4		6¾
	15	217.3	58.2	218.3	58.5	219.3	58.8	220.2	59.0	221.2	59.3	222.2	59.5	223.1	59.8	224.1	60.0	75	
	16	216.3	62.0	217.2	62.3	218.2	62.6	219.2	62.8	220.1	63.1	221.1	63.4	222.1	63.7	223.0	63.9	74	
1½		215.3	65.3	216.3	65.6	217.2	65.9	218.2	66.2	219.1	66.5	220.1	66.8	221.1	67.1	222.0	67.3		6½
	17	215.2	65.8	216.1	66.1	217.1	66.4	218.0	66.7	219.0	67.0	220.0	67.2	220.9	67.5	221.9	67.8	73	
	18	214.0	69.5	214.9	69.8	215.9	70.1	216.8	70.5	217.8	70.8	218.7	71.1	219.7	71.4	220.6	71.7	72	
	19	212.7	73.3	213.7	73.6	214.6	73.9	215.6	74.2	216.5	74.6	217.5	74.9	218.4	75.2	219.4	75.5	71	
1¾		211.8	75.8	212.8	76.1	213.7	76.5	214.7	76.8	215.6	77.1	216.6	77.5	217.5	77.8	218.4	78.2		6¼
	20	211.4	77.0	212.4	77.3	213.3	77.6	214.2	78.0	215.2	78.3	216.1	78.7	217.1	79.0	218.0	79.3	70	
	21	210.1	80.6	211.0	81.0	211.9	81.3	212.9	81.7	213.8	82.1	214.7	82.4	215.7	82.8	216.6	83.1	69	
	22	208.6	84.3	209.5	84.7	210.5	85.0	211.4	85.4	212.3	85.8	213.3	86.2	214.2	86.5	215.1	86.9	68	
2		207.9	86.1	208.8	86.5	209.7	86.9	210.6	87.3	211.6	87.6	212.5	88.0	213.4	88.4	214.3	88.8		6
	23	207.1	87.9	208.0	88.3	209.0	88.7	209.9	89.1	210.8	89.5	211.7	89.9	212.6	90.3	213.6	90.6	67	
	24	205.5	91.5	206.5	91.9	207.4	92.3	208.3	92.7	209.2	93.1	210.1	93.5	211.0	94.0	211.9	94.4	66	
	25	203.9	95.1	204.8	95.5	205.7	95.9	206.6	96.4	207.5	96.8	208.5	97.2	209.4	97.6	210.3	98.0	65	
2¼		203.4	96.2	204.3	96.6	205.2	97.1	206.1	97.5	207.0	97.9	207.9	98.3	208.8	98.8	209.7	99.2		5¾
	26	202.2	98.6	203.1	99.1	204.0	99.5	204.9	99.9	205.8	100.4	206.7	100.8	207.6	101.3	208.5	101.7	64	
	27	200.5	102.1	201.4	102.6	202.3	103.1	203.1	103.5	204.0	104.0	204.9	104.4	205.8	104.9	206.7	105.3	63	
	28	198.7	105.6	199.5	106.1	200.4	106.6	201.3	107.0	202.2	107.5	203.1	108.0	204.0	108.4	204.8	108.9	62	
2½		198.4	106.1	199.3	106.5	200.2	107.0	201.1	107.5	202.0	107.9	202.8	108.4	203.7	108.9	204.6	109.4		5½
	29	196.8	109.1	197.7	109.6	198.5	110.1	199.4	110.5	200.3	111.0	201.2	111.5	202.0	112.0	202.9	112.5	61	
	30	194.9	112.5	195.7	113.0	196.6	113.5	197.5	114.0	198.3	114.5	199.2	115.0	200.1	115.5	200.9	116.0	60	
2¾		193.0	115.7	193.8	116.2	194.7	116.7	195.6	117.2	196.4	117.7	197.3	118.2	198.1	118.8	199.0	119.3		5¼
	31	192.9	115.9	193.7	116.4	194.6	116.9	195.4	117.4	196.3	117.9	197.1	118.5	198.0	119.0	198.9	119.5	59	
	32	190.8	119.2	191.7	119.8	192.5	120.3	193.4	120.8	194.2	121.4	195.1	121.9	195.9	122.4	196.7	122.9	58	
	33	188.7	122.5	189.5	123.1	190.4	123.6	191.2	124.2	192.1	124.7	192.9	125.3	193.7	125.8	194.6	126.4	57	
3		187.1	125.0	187.9	125.5	188.7	126.1	189.6	126.7	190.4	127.2	191.2	127.8	192.1	128.3	192.9	128.9		5
	34	186.5	125.8	187.4	126.4	188.2	126.9	189.0	127.5	189.8	128.1	190.7	128.6	191.5	129.2	192.3	129.7	56	
	35	184.3	129.1	185.1	129.6	185.9	130.2	186.8	130.8	187.6	131.3	188.4	131.9	189.2	132.5	190.0	133.1	55	
	36	182.0	132.3	182.8	132.8	183.6	133.4	184.5	134.0	185.3	134.6	186.1	135.2	186.9	135.8	187.7	136.4	54	
3¼		180.7	134.0	181.5	134.6	182.3	135.2	183.1	135.8	183.9	136.4	184.7	137.0	185.5	137.6	186.3	138.2		4¾
	37	179.7	135.4	180.5	136.0	181.3	136.6	182.1	137.2	182.9	137.8	183.7	138.4	184.5	139.0	185.3	139.6	53	
	38	177.3	138.5	178.1	139.1	178.9	139.8	179.7	140.4	180.5	141.0	181.2	141.6	182.0	142.2	182.8	142.8	52	
	39	174.9	141.6	175.6	142.2	176.4	142.9	177.2	143.5	178.0	144.1	178.7	144.7	179.5	145.4	180.3	146.0	51	
3½		173.9	142.7	174.7	143.4	175.5	144.0	176.2	144.6	177.0	145.3	177.8	145.9	178.6	146.5	179.3	147.2		4½
	40	172.4	144.6	173.1	145.3	173.9	145.9	174.7	146.6	175.4	147.2	176.2	147.8	177.0	148.5	177.7	149.1	50	
	41	169.8	147.6	170.6	148.3	171.3	148.9	172.1	149.6	172.8	150.2	173.6	150.9	174.3	151.5	175.1	152.2	49	
	42	167.2	150.6	168.0	151.2	168.7	151.9	169.4	152.6	170.2	153.2	170.9	153.9	171.7	154.6	172.4	155.2	48	
3¾		166.7	151.1	167.5	151.8	168.2	152.4	168.9	153.1	169.7	153.8	170.4	154.5	171.2	155.1	171.9	155.8		4¼
	43	164.6	153.4	165.3	154.1	166.0	154.8	166.7	155.5	167.5	156.2	168.2	156.9	168.9	157.5	169.7	158.2	47	
	44	161.9	156.3	162.6	157.0	163.3	157.7	164.0	158.4	164.7	159.1	165.4	159.8	166.2	160.5	166.9	161.2	46	
	45	159.1	159.1	159.8	159.8	160.5	160.5	161.2	161.2	161.9	161.9	162.6	162.6	163.3	163.3	164.0	164.0	45	4
Degrees		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Depar. ture.	Diff. Lat.	Departure.	Diff. Lat	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
		225		226		227		228		229		230		231		232			
		DISTANCE.																Crse.	

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	Distance. 233 Diff. Lat.	233 Departure.	234 Diff. Lat.	234 Departure.	235 Diff. Lat.	235 Departure.	236 Diff. Lat.	236 Departure.	237 Diff. Lat.	237 Departure.	238 Diff. Lat.	238 Departure.	239 Diff. Lat.	239 Departure.	240 Diff. Lat.	240 Departure.	Crse. Degrees
0	0	233.0	00.0	234.0	00.0	235.0	00.0	236.0	00.0	237.0	00.0	238.0	00.0	239.0	00.0	240.0	00.0	90
	1	233.0	04.1	234.0	04.1	235.0	04.1	236.0	04.1	237.0	04.1	238.0	04.2	239.0	04.2	240.0	04.2	89
	2	232.9	08.1	233.9	08.2	234.9	08.2	235.9	08.2	236.9	08.3	237.9	08.3	238.9	08.3	239.9	08.4	88
0¼		232.7	11.4	233.7	11.5	234.7	11.5	235.7	11.6	236.7	11.6	237.7	11.7	238.7	11.7	239.7	11.8	
	3	232.7	12.2	233.7	12.2	234.7	12.3	235.7	12.4	236.7	12.4	237.7	12.5	238.7	12.5	239.7	12.6	87
	4	232.4	16.3	233.4	16.3	234.4	16.4	235.4	16.5	236.4	16.5	237.4	16.6	238.4	16.7	239.4	16.7	86
	5	232.1	20.3	233.1	20.4	234.1	20.5	235.1	20.6	236.1	20.7	237.1	20.7	238.1	20.8	239.1	20.9	85
0½		231.9	22.8	232.9	22.9	233.9	23.0	234.9	23.1	235.9	23.2	236.9	23.3	237.8	23.4	238.8	23.5	
	6	231.7	24.4	232.7	24.5	233.7	24.6	234.7	24.7	235.7	24.8	236.7	24.9	237.7	25.0	238.7	25.1	84
	7	231.3	28.4	232.3	28.5	233.2	28.6	234.2	28.8	235.2	28.9	236.2	29.0	237.2	29.1	238.2	29.2	83
	8	230.7	32.4	231.7	32.6	232.7	32.7	233.7	32.8	234.7	33.0	235.7	33.1	236.7	33.3	237.7	33.4	82
0¾		230.5	34.2	231.5	34.3	232.4	34.5	233.4	34.6	234.4	34.8	235.4	34.9	236.4	35.1	237.4	35.2	
	9	230.1	36.4	231.1	36.6	232.1	36.8	233.1	36.9	234.1	37.1	235.1	37.2	236.1	37.4	237.0	37.5	81
	10	229.5	40.5	230.4	40.6	231.4	40.8	232.4	41.0	233.4	41.2	234.4	41.3	235.4	41.5	236.4	41.7	80
	11	228.7	44.5	229.7	44.6	230.7	44.8	231.7	45.0	232.6	45.2	233.6	45.4	234.6	45.6	235.6	45.8	79
1		228.5	45.5	229.5	45.7	230.5	45.8	231.5	46.0	232.4	46.2	233.4	46.4	234.4	46.6	235.4	46.8	
	12	227.9	48.4	228.9	48.7	229.9	48.9	230.8	49.1	231.8	49.3	232.8	49.5	233.8	49.7	234.8	49.9	78
	13	227.0	52.4	228.0	52.6	229.0	52.9	230.0	53.1	230.9	53.3	231.9	53.5	232.9	53.8	233.8	54.0	77
	14	226.1	56.4	227.0	56.6	228.0	56.9	229.0	57.1	230.0	57.3	230.9	57.6	231.9	57.8	232.9	58.1	76
1¼		226.0	56.6	227.0	56.9	228.0	57.1	228.9	57.3	229.9	57.6	230.9	57.8	231.8	58.1	232.8	58.3	
	15	225.1	60.3	226.0	60.6	227.0	60.8	228.0	61.1	228.9	61.3	229.9	61.6	230.9	61.9	231.8	62.1	75
	16	224.0	64.2	224.0	64.5	225.9	64.8	226.9	65.1	227.8	65.3	228.8	65.6	229.7	65.9	230.7	66.2	74
1½		223.0	67.6	223.9	67.9	224.9	68.2	225.8	68.5	226.8	68.8	227.8	69.1	228.7	69.4	229.7	69.7	
	17	222.8	68.1	223.8	68.4	224.7	68.7	225.7	69.0	226.6	69.3	227.6	69.6	228.6	69.9	229.5	70.2	73
	18	221.6	72.0	222.5	72.3	223.5	72.6	224.4	72.9	225.4	73.2	226.4	73.5	227.3	73.9	228.3	74.2	72
	19	220.3	75.9	221.3	76.2	222.2	76.5	223.1	76.8	224.1	77.2	225.0	77.5	226.0	77.8	226.9	78.1	71
1¾		219.4	78.5	220.3	78.8	221.3	79.2	222.2	79.5	223.1	79.8	224.1	80.2	225.0	80.5	226.0	80.9	
	20	218.9	79.7	219.9	80.0	220.8	80.4	221.8	80.7	222.7	81.1	223.6	81.4	224.6	81.7	225.5	82.1	70
	21	217.5	83.5	218.5	83.9	219.4	84.2	220.3	84.6	221.3	84.9	222.2	85.3	223.1	85.6	224.1	86.0	69
	22	216.0	87.3	217.0	87.7	217.9	88.0	218.8	88.4	219.7	88.8	220.7	89.2	221.6	89.5	222.5	89.9	68
2		215.3	89.2	216.2	89.5	217.1	89.9	218.0	90.3	219.0	90.7	219.9	91.1	220.8	91.5	221.7	91.8	
	23	214.5	91.0	215.4	91.4	216.3	91.8	217.2	92.2	218.2	92.6	219.1	93.0	220.0	93.4	220.9	93.8	67
	24	212.9	94.8	213.8	95.2	214.7	95.6	215.6	96.0	216.5	96.4	217.4	96.8	218.3	97.2	219.3	97.6	66
	25	211.2	98.5	212.1	98.9	213.0	99.3	213.9	99.7	214.8	100.2	215.7	100.6	216.6	101.0	217.5	101.4	65
2¼		210.6	99.6	211.5	100.0	212.4	100.5	213.3	100.9	214.2	101.3	215.1	101.8	216.1	102.2	217.0	102.6	
	26	209.4	102.1	210.3	102.6	211.2	103.0	212.1	103.5	213.0	103.9	213.9	104.3	214.8	104.8	215.7	105.2	64
	27	207.6	105.8	208.5	106.2	209.4	106.7	210.3	107.1	211.2	107.6	212.1	108.0	213.0	108.5	213.8	109.0	63
	28	205.7	109.4	206.6	109.9	207.5	110.3	208.4	110.8	209.3	111.3	210.1	111.7	211.0	112.2	211.9	112.7	62
2½		205.5	109.8	206.4	110.3	207.3	110.8	208.1	111.2	209.0	111.7	209.9	112.2	210.8	112.7	211.7	113.1	
	29	203.8	113.0	204.7	113.4	205.5	113.9	206.4	114.4	207.3	114.9	208.2	115.4	209.0	115.9	209.9	116.4	61
	30	201.8	116.5	202.6	117.0	203.5	117.5	204.4	118.0	205.2	118.5	206.1	119.0	207.0	119.5	207.8	120.0	60
2¾		199.9	119.8	200.7	120.3	201.6	120.8	202.4	121.3	203.3	121.8	204.1	122.4	205.0	122.9	205.9	123.4	
	31	199.7	120.0	200.6	120.5	201.4	121.0	202.3	121.5	203.1	122.1	204.0	122.6	204.9	123.1	205.7	123.6	59
	32	197.6	123.5	198.4	124.0	199.3	124.5	200.1	125.1	201.0	125.6	201.8	126.1	202.7	126.7	203.5	127.2	58
	33	195.4	126.9	196.2	127.4	197.1	128.0	197.9	128.5	198.8	129.1	199.6	129.6	200.4	130.2	201.3	130.7	57
3		193.7	129.4	194.6	130.0	195.4	130.5	196.2	131.1	197.1	131.7	197.9	132.2	198.7	132.8	199.6	133.3	
	34	193.2	130.3	194.0	130.9	194.8	131.4	195.7	132.0	196.5	132.5	197.3	133.1	198.1	133.6	199.0	134.2	
	35	190.9	133.6	191.7	134.2	192.5	134.8	193.3	135.4	194.1	135.9	195.0	136.5	195.8	137.1	196.6	137.7	
	36	188.5	137.0	189.3	137.5	190.1	138.1	190.9	138.7	191.7	139.3	192.5	139.9	193.4	140.5	194.2	141.1	56
3¼		187.1	138.8	188.0	139.4	188.8	140.0	189.6	140.6	190.4	141.2	191.2	141.8	192.0	142.4	192.8	143.0	
	37	186.1	140.2	186.9	140.8	187.7	141.4	188.5	142.0	189.3	142.6	190.1	143.2	190.9	143.8	191.7	144.4	55
	38	183.6	143.4	184.4	144.1	185.2	144.7	186.0	145.3	186.8	145.9	187.5	146.5	188.3	147.1	189.1	147.8	54
	39	181.1	146.6	181.9	147.3	182.6	147.9	183.4	148.5	184.2	149.1	185.0	149.8	185.7	150.4	186.5	151.0	53
3½		180.1	147.8	180.9	148.4	181.7	149.1	182.4	149.7	183.2	150.4	184.0	151.0	184.7	151.6	185.5	152.3	
	40	178.5	149.8	179.3	150.4	180.0	151.1	180.8	151.7	181.6	152.3	182.3	153.0	183.1	153.6	183.9	154.3	52
	41	175.8	152.9	176.6	153.5	177.4	154.2	178.1	154.8	178.9	155.5	179.6	156.1	180.4	156.8	181.1	157.4	51
	42	173.2	155.9	173.9	156.6	174.6	157.2	175.4	157.9	176.1	158.6	176.9	159.3	177.6	159.9	178.4	160.6	50
3¾		172.6	156.5	173.4	157.1	174.1	157.8	174.9	158.5	175.6	159.2	176.3	159.8	177.1	160.5	177.8	161.2	
	43	170.4	158.9	171.1	159.6	171.9	160.3	172.6	161.0	173.3	161.6	174.1	162.3	174.8	163.0	175.5	163.7	49
	44	167.6	161.9	168.3	162.6	169.0	163.2	169.8	163.9	170.5	164.6	171.2	165.3	171.9	166.0	172.6	166.7	48
4	45	164.8	164.8	165.5	165.5	166.2	166.2	166.9	166.9	167.6	167.6	168.3	168.3	169.0	169.0	169.7	169.7	47
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	
		233		234		235		236		237		238		239		240		
Crse.		Distance.																Crse.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Degrees	DISTANCE. 241 Diff. Lat.	241 Departure.	242 Diff. Lat.	242 Departure.	243 Diff. Lat.	243 Departure.	244 Diff. Lat.	244 Departure.	245 Diff. Lat.	245 Departure.	246 Diff. Lat.	246 Departure.	247 Diff. Lat.	247 Departure.	248 Diff. Lat.	248 Departure.	Crse. Degrees	Crse. Points
0	241.0	00.0	242.0	00.0	243.0	00.0	244.0	00.0	245.0	00.0	246.0	00.0	247.0	00.0	248.0	00.0	90	8
1	241.0	04.2	242.0	04.2	243.0	04.2	244.0	04.3	245.0	04.3	246.0	04.3	247.0	04.3	248.0	04.3	89	
2	240.9	08.4	241.9	08.4	242.9	08.5	243.9	08.5	244.9	08.6	245.9	08.6	246.8	08.6	247.8	08.7	88	
	240.7	11.8	241.7	11.9	242.7	11.9	243.7	12.0	244.7	12.0	245.7	12.1	246.7	12.1	247.7	12.2		7¾
3	240.7	12.6	241.7	12.7	242.7	12.7	243.7	12.8	244.7	12.8	245.7	12.9	246.7	12.9	247.7	13.0	87	
4	240.4	16.8	241.4	16.9	242.4	17.0	243.4	17.0	244.4	17.1	245.4	17.2	246.4	17.2	247.4	17.3	86	
5	240.1	21.0	241.1	21.1	242.1	21.2	243.1	21.3	244.1	21.4	245.1	21.4	246.1	21.5	247.1	21.6	85	
	239.8	23.6	240.8	23.7	241.8	23.8	242.8	23.9	243.8	24.0	244.8	24.1	245.8	24.2	246.8	24.3		7½
6	239.7	25.2	240.7	25.3	241.7	25.4	242.7	25.5	243.7	25.6	244.7	25.7	245.6	25.8	246.6	25.9	84	
7	239.2	29.4	240.2	29.5	241.2	29.6	242.2	29.7	243.2	29.9	244.2	30.0	245.2	30.1	246.2	30.2	83	
8	238.7	33.5	239.6	33.7	240.6	33.8	241.6	34.0	242.6	34.1	243.6	34.2	244.6	34.4	245.6	34.5	82	
	238.4	35.4	239.4	35.5	240.4	35.7	241.4	35.8	242.3	35.9	243.3	36.1	244.3	36.2	245.3	36.4		7¼
9	238.0	37.7	239.0	37.9	240.0	38.0	241.0	38.2	242.0	38.3	243.0	38.5	244.0	38.6	244.9	38.8	81	
10	237.3	41.8	238.3	42.0	239.3	42.2	240.3	42.4	241.3	42.5	242.3	42.7	243.2	42.9	244.2	43.1	80	
11	236.6	46.0	237.6	46.2	238.5	46.4	239.5	46.6	240.5	46.7	241.5	46.9	242.5	47.1	243.4	47.3	79	
	236.4	47.0	237.3	47.2	238.3	47.4	239.3	47.6	240.3	47.8	241.3	48.0	242.3	48.2	243.2	48.4		7
12	235.7	50.1	236.7	50.3	237.7	50.5	238.7	50.7	239.6	50.9	240.6	51.1	241.6	51.4	242.6	51.6	78	
13	234.8	54.2	235.8	54.4	236.8	54.7	237.7	54.9	238.7	55.1	239.7	55.3	240.7	55.6	241.6	55.8	77	
14	233.8	58.3	234.8	58.5	235.8	58.8	236.8	59.0	237.7	59.3	238.7	59.5	239.7	59.8	240.6	60.0	76	
	233.8	58.6	234.7	58.8	235.7	59.0	236.7	59.3	237.7	59.5	238.6	59.8	239.6	60.0	240.6	60.3		6¾
15	232.8	62.4	233.8	62.6	234.7	62.9	235.7	63.2	236.7	63.4	237.6	63.7	238.6	63.9	239.5	64.2	75	
16	231.7	66.4	232.6	66.7	233.6	67.0	234.5	67.3	235.5	67.5	236.5	67.8	237.4	68.1	238.4	68.4	74	
	230.6	70.0	231.6	70.2	232.5	70.5	233.5	70.8	234.5	71.1	235.4	71.4	236.4	71.7	237.3	72.0		6½
17	230.5	70.5	231.4	70.8	232.4	71.0	233.3	71.3	234.3	71.6	235.3	71.9	236.2	72.2	237.2	72.5	73	
18	229.2	74.5	230.2	74.8	231.1	75.1	232.1	75.4	233.0	75.7	234.0	76.0	234.9	76.3	235.9	76.6	72	
19	227.9	78.5	228.8	78.8	229.8	79.1	230.7	79.4	231.7	79.8	232.6	80.1	233.5	80.4	234.5	80.7	71	
	226.9	81.2	227.9	81.5	228.8	81.9	229.7	82.2	230.7	82.5	231.6	82.9	232.6	83.2	233.5	83.5		6¼
20	226.5	82.4	227.4	82.8	228.3	83.1	229.3	83.5	230.2	83.8	231.2	84.1	232.1	84.5	233.0	84.8	70	
21	225.3	86.4	225.9	86.7	226.9	87.1	227.8	87.4	228.7	87.8	229.7	88.2	230.6	88.5	231.5	88.9	69	
22	223.5	90.3	224.4	90.7	225.3	91.0	226.2	91.4	227.2	91.8	228.1	92.2	229.0	92.5	229.9	92.9	68	
	222.7	92.2	223.6	92.6	224.5	93.0	225.4	93.4	226.4	93.8	227.3	94.1	228.2	94.5	229.1	94.9		6
23	221.8	94.2	222.8	94.6	223.7	94.9	224.6	95.3	225.5	95.7	226.4	96.1	227.4	96.5	228.3	96.9	67	
24	220.2	98.0	221.1	98.4	222.0	98.8	222.9	99.2	223.8	99.7	224.7	100.1	225.6	100.5	226.6	100.9	66	
25	218.4	101.9	219.3	102.3	220.2	102.7	221.1	103.1	222.0	103.5	223.0	104.0	223.9	104.4	224.8	104.8	65	
	217.9	103.0	218.8	103.5	219.7	103.9	220.6	104.3	221.5	104.8	222.4	105.2	223.3	105.6	224.2	106.0		5¾
26	216.6	105.6	217.5	106.1	218.4	106.5	219.3	107.0	220.2	107.4	221.1	107.8	222.0	108.3	222.9	108.7	64	
27	214.7	109.4	215.6	109.9	216.5	110.3	217.4	110.8	218.3	111.2	219.2	111.7	220.1	112.1	221.0	112.6	63	
28	212.8	113.1	213.7	113.6	214.6	114.1	215.4	114.6	216.3	115.0	217.2	115.5	218.1	116.0	219.0	116.4	62	
	212.5	113.6	213.4	114.1	214.3	114.5	215.2	115.0	216.1	115.5	217.0	116.0	217.8	116.4	218.7	116.9		5½
29	210.8	116.8	211.7	117.3	212.5	117.8	213.4	118.3	214.3	118.8	215.2	119.3	216.0	119.7	216.9	120.2	61	
30	208.7	120.5	209.6	121.0	210.4	121.5	211.3	122.0	212.2	122.5	213.0	123.0	213.9	123.5	214.8	124.0	60	
	206.7	123.9	207.6	124.4	208.4	124.9	209.3	125.4	210.1	126.0	211.0	126.5	211.9	127.0	212.7	127.5		5¼
31	206.6	124.1	207.4	124.6	208.3	125.2	209.1	125.7	210.0	126.2	210.9	126.7	211.7	127.2	212.6	127.7	59	
32	204.4	127.7	205.2	128.2	206.1	128.8	206.9	129.3	207.8	129.8	208.6	130.4	209.5	130.9	210.3	131.4	58	
33	202.1	131.3	203.0	131.8	203.8	132.3	204.6	132.9	205.5	133.4	206.3	134.0	207.2	134.5	208.0	135.1	57	
	200.4	133.9	201.2	134.4	202.0	135.0	202.9	135.5	203.7	136.1	204.5	136.7	205.4	137.2	206.2	137.8		5
34	199.8	134.8	200.6	135.3	201.5	135.9	202.3	136.4	203.1	137.0	203.9	137.6	204.8	138.1	205.6	138.7	56	
35	197.4	138.2	198.2	138.8	199.1	139.4	199.9	140.0	200.7	140.5	201.5	141.1	202.3	141.7	203.1	142.2	55	
36	195.0	141.7	195.8	142.2	196.6	142.8	197.4	143.4	198.2	144.0	199.0	144.6	199.8	145.2	200.6	145.8	54	
	193.6	143.6	194.4	144.2	195.2	144.8	196.0	145.4	196.8	145.9	197.6	146.5	198.4	147.1	199.2	147.7		4¾
37	192.5	145.0	193.3	145.6	194.1	146.2	194.9	146.8	195.7	147.4	196.5	148.0	197.3	148.6	198.1	149.3	53	
38	189.9	148.4	190.7	149.0	191.5	149.6	192.3	150.2	193.1	150.8	193.9	151.5	194.6	152.1	195.4	152.7	52	
39	187.3	151.7	188.1	152.3	188.8	152.9	189.6	153.6	190.4	154.2	191.2	154.8	192.0	155.4	192.7	156.1	51	
	186.3	152.9	187.1	153.5	187.8	154.2	188.6	154.8	189.4	155.4	190.2	156.1	190.9	156.7	191.7	157.3		4½
40	184.6	154.9	185.4	155.6	186.1	156.2	186.9	156.8	187.7	157.5	188.4	158.1	189.2	158.8	190.0	159.4	50	
41	181.9	158.1	182.6	158.8	183.4	159.4	184.1	160.1	184.9	160.7	185.7	161.4	186.4	162.0	187.2	162.7	49	
42	179.1	161.3	179.8	161.9	180.6	162.6	181.3	163.3	182.1	163.9	182.8	164.6	183.6	165.3	184.3	165.9	48	
	178.6	161.8	179.3	162.5	180.1	163.2	180.8	163.9	181.5	164.5	182.3	165.2	183.0	165.9	183.8	166.5		4¼
43	176.3	164.4	177.0	165.0	177.7	165.7	178.5	166.4	179.2	167.1	179.9	167.8	180.6	168.5	181.4	169.1	47	
44	173.4	167.4	174.1	168.1	174.8	168.8	175.5	169.5	176.2	170.2	177.0	170.9	177.7	171.6	178.4	172.3	46	
45	170.4	170.4	171.1	171.1	171.8	171.8	172.5	172.5	173.2	173.2	173.9	173.9	174.7	174.7	175.4	175.4	45	4
Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
	241		242		243		244		245		246		247		248			

DISTANCE.

Crse.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.		DISTANCE.																Crse.
Points	Degrees	249		250		251		252		253		254		255		256		Degrees
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	
0	0	249.0	00.0	250.0	00.0	251.0	00.0	252.0	00.0	253.0	00.0	254.0	00.0	255.0	00.0	256.0	00.0	90
	1	249.0	04.3	250.0	04.4	251.0	04.4	252.0	04.4	253.0	04.4	254.0	04.4	255.0	04.5	256.0	04.5	89
	2	248.8	08.7	249.8	08.7	250.8	08.8	251.8	08.8	252.8	08.8	253.8	08.9	254.8	08.9	255.8	08.9	88
0¼		248.7	12.2	249.7	12.3	250.7	12.3	251.7	12.4	252.7	12.4	253.7	12.5	254.7	12.5	255.7	12.6	
	3	248.7	13.0	249.7	13.1	250.7	13.1	251.7	13.2	252.7	13.2	253.7	13.3	254.7	13.3	255.6	13.4	87
	4	248.4	17.4	249.4	17.4	250.4	17.5	251.4	17.6	252.4	17.6	253.4	17.7	254.4	17.8	255.4	17.9	86
	5	248.1	21.7	249.0	21.8	250.0	21.9	251.0	22.0	252.0	22.1	253.0	22.1	254.0	22.2	255.0	22.3	85
0½		247.8	24.4	248.8	24.5	249.8	24.6	250.8	24.7	251.8	24.8	252.8	24.9	253.8	25.0	254.8	25.1	
	6	247.6	26.0	248.6	26.1	249.6	26.2	250.6	26.3	251.6	26.4	252.6	26.6	253.6	26.7	254.6	26.8	84
	7	247.1	30.3	248.1	30.5	249.1	30.6	250.1	30.7	251.1	30.8	252.1	31.0	253.1	31.1	254.1	31.2	83
	8	246.6	34.7	247.6	34.8	248.6	34.9	249.5	35.1	250.5	35.2	251.5	35.3	252.5	35.5	253.5	35.6	82
0¾		246.3	36.5	247.3	36.7	248.3	36.8	249.3	37.0	250.3	37.1	251.2	37.3	252.2	37.4	253.2	37.6	
	9	245.9	39.0	246.9	39.1	247.9	39.3	248.9	39.4	249.9	39.6	250.9	39.7	251.9	39.9	252.8	40.0	81
	10	245.2	43.2	246.2	43.4	247.2	43.6	248.2	43.8	249.2	43.9	250.1	44.1	251.1	44.3	252.1	44.5	80
	11	244.4	47.5	245.4	47.7	246.4	47.9	247.4	48.1	248.4	48.3	249.3	48.5	250.3	48.7	251.3	48.8	79
1		244.2	48.6	245.2	48.8	246.2	49.0	247.2	49.2	248.1	49.4	249.1	49.6	250.1	49.7	251.1	49.9	
	12	243.6	51.8	244.5	52.0	243.5	52.2	246.5	52.4	247.5	52.6	248.4	52.8	249.4	53.0	250.4	53.2	78
	13	242.6	56.0	243.6	56.2	244.6	56.5	245.5	56.7	246.5	56.9	247.5	57.1	248.5	57.4	249.4	57.6	77
	14	241.6	60.2	242.6	60.5	243.5	60.7	244.5	61.0	245.5	61.2	246.5	61.4	247.4	61.7	248.4	61.9	76
1¼		241.5	60.5	242.5	60.7	243.5	61.0	244.4	61.2	245.4	61.5	246.4	61.7	247.4	62.0	248.3	62.2	
	15	240.5	64.4	241.5	64.7	242.4	65.0	243.4	65.2	244.4	65.5	245.3	65.7	246.3	66.0	247.3	66.3	75
	16	239.4	68.6	240.3	68.9	241.3	69.2	242.2	69.5	243.2	69.7	244.2	70.0	245.1	70.3	246.1	70.6	74
1½		238.3	72.3	239.2	72.6	240.2	72.9	241.1	73.2	242.1	73.4	243.1	73.7	244.0	74.0	245.0	74.3	
	17	238.1	72.8	239.1	73.1	240.0	73.4	241.0	73.7	241.9	74.0	242.9	74.3	243.9	74.6	244.8	74.8	73
	18	236.8	76.9	237.8	77.3	238.7	77.6	239.7	77.9	240.6	78.2	241.6	78.5	242.5	78.8	243.5	79.1	72
	19	235.4	81.1	236.4	81.4	237.3	81.7	238.3	82.0	239.2	82.4	240.2	82.7	241.1	83.0	242.1	83.3	71
1¾		234.4	83.9	235.4	84.2	236.3	84.6	237.3	84.9	238.2	85.2	239.2	85.6	240.1	85.9	241.0	86.2	
	20	234.0	85.2	234.9	85.5	235.9	85.8	236.8	86.2	237.7	86.5	238.7	86.9	239.6	87.2	240.6	87.6	70
	21	232.5	89.2	233.4	89.6	234.3	90.0	235.3	90.3	236.2	90.7	237.1	91.0	238.1	91.4	239.0	91.7	69
	22	230.9	93.3	231.8	93.7	232.7	94.0	233.7	94.4	234.6	94.8	235.5	95.2	236.4	95.5	237.4	95.9	68
2		230.0	95.3	231.0	95.7	231.9	96.1	232.8	96.4	233.7	96.8	234.7	97.2	235.6	97.6	236.5	98.0	
	23	229.2	97.3	230.1	97.7	231.0	98.1	232.0	98.5	232.9	98.9	233.8	99.2	234.7	99.6	235.6	100.0	67
	24	227.5	101.3	228.4	101.7	229.3	102.1	230.2	102.5	231.1	102.9	232.0	103.3	233.0	103.7	233.9	104.1	66
	25	225.7	105.2	226.6	105.7	227.5	106.1	228.4	106.5	229.3	106.9	230.2	107.3	231.1	107.8	232.0	108.2	65
2¼		225.1	106.5	226.0	106.9	226.9	107.3	227.8	107.7	228.7	108.2	229.6	108.6	230.5	109.0	231.4	109.5	
	26	223.8	109.2	224.7	109.6	225.6	110.0	226.5	110.5	227.4	110.9	228.3	111.3	229.2	111.8	230.1	112.2	64
	27	221.9	113.0	222.8	113.5	223.6	114.0	224.5	114.4	225.4	114.9	226.3	115.3	227.2	115.8	228.1	116.2	63
	28	219.9	116.9	220.7	117.4	221.6	117.8	222.5	118.3	223.4	118.8	224.3	119.2	225.2	119.7	226.0	120.2	62
2½		219.6	117.4	220.5	117.8	221.4	118.3	222.2	118.8	223.1	119.3	224.0	119.7	224.9	120.2	225.8	120.7	
	29	217.8	120.7	218.7	121.2	219.5	121.7	220.4	122.2	221.3	122.7	222.2	123.1	223.0	123.6	223.9	124.1	61
	30	215.6	124.5	216.5	125.0	217.4	125.5	218.2	126.0	219.1	126.5	220.0	127.0	220.8	127.5	221.7	128.0	60
2¾		213.6	128.0	214.4	128.5	215.3	129.0	216.1	129.6	217.0	130.1	217.9	130.6	218.7	131.1	219.6	131.6	
	31	213.4	128.2	214.3	128.8	215.1	129.3	216.0	129.8	216.9	130.3	217.7	130.8	218.6	131.3	219.4	131.8	59
	32	211.2	131.9	212.0	132.5	212.9	133.0	213.7	133.5	214.6	134.1	215.4	134.6	216.3	135.1	217.1	135.7	58
	33	208.8	135.6	209.7	136.2	210.5	136.7	211.3	137.2	212.2	137.8	213.0	138.3	213.9	138.9	214.7	139.4	57
3		207.0	138.3	207.9	138.9	208.7	139.4	209.5	140.0	210.4	140.5	211.2	141.1	212.0	141.7	212.9	142.2	
	34	206.4	139.2	207.3	139.8	208.1	140.4	208.9	140.9	209.7	141.5	210.6	142.0	211.4	142.6	212.2	143.2	56
	35	204.0	142.8	204.8	143.4	205.6	144.0	206.4	144.5	207.2	145.1	208.1	145.7	208.9	146.3	209.7	146.8	55
	36	201.4	146.4	202.3	146.9	203.1	147.5	203.9	148.1	204.7	148.7	205.5	149.3	206.3	149.9	207.1	150.5	54
3¼		200.0	148.3	200.8	148.9	201.6	149.5	202.4	150.1	203.2	150.7	204.0	151.3	204.8	151.9	205.6	152.5	
	37	198.9	149.9	199.7	150.5	200.5	151.1	201.3	151.7	202.1	152.3	202.9	152.9	203.7	153.5	204.5	154.1	53
	38	196.2	153.3	197.0	153.9	197.8	154.5	198.6	155.1	199.4	155.8	200.2	156.4	200.9	157.0	201.7	157.6	52
	39	193.5	156.7	194.3	157.3	195.1	158.0	195.8	158.6	196.6	159.2	197.4	159.8	198.2	160.5	198.9	161.1	51
3½		192.5	158.0	193.3	158.6	194.0	159.2	194.8	159.9	195.6	160.5	196.3	161.1	197.1	161.8	197.9	162.4	
	40	190.7	160.1	191.5	160.7	192.3	161.3	193.0	162.0	193.8	162.6	194.6	163.3	195.3	163.9	196.1	164.6	50
	41	187.9	163.4	188.7	164.0	189.4	164.7	190.2	165.3	190.9	166.0	191.7	166.6	192.5	167.3	193.2	168.0	49
	42	185.0	166.6	185.8	167.3	186.5	168.0	187.3	168.6	188.0	169.3	188.8	170.0	189.5	170.6	190.2	171.3	48
3¾		184.5	167.2	185.2	167.9	186.0	168.6	186.7	169.2	187.5	169.9	188.2	170.6	188.9	171.2	189.7	171.9	
	43	182.1	169.8	182.8	170.5	183.6	171.2	184.3	171.9	185.0	172.5	185.8	173.2	186.5	173.9	187.2	174.6	47
	44	179.1	173.0	179.8	173.7	180.6	174.4	181.3	175.1	182.0	175.7	182.7	176.4	183.4	177.1	184.2	177.8	46
4	45	176.1	176.1	176.8	176.8	177.5	177.5	178.2	178.2	178.9	178.9	179.6	179.6	180.3	180.3	181.0	181.0	45
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	
		249		250		251		252		253		254		255		256		
Crse.		DISTANCE.																

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Dist. Degrees	257 Diff. Lat.	257 Departure.	258 Diff. Lat.	258 Departure.	259 Diff. Lat.	259 Departure.	260 Diff. Lat.	260 Departure.	261 Diff. Lat.	261 Departure.	262 Diff. Lat.	262 Departure.	263 Diff. Lat.	263 Departure.	264 Diff. Lat.	264 Departure.	Crse. Degrees	Crse. Points
0	257.0	00.0	258.0	00.0	259.0	00.0	260.0	00.0	261.0	00.0	262.0	00.0	263.0	00.0	264.0	00.0	90	8
1	257.0	04.5	258.0	04.5	259.0	04.5	260.0	04.5	261.0	04.6	262.0	04.6	263.0	04.6	264.0	04.6	89	
2	256.8	09.0	257.8	09.0	258.8	09.0	259.8	09.1	260.8	09.1	261.8	09.1	262.8	09.2	263.8	09.2	88	
	256.7	12.6	257.7	12.7	258.7	12.7	259.7	12.8	260.7	12.8	261.7	12.9	262.7	12.9	263.7	13.0		7¾
3	256.6	13.5	257.6	13.5	258.6	13.6	259.6	13.6	260.6	13.7	261.6	13.7	262.6	13.8	263.6	13.8	87	
4	256.4	17.9	257.4	18.0	258.4	18.1	259.4	18.1	260.4	18.2	261.4	18.3	262.4	18.3	263.4	18.4	86	
5	256.0	22.4	257.0	22.5	258.0	22.6	259.0	22.7	260.0	22.7	261.0	22.8	262.0	22.9	263.0	23.0	85	
	255.8	25.2	256.8	25.3	257.8	25.4	258.7	25.5	259.7	25.6	260.7	25.7	261.7	25.8	262.7	25.9		7½
6	255.6	26.9	256.6	27.0	257.6	27.1	258.6	27.2	259.6	27.3	260.6	27.4	261.6	27.5	262.6	27.6	84	
7	255.1	31.3	256.1	31.4	257.1	31.6	258.1	31.7	259.1	31.8	260.0	31.9	261.0	32.1	262.0	32.2	83	
8	254.5	35.8	255.5	35.9	256.5	36.0	257.5	36.2	258.5	36.3	259.5	36.5	260.4	36.6	261.4	36.7	82	
	254.2	37.7	255.2	37.9	256.2	38.0	257.2	38.1	258.2	38.3	259.2	38.4	260.1	38.6	261.1	38.7		7¼
9	253.8	40.2	254.8	40.4	255.8	40.5	256.8	40.7	257.8	40.8	258.8	41.0	259.8	41.1	260.7	41.3	81	
10	253.1	44.6	254.1	44.8	255.1	45.0	256.1	45.1	257.0	45.3	258.0	45.5	259.0	45.7	260.0	45.8	80	
11	252.3	49.0	253.3	49.2	254.2	49.4	255.2	49.6	256.2	49.8	257.2	50.0	258.2	50.2	259.1	50.4	79	
	252.1	50.1	253.0	50.3	254.0	50.5	255.0	50.7	256.0	50.9	257.0	51.1	257.9	51.3	258.9	51.5		7
12	251.4	53.4	252.4	53.6	253.3	53.8	254.3	54.1	255.3	54.3	256.3	54.5	257.3	54.7	258.2	54.9	78	
13	250.4	57.8	251.4	58.0	252.4	58.3	253.3	58.5	254.3	58.7	255.3	58.9	256.3	59.2	257.2	59.4	77	
14	249.4	62.2	250.3	62.4	251.3	62.7	252.3	62.9	253.2	63.1	254.2	63.4	255.2	63.6	256.2	63.9	76	
	249.3	62.4	250.3	62.7	251.2	62.9	252.2	63.2	253.2	63.4	254.1	63.7	255.1	63.9	256.1	64.1		6¾
15	248.2	66.5	249.2	66.8	250.2	67.0	251.1	67.3	252.1	67.6	253.1	67.8	254.0	68.1	255.0	68.3	75	
16	247.0	70.8	248.0	71.1	249.0	71.4	249.9	71.7	250.9	71.9	251.9	72.2	252.8	72.5	253.8	72.8	74	
	245.9	74.6	246.9	74.9	247.8	75.2	248.8	75.5	249.8	75.8	250.7	76.1	251.7	76.3	252.6	76.6		6½
17	245.8	75.1	246.7	75.4	247.7	75.7	248.6	76.0	249.6	76.3	250.6	76.6	251.5	76.9	252.5	77.2	73	
18	244.4	79.4	245.4	79.7	246.3	80.0	247.3	80.3	248.2	80.7	249.2	81.0	250.1	81.3	251.1	81.6	72	
19	243.0	83.7	243.9	84.0	244.9	84.3	245.8	84.6	246.8	85.0	247.7	85.3	248.7	85.6	249.6	86.0	71	
	242.0	86.6	242.9	86.9	243.9	87.3	244.8	87.6	245.7	87.9	246.7	88.3	247.6	88.6	248.6	88.9		6¼
20	241.5	87.9	242.4	88.2	243.4	88.6	244.3	88.9	245.3	89.3	246.2	89.6	247.1	90.0	248.1	90.3	70	
21	239.9	92.1	240.9	92.5	241.8	92.8	242.7	93.2	243.7	93.5	244.6	93.9	245.5	94.3	246.5	94.6	69	
22	238.3	96.3	239.2	96.6	240.1	97.0	241.1	97.4	242.0	97.8	242.9	98.1	243.8	98.5	244.8	98.9	68	
	237.4	98.3	238.4	98.7	239.3	99.1	240.2	99.5	241.1	99.8	242.1	100.3	243.0	100.6	243.9	101.0		6
23	236.6	100.4	237.5	100.8	238.4	101.2	239.3	101.6	240.3	102.0	241.2	102.4	242.1	102.8	243.0	103.2	67	
24	234.8	104.5	235.7	104.9	236.6	105.3	237.5	105.8	238.4	106.2	239.3	106.6	240.3	107.0	241.2	107.4	66	
25	232.9	108.6	233.8	109.0	234.7	109.5	235.6	109.9	236.5	110.3	237.5	110.7	238.4	111.1	239.3	111.6	65	
	232.3	109.9	233.2	110.3	234.1	110.7	235.0	111.2	235.9	111.6	236.8	112.0	237.7	112.4	238.7	112.9		5¾
26	231.0	112.7	231.9	113.1	232.8	113.5	233.7	114.0	234.6	114.4	235.5	114.9	236.4	115.3	237.3	115.7	64	
27	229.0	116.7	229.9	117.1	230.8	117.6	231.7	118.0	232.6	118.5	233.4	118.9	234.3	119.4	235.2	119.9	63	
28	226.9	120.7	227.8	121.1	228.7	121.6	229.6	122.1	230.4	122.5	231.3	123.0	232.2	123.5	233.1	123.9	62	
	226.7	121.1	227.5	121.6	228.4	122.1	229.3	122.6	230.2	123.0	231.1	123.5	231.9	124.0	232.8	124.4		5½
29	224.8	124.6	225.7	125.1	226.5	125.6	227.4	126.1	228.3	126.5	229.2	127.0	230.0	127.5	230.9	128.0	61	
30	222.6	128.5	223.4	129.0	224.3	129.5	225.2	130.0	226.0	130.5	226.9	131.0	227.8	131.5	228.6	132.0	60	
	220.4	132.1	221.3	132.6	222.2	133.2	223.0	133.7	223.9	134.2	224.7	134.7	225.6	135.2	226.4	135.7		5¼
31	220.3	132.4	221.1	132.9	222.0	133.4	222.9	133.9	223.7	134.4	224.6	134.9	225.4	135.5	226.3	136.0	59	
32	217.9	136.2	218.8	136.7	219.6	137.2	220.5	137.8	221.3	138.3	222.2	138.8	223.0	139.4	223.9	139.9	58	
33	215.5	140.0	216.4	140.5	217.2	141.1	218.1	141.6	218.9	142.2	219.7	142.7	220.6	143.2	221.4	143.8	57	
	213.7	142.8	214.5	143.3	215.4	143.9	216.2	144.4	217.0	145.0	217.8	145.5	218.7	146.1	219.5	146.7		5
34	213.1	143.7	213.9	144.3	214.7	144.8	215.5	145.4	216.4	145.9	217.2	146.5	218.0	147.1	218.9	147.6	56	
35	210.5	147.4	211.3	148.0	212.2	148.6	213.0	149.1	213.8	149.7	214.6	150.3	215.4	150.9	216.3	151.4	55	
36	207.9	151.1	208.7	151.6	209.5	152.2	210.3	152.8	211.2	153.4	212.0	154.0	212.8	154.6	213.6	155.2	54	
	206.4	153.1	207.2	153.7	208.0	154.3	208.8	154.9	209.6	155.5	210.4	156.1	211.2	156.7	212.0	157.3		4¾
37	205.2	154.7	206.0	155.3	206.8	155.9	207.6	156.5	208.4	157.1	209.2	157.7	210.0	158.3	210.8	158.9	53	
38	202.5	158.2	203.3	158.8	204.1	159.5	204.9	160.1	205.7	160.7	206.5	161.3	207.2	161.9	208.0	162.5	52	
39	199.7	161.7	200.5	162.4	201.3	163.0	202.1	163.6	202.8	164.3	203.6	164.9	204.4	165.5	205.2	166.1	51	
	198.7	163.0	199.4	163.7	200.2	164.3	201.0	164.9	201.8	165.6	202.5	166.2	203.3	166.8	204.1	167.5		4½
40	196.9	165.2	197.6	165.8	198.4	166.5	199.2	167.1	199.9	167.8	200.7	168.4	201.5	169.1	202.2	169.7	50	
41	194.0	168.6	194.7	169.3	195.5	169.9	196.2	170.6	197.0	171.2	197.7	171.9	198.5	172.5	199.2	173.2	49	
42	191.0	172.0	191.7	172.6	192.5	173.3	193.2	174.0	194.0	174.6	194.7	175.3	195.4	176.0	196.2	176.7	48	
	190.4	172.6	191.2	173.3	191.9	173.9	192.6	174.6	193.4	175.3	194.1	175.9	194.9	176.6	195.6	177.3		4¼
43	188.0	175.3	188.7	176.0	189.4	176.6	190.2	177.3	190.9	178.0	191.6	178.7	192.3	179.4	193.1	180.0	47	
44	184.9	178.5	185.6	179.2	186.3	179.9	187.0	180.6	187.7	181.3	188.5	182.0	189.2	182.7	189.9	183.4	46	
45	181.7	181.7	182.4	182.4	183.1	183.1	183.8	183.8	184.6	184.6	185.3	185.3	186.0	186.0	186.7	186.7	45	4
	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
	257		258		259		260		261		262		263		264			

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Degrees	DISTANCE. 265 Diff. Lat.	265 Departure.	266 Diff. Lat.	266 Departure.	267 Diff. Lat.	267 Departure.	268 Diff. Lat.	268 Departure.	269 Diff. Lat.	269 Departure.	270 Diff. Lat.	270 Departure.	271 Diff. Lat.	271 Departure.	272 Diff. Lat.	272 Departure.	Crse. Degrees
0	0	265.0	00.0	266.0	00.0	267.0	00.0	268.0	00.0	269.0	00.0	270.0	00.0	271.0	00.0	272.0	00.0	90
	1	265.0	04.6	266.0	04.6	267.0	04.7	268.0	04.7	269.0	04.7	270.0	04.7	271.0	04.7	272.0	04.7	89
	2	264.8	09.2	265.8	09.3	266.8	09.3	267.8	09.4	268.8	09.4	269.8	09.4	270.8	09.5	271.8	09.5	88
0¼		264.7	13.0	265.7	13.1	266.7	13.1	267.7	13.2	268.7	13.2	269.7	13.3	270.7	13.3	271.7	13.3	
	3	264.6	13.9	265.6	13.9	266.6	14.0	267.6	14.0	268.6	14.1	269.6	14.1	270.6	14.2	271.6	14.2	87
	4	264.4	18.5	265.4	18.6	266.3	18.6	267.3	18.7	268.3	18.8	269.3	18.8	270.3	18.9	271.3	19.0	86
	5	264.0	23.1	265.0	23.2	266.0	23.3	267.0	23.4	268.0	23.4	269.0	23.5	270.0	23.6	271.0	23.7	85
0½		263.7	26.0	264.7	26.1	265.7	26.2	266.7	26.3	267.7	26.4	268.7	26.5	269.7	26.6	270.7	26.7	
	6	263.5	27.7	264.5	27.8	265.5	27.9	266.5	28.0	267.5	28.1	268.5	28.2	269.5	28.3	270.5	28.4	84
	7	263.0	32.3	264.0	32.4	265.0	32.5	266.0	32.7	267.0	32.8	268.0	32.9	269.0	33.0	270.0	33.1	83
	8	262.4	36.9	263.4	37.0	264.4	37.2	265.4	37.3	266.4	37.4	267.4	37.6	268.4	37.7	269.4	37.9	82
0¾		262.1	38.9	263.1	39.0	264.1	39.2	265.1	39.3	266.1	39.5	267.1	39.6	268.1	39.8	269.0	39.9	
	9	261.7	41.5	262.7	41.6	263.7	41.8	264.7	41.9	265.7	42.1	266.7	42.2	267.7	42.4	268.7	42.6	81
	10	261.0	46.0	262.0	46.2	262.9	46.4	263.9	46.5	264.9	46.7	265.9	46.9	266.9	47.1	267.9	47.2	80
	11	260.1	50.6	261.1	50.8	262.1	50.9	263.1	51.1	264.1	51.3	265.0	51.5	266.0	51.7	267.0	51.9	79
1		259.9	51.7	260.9	51.9	261.9	52.1	262.8	52.3	263.8	52.5	264.8	52.7	265.8	52.9	266.8	53.1	
	12	259.2	55.1	260.2	55.3	261.2	55.5	262.1	55.7	263.1	55.9	264.1	56.1	265.1	56.3	266.1	56.6	78
	13	258.2	59.6	259.2	59.8	260.2	60.1	261.1	60.3	262.1	60.5	263.1	60.7	264.1	61.0	265.0	61.2	77
	14	257.1	64.1	258.1	64.4	259.1	64.6	260.0	64.8	261.0	65.1	262.0	65.3	263.0	65.6	263.9	65.8	76
1¼		257.1	64.4	258.0	64.6	259.0	64.9	260.0	65.1	260.9	65.4	261.9	65.6	262.9	65.8	263.8	66.1	
	15	256.0	68.6	256.9	68.8	257.9	69.1	258.9	69.4	259.8	69.6	260.8	69.9	261.8	70.1	262.7	70.4	75
	16	254.7	73.0	255.7	73.3	256.7	73.6	257.6	73.9	258.6	74.1	259.5	74.4	260.5	74.7	261.5	75.0	74
1½		253.6	76.9	254.5	77.2	255.5	77.5	256.5	77.8	257.4	78.1	258.4	78.4	259.3	78.7	260.3	79.0	
	17	253.4	77.5	254.4	77.8	255.3	78.1	256.3	78.4	257.2	78.6	258.2	78.9	259.2	79.2	260.1	79.5	73
	18	252.0	81.9	253.0	82.2	253.9	82.5	254.9	82.8	255.8	83.1	256.8	83.4	257.7	83.7	258.7	84.1	72
	19	250.6	86.3	251.5	86.6	252.5	86.9	253.4	87.3	254.3	87.6	255.3	87.9	256.2	88.2	257.2	88.6	71
1¾		249.5	89.3	250.5	89.6	251.4	89.9	252.3	90.3	253.3	90.6	254.2	91.0	255.2	91.3	256.1	91.6	
	20	249.0	90.6	250.0	91.0	250.9	91.3	251.8	91.7	252.8	92.0	253.7	92.3	254.7	92.7	255.6	93.0	70
	21	247.4	95.0	248.3	95.3	249.3	95.7	250.2	96.0	251.1	96.4	252.1	96.8	253.0	97.1	253.9	97.5	69
	22	245.7	99.3	246.6	99.6	247.6	100.0	248.5	100.4	249.4	100.8	250.3	101.1	251.3	101.5	252.2	101.9	68
2		244.8	101.4	245.8	101.8	246.7	102.2	247.6	102.6	248.5	102.9	249.4	103.3	250.4	103.7	251.3	104.1	
	23	243.9	103.5	244.9	103.9	245.8	104.3	246.7	104.7	247.6	105.1	248.5	105.5	249.5	105.9	250.4	106.3	67
	24	242.1	107.8	243.0	108.2	243.9	108.6	244.8	109.0	245.7	109.4	246.7	109.8	247.6	110.2	248.5	110.6	66
	25	240.2	112.0	241.1	112.4	242.0	112.8	242.9	113.3	243.8	113.7	244.7	114.1	245.6	114.5	246.5	115.0	65
2¼		239.6	113.3	240.5	113.7	241.4	114.2	242.3	114.6	243.2	115.0	244.1	115.4	245.0	115.9	245.9	116.3	
	26	238.2	116.2	239.1	116.6	240.0	117.0	240.9	117.5	241.8	117.9	242.7	118.4	243.6	118.8	244.5	119.2	64
	27	236.1	120.3	237.0	120.8	237.9	121.2	238.8	121.7	239.7	122.1	240.6	122.6	241.5	123.0	242.4	123.5	63
	28	234.0	124.4	234.9	124.9	235.7	125.3	236.6	125.8	237.5	126.3	238.4	126.8	239.3	127.2	240.2	127.7	62
2½		233.7	124.9	234.6	125.4	235.5	125.9	236.4	126.3	237.2	126.8	238.1	127.3	239.0	127.7	239.9	128.2	
	29	231.8	128.5	232.6	129.0	233.5	129.4	234.4	129.9	235.3	130.4	236.1	130.9	237.0	131.4	237.9	131.9	61
	30	229.5	132.5	230.4	133.0	231.2	133.5	232.1	134.0	233.0	134.5	233.8	135.0	234.7	135.5	235.6	136.0	60
2¾		227.3	136.2	228.2	136.8	229.0	137.3	229.9	137.8	230.7	138.3	231.6	138.8	232.4	139.3	233.3	139.8	
	31	227.1	136.5	228.0	137.0	228.9	137.5	229.7	138.0	230.6	138.5	231.4	139.1	232.3	139.6	233.1	140.1	59
	32	224.7	140.4	225.6	141.0	226.4	141.5	227.3	142.0	228.1	142.5	229.0	143.1	229.8	143.6	230.7	144.1	58
	33	222.2	144.3	223.1	144.9	223.9	145.4	224.8	146.0	225.6	146.5	226.4	147.1	227.3	147.6	228.1	148.1	57
3		220.3	147.2	221.2	147.8	222.0	148.3	222.8	148.9	223.7	149.4	224.5	150.0	225.3	150.5	226.2	151.1	
	34	219.7	148.2	220.5	148.7	221.4	149.3	222.2	149.9	223.0	150.4	223.8	151.0	224.7	151.5	225.5	152.1	56
	35	217.1	152.0	217.9	152.6	218.7	153.1	219.5	153.7	220.4	154.3	221.2	154.9	222.0	155.4	222.8	156.0	55
	36	214.4	155.8	215.2	156.4	216.0	156.9	216.8	157.5	217.6	158.1	218.4	158.7	219.2	159.3	220.1	159.9	54
3¼		212.8	157.9	213.7	158.5	214.5	159.1	215.3	159.6	216.1	160.2	216.9	160.8	217.7	161.4	218.5	162.0	
	37	211.6	159.5	212.4	160.1	213.2	160.7	214.0	161.3	214.8	161.9	215.6	162.5	216.4	163.1	217.2	163.7	53
	38	208.8	163.2	209.6	163.8	210.4	164.4	211.2	165.0	212.0	165.6	212.8	166.2	213.6	166.8	214.3	167.5	52
	39	205.9	166.8	206.7	167.4	207.5	168.0	208.3	168.7	209.1	169.3	209.8	169.9	210.6	170.5	211.4	171.2	51
3½		204.8	168.1	205.6	168.7	206.4	169.4	207.2	170.0	207.9	170.7	208.7	171.3	209.5	171.9	210.3	172.6	
	40	203.0	170.3	203.8	171.0	204.5	171.6	205.3	172.3	206.1	172.9	206.8	173.6	207.6	174.2	208.4	174.8	50
	41	200.0	173.9	200.8	174.5	201.5	175.2	202.3	175.8	203.0	176.5	203.8	177.1	204.5	177.8	205.3	178.4	49
	42	196.9	177.3	197.7	178.0	198.4	178.7	199.2	179.3	199.9	180.0	200.6	180.7	201.4	181.3	202.1	182.0	48
3¾		196.4	178.0	197.1	178.6	197.8	179.3	198.6	180.0	199.3	180.6	200.1	181.3	200.8	182.0	201.5	182.7	
	43	193.8	180.7	194.5	181.4	195.3	182.1	196.0	182.8	196.7	183.5	197.5	184.1	198.2	184.8	198.9	185.5	47
	44	190.6	184.1	191.3	184.8	192.1	185.5	192.8	186.2	193.5	186.9	194.2	187.6	194.9	188.3	195.7	189.0	46
4	45	187.4	187.4	188.1	188.1	188.8	188.8	189.5	189.5	190.2	190.2	190.9	190.9	191.6	191.6	192.3	192.3	45
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	
		265		266		267		268		269		270		271		272		
Crse.		DISTANCE.																

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Degrees	Distance 273 Diff. Lat.	273 Departure	274 Diff. Lat.	274 Departure	275 Diff. Lat.	275 Departure	276 Diff. Lat.	276 Departure	277 Diff. Lat.	277 Departure	278 Diff. Lat.	278 Departure	279 Diff. Lat.	279 Departure	280 Diff. Lat.	280 Departure	Degrees	Crse. Points
0	273.0	00.0	274.0	00.0	275.0	00.0	276.0	00.0	277.0	00.0	278.0	00.0	279.0	00.0	280.0	00.0	90	8
1	273.0	04.8	274.0	04.8	275.0	04.8	276.0	04.8	277.0	04.8	278.0	04.9	279.0	04.9	280.0	04.9	89	
2	272.8	09.5	273.8	09.6	274.8	09.6	275.8	09.6	276.8	09.7	277.8	09.7	278.8	09.7	279.8	09.8	88	
	272.7	13.4	273.7	13.4	274.7	13.5	275.7	13.5	276.7	13.6	277.7	13.6	278.7	13.7	279.7	13.7		7¾
3	272.6	14.3	273.6	14.3	274.6	14.4	275.6	14.4	276.6	14.5	277.6	14.5	278.6	14.6	279.6	14.7	87	
4	272.3	19.0	273.3	19.1	274.3	19.2	275.3	19.3	276.3	19.3	277.3	19.4	278.3	19.5	279.3	19.5	86	
5	272.0	23.8	273.0	23.9	274.0	24.0	274.9	24.1	275.9	24.1	276.9	24.2	277.9	24.3	278.9	24.4	85	
	271.7	26.8	272.7	26.9	273.7	27.0	274.7	27.1	275.7	27.2	276.7	27.3	277.7	27.3	278.7	27.4		7½
6	271.5	28.5	272.5	28.6	273.5	28.7	274.5	28.8	275.5	29.0	276.5	29.1	277.5	29.2	278.5	29.3	84	
7	271.0	33.3	272.0	33.4	273.0	33.5	273.9	33.6	274.9	33.8	275.9	33.9	276.9	34.0	277.9	34.1	83	
8	270.3	38.0	271.3	38.1	272.3	38.3	273.3	38.4	274.3	38.6	275.3	38.7	276.3	38.8	277.3	39.0	82	
	270.0	40.1	271.0	40.2	272.0	40.3	273.0	40.5	274.0	40.6	275.0	40.8	276.0	40.9	277.0	41.0		7¼
9	269.6	42.7	270.6	42.9	271.6	43.0	272.6	43.2	273.6	43.3	274.6	43.5	275.6	43.6	276.6	43.8	81	
10	268.9	47.4	269.8	47.6	270.8	47.8	271.8	47.9	272.8	48.1	273.8	48.3	274.8	48.4	275.7	48.6	80	
11	268.0	52.1	269.1	52.3	269.9	52.5	270.9	52.7	271.9	52.9	272.9	53.0	273.9	53.2	274.9	53.4	79	
	267.8	53.3	268.7	53.5	269.7	53.6	270.7	53.8	271.7	54.0	272.7	54.2	273.6	54.4	274.6	54.6		7
12	267.0	56.8	268.0	57.0	269.0	57.2	270.0	57.4	270.9	57.6	271.9	57.8	272.9	58.0	273.9	58.2	78	
13	266.0	61.4	267.0	61.6	268.0	61.9	268.9	62.1	269.9	62.3	270.9	62.5	271.8	62.8	272.8	63.0	77	
14	264.9	66.0	265.9	66.3	266.8	66.5	267.8	66.8	268.8	67.0	269.7	67.3	270.7	67.5	271.7	67.7	76	
	264.8	66.3	265.8	66.6	266.8	66.8	267.7	67.1	268.7	67.3	269.7	67.5	270.6	67.8	271.6	68.0		6¾
15	263.7	70.7	264.7	70.9	265.6	71.2	266.6	71.4	267.6	71.7	268.5	72.0	269.5	72.2	270.5	72.5	75	
16	262.4	75.2	263.4	75.5	264.3	75.8	265.3	76.1	266.3	76.4	267.2	76.6	268.2	76.9	269.2	77.2	74	
	261.2	79.2	262.2	79.5	263.2	79.8	264.1	80.1	265.1	80.4	266.0	80.7	267.0	81.0	267.9	81.3		6½
17	261.1	79.8	262.0	80.1	263.0	80.4	263.9	80.7	264.9	81.0	265.9	81.3	266.8	81.6	267.8	81.9	73	
18	259.6	84.4	260.6	84.7	261.5	85.0	262.5	85.3	263.4	85.6	264.4	85.9	265.3	86.2	266.3	86.5	72	
19	258.1	88.9	259.1	89.2	260.0	89.5	261.0	89.9	261.9	90.2	262.9	90.5	263.8	90.8	264.7	91.2	71	
	257.0	92.0	258.0	92.3	258.9	92.6	259.9	93.0	260.8	93.3	261.7	93.7	262.7	94.0	263.6	94.3		6¼
20	256.5	93.4	257.5	93.7	258.4	94.1	259.4	94.4	260.3	94.7	261.2	95.1	262.2	95.4	263.1	95.8	70	
21	254.9	97.8	255.8	98.2	256.7	98.6	257.7	98.9	258.6	99.3	259.5	99.6	260.5	100.0	261.4	100.3	69	
22	253.1	102.3	254.0	102.6	255.0	103.0	255.9	103.4	256.8	103.8	257.8	104.1	258.7	104.5	259.6	104.9	68	
	252.2	104.5	253.1	104.9	254.1	105.2	255.0	105.6	255.9	106.0	256.8	106.4	257.8	106.8	258.7	107.2		6
23	251.3	106.7	252.2	107.1	253.1	107.5	254.1	107.8	255.0	108.2	255.9	108.6	256.8	109.0	257.7	109.4	67	
24	249.4	111.0	250.3	111.4	251.2	111.9	252.1	112.3	253.1	112.7	254.0	113.1	254.9	113.5	255.8	113.9	66	
25	247.4	115.4	248.3	115.8	249.2	116.2	250.1	116.6	251.0	117.1	252.0	117.5	252.9	117.9	253.8	118.3	65	
	246.8	116.7	247.7	117.2	248.6	117.6	249.5	118.0	250.4	118.4	251.3	118.9	252.2	119.3	253.1	119.7		5¾
26	245.4	119.7	246.3	120.1	247.2	120.6	248.1	121.0	249.0	121.4	249.9	121.9	250.8	122.3	251.7	122.7	64	
27	243.2	123.9	244.1	124.4	245.0	124.8	245.9	125.3	246.8	125.8	247.7	126.2	248.6	126.7	249.5	127.1	63	
28	241.0	128.2	241.9	128.6	242.8	129.1	243.7	129.6	244.6	130.0	245.5	130.5	246.3	131.0	247.2	131.5	62	
	240.8	128.7	241.6	129.2	242.5	129.6	243.4	130.1	244.3	130.6	245.2	131.0	246.1	131.5	246.9	132.0		5½
29	238.8	132.4	239.6	132.8	240.5	133.3	241.4	133.8	242.3	134.3	243.1	134.8	244.0	135.3	244.9	135.7	61	
30	236.4	136.5	237.3	137.0	238.2	137.5	239.0	138.0	239.9	138.5	240.8	139.0	241.6	139.5	242.5	140.0	60	
	234.2	140.4	235.0	140.9	235.9	141.4	236.7	141.9	237.6	142.4	238.4	142.9	239.3	143.4	240.2	143.9		5¼
31	234.0	140.6	234.9	141.1	235.7	141.6	236.6	142.2	237.4	142.7	238.3	143.2	239.1	143.7	240.0	144.2	59	
32	231.5	144.7	232.4	145.2	233.2	145.7	234.1	146.3	234.9	146.8	235.8	147.3	236.6	147.8	237.5	148.4	58	
33	229.0	148.7	229.8	149.2	230.6	149.8	231.5	150.3	232.3	150.9	233.2	151.4	234.0	152.0	234.8	152.5	57	
	227.0	151.7	227.8	152.2	228.7	152.8	229.5	153.3	230.3	153.9	231.1	154.4	232.0	155.0	232.8	155.5		5
34	226.3	152.7	227.2	153.2	228.0	153.8	228.8	154.3	229.6	154.9	230.5	155.5	231.3	156.0	232.1	156.6	56	
35	223.6	156.6	224.4	157.2	225.3	157.7	226.1	158.3	226.9	158.9	227.7	159.5	228.5	160.0	229.4	160.6	55	
36	220.9	160.5	221.7	161.1	222.5	161.6	223.3	162.2	224.1	162.8	224.9	163.4	225.7	164.0	226.5	164.6	54	
	219.3	162.6	220.1	163.2	220.9	163.8	221.7	164.4	222.5	165.0	223.3	165.6	224.1	166.2	224.9	166.8		4¾
37	218.0	164.3	218.8	164.9	219.6	165.5	220.4	166.1	221.2	166.7	220.0	167.3	222.8	167.9	223.6	168.5	53	
38	215.1	168.1	215.9	168.7	216.7	169.3	217.5	169.9	218.3	170.5	219.1	171.2	219.9	171.8	220.6	172.4	52	
39	212.2	171.8	212.9	172.4	213.7	173.1	214.5	173.7	215.3	174.3	216.0	175.0	216.8	175.6	217.6	176.2	51	
	211.0	173.2	211.8	173.8	212.6	174.5	213.4	175.1	214.1	175.7	214.9	176.4	215.7	177.0	216.4	177.6		4½
40	209.1	175.5	209.9	176.1	210.7	176.8	211.4	177.4	212.2	178.1	213.0	178.7	213.7	179.3	214.5	180.0	50	
41	206.0	179.1	206.8	179.8	207.5	180.4	208.3	181.1	209.1	181.7	209.8	182.4	210.6	183.0	211.3	183.7	49	
42	202.9	182.7	203.6	183.3	204.4	184.0	205.1	184.7	205.9	185.3	206.6	186.0	207.3	186.7	208.1	187.4	48	
	202.3	183.3	203.0	184.0	203.8	184.7	204.5	185.4	205.2	186.0	206.0	186.7	206.7	187.4	207.5	188.0		4¼
43	199.7	186.2	200.4	186.9	201.1	187.5	201.9	188.2	202.6	188.9	203.3	189.6	204.0	190.3	204.8	191.0	47	
44	196.4	189.6	197.1	190.3	197.8	191.0	198.5	191.7	199.3	192.4	200.0	193.1	200.7	193.8	201.4	194.5	46	
45	193.0	193.0	193.7	193.7	194.5	194.5	195.2	195.2	195.9	195.9	196.6	196.6	197.3	197.3	198.0	198.0	45	4
	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Degrees	Points
	273		274		275		276		277		278		279		280			Crse.

Distance.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Degrees	Distance 281 Diff. Lat.	281 Departure.	282 Diff. Lat.	282 Departure.	283 Diff. Lat.	283 Departure.	284 Diff. Lat.	284 Departure.	285 Diff. Lat.	285 Departure.	286 Diff. Lat.	286 Departure	287 Diff. Lat.	287 Departure.	288 Diff. Lat.	288 Departure.	Degrees	Crse. Points
0	0	281.0	00.0	282.0	00.0	283.0	00.0	284.0	00.0	285.0	00.0	286.0	00.0	287.0	00.0	288.0	00.0	90	
	1	281.0	04.9	282.0	04.9	283.0	04.9	284.0	05.0	285.0	05.0	286.0	05.0	287.0	05.0	288.0	05.0	89	
	2	280.8	09.8	281.8	09.8	282.8	09.9	283.8	09.9	284.8	09.9	285.8	10.0	286.8	10.0	287.8	10.1	88	
0¼		280.7	13.8	281.7	13.8	282.7	13.9	283.7	13.9	284.7	14.0	285.7	14.0	286.7	14.1	287.7	14.1		75
	3	280.6	14.7	281.6	14.8	282.6	14.8	283.6	14.9	284.6	14.9	285.6	15.0	286.6	15.0	287.6	15.1	87	
	4	280.3	19.6	281.3	19.7	282.3	19.7	283.3	19.8	284.3	19.9	285.3	20.0	286.3	20.0	287.3	20.1	86	
	5	279.9	24.5	280.9	24.6	281.9	24.7	282.9	24.8	283.9	24.8	284.9	24.9	285.9	25.0	286.9	25.1	85	
0½		279.6	27.5	280.6	27.6	281.6	27.7	282.6	27.8	283.6	27.9	284.6	28.0	285.6	28.1	286.6	28.2		74
	6	279.5	29.4	280.5	29.5	281.4	29.6	282.4	29.7	283.4	29.8	284.4	29.9	285.4	30.0	286.4	30.1	84	
	7	278.9	34.2	279.9	34.4	280.9	34.5	281.9	34.6	282.9	34.7	283.9	34.9	284.9	35.0	285.9	35.1	83	
	8	278.3	39.1	279.3	39.2	280.2	39.4	281.2	39.5	282.2	39.7	283.2	39.8	284.2	39.9	285.2	40.1	82	
0¾		278.0	41.2	278.9	41.4	279.9	41.5	280.9	41.7	281.9	41.8	282.9	42.0	283.9	42.1	284.9	42.3		73
	9	277.5	44.0	278.5	44.1	279.5	44.3	280.5	44.4	281.5	44.6	282.5	44.7	283.5	44.9	284.5	45.1	81	
	10	276.7	48.8	277.7	49.0	278.7	49.1	279.7	49.3	280.7	49.5	281.7	49.7	282.6	49.8	283.6	50.0	80	
	11	275.8	53.6	276.8	53.8	277.8	54.0	278.8	54.2	279.8	54.4	280.7	54.6	281.7	54.8	282.7	55.0	79	
1		275.6	54.8	276.6	55.0	277.6	55.2	278.5	55.4	279.5	55.6	280.5	55.8	281.5	56.0	282.5	56.2		72
	12	274.9	58.4	275.8	58.6	276.8	58.8	277.8	59.0	278.8	59.3	279.8	59.5	280.7	59.7	281.7	59.9	78	
	13	273.8	63.2	274.8	63.4	275.7	63.7	276.7	63.9	277.7	64.1	278.7	64.3	279.6	64.6	280.6	64.8	77	
	14	272.7	68.0	273.6	68.2	274.6	68.5	275.6	68.7	276.5	68.9	277.5	69.2	278.5	69.4	279.4	69.7	76	
1¼		272.6	68.3	273.5	68.5	274.5	68.8	275.5	69.0	276.5	69.2	277.4	69.5	278.4	69.7	279.4	70.0		71
	15	271.4	72.7	272.4	73.0	273.4	73.2	274.3	73.5	275.3	73.8	276.3	74.0	277.2	74.3	278.2	74.5	75	
	16	270.1	77.5	271.1	77.7	272.0	78.0	273.0	78.3	274.0	78.6	274.9	78.8	275.9	79.1	276.8	79.4	74	
1½		268.9	81.6	269.9	81.9	270.8	82.2	271.8	82.4	272.7	82.7	273.7	83.0	274.6	83.3	275.6	83.6		70
	17	268.7	82.2	269.7	82.4	270.6	82.7	271.6	83.0	272.5	83.3	273.5	83.6	274.5	83.9	275.4	84.2	73	
	18	267.2	86.8	268.2	87.1	269.1	87.5	270.1	87.8	271.1	88.1	272.0	88.4	273.0	88.7	273.9	89.0	72	
	19	265.7	91.5	266.6	91.8	267.6	92.1	268.5	92.5	269.5	92.8	270.4	93.1	271.4	93.4	272.3	93.8	71	
1¾		264.6	94.7	265.5	95.0	266.5	95.3	267.4	95.7	268.3	96.0	269.3	96.4	270.2	96.7	271.2	97.0		69
	20	264.1	96.1	265.0	96.4	265.9	96.8	266.9	97.1	267.8	97.5	268.8	97.8	269.7	98.2	270.6	98.5	70	
	21	262.3	100.7	263.3	101.1	264.2	101.4	265.1	101.8	266.1	102.1	267.0	102.5	267.9	102.9	268.9	103.2	69	
	22	260.5	105.3	261.5	105.6	262.4	106.0	263.3	106.4	264.2	106.8	265.2	107.1	266.1	107.5	267.0	107.9	68	
2		259.6	107.5	260.5	107.9	261.5	108.3	262.4	108.7	263.3	109.1	264.2	109.4	265.2	109.8	266.1	110.2		67
	23	258.7	109.8	259.6	110.2	260.5	110.6	261.4	111.0	262.3	111.4	263.3	111.7	264.2	112.1	265.1	112.5	67	
	24	256.7	114.3	257.6	114.7	258.5	115.1	259.4	115.5	260.4	115.9	261.3	116.3	262.2	116.7	263.1	117.1	66	
	25	254.7	118.8	255.6	119.2	256.5	119.6	257.4	120.0	258.3	120.4	259.2	120.9	260.1	121.3	261.0	121.7	65	
2¼		254.0	120.1	254.9	120.6	255.8	121.0	256.7	121.4	257.6	121.9	258.5	122.3	259.4	122.7	260.3	123.1		64
	26	252.6	123.2	253.5	123.6	254.4	124.1	255.3	124.5	256.2	124.9	257.1	125.4	258.0	125.8	258.9	126.3	64	
	27	250.4	127.6	251.3	128.0	252.2	128.5	253.0	128.9	253.9	129.4	254.8	129.8	255.7	130.3	256.6	130.7	63	
	28	248.1	131.9	249.0	132.4	249.9	132.9	250.8	133.3	251.6	133.8	252.5	134.3	253.4	134.7	254.3	135.2	62	
2½		247.8	132.5	248.7	132.9	249.6	133.4	250.5	133.9	251.3	134.3	252.2	134.8	253.1	135.3	254.0	135.8		61
	29	245.8	136.2	246.6	136.7	247.5	137.2	248.4	137.7	249.3	138.2	250.1	138.7	251.0	139.1	251.9	139.6	61	
	30	243.4	140.5	244.2	141.0	245.1	141.5	246.0	142.0	246.8	142.5	247.7	143.0	248.5	143.5	249.4	144.0	60	
2¾		241.0	144.5	241.9	145.0	242.7	145.5	243.6	146.0	244.5	146.5	245.3	147.0	246.2	147.5	247.0	148.1		59
	31	240.9	144.7	241.7	145.2	242.6	145.8	243.4	146.3	244.3	146.8	245.1	147.3	246.0	147.8	246.9	148.3	59	
	32	238.3	148.9	239.1	149.4	240.0	150.0	240.8	150.5	241.7	151.0	242.5	151.6	243.4	152.1	244.2	152.6	58	
	33	235.7	153.0	236.5	153.6	237.3	154.1	238.2	154.7	239.0	155.2	239.9	155.8	240.7	156.3	241.5	156.9	57	
3		233.6	156.1	234.5	156.7	235.3	157.2	236.1	157.8	237.0	158.3	237.8	158.9	238.6	159.4	239.5	160.0		56
	34	233.0	157.1	233.8	157.7	234.6	158.3	235.4	158.8	236.3	159.4	237.1	159.9	237.9	160.5	238.8	161.0	56	
	35	230.2	161.2	231.0	161.7	231.8	162.3	232.6	162.9	233.5	163.5	234.3	164.0	235.1	164.6	235.9	165.2	55	
	36	227.3	165.2	228.1	165.8	229.0	166.3	229.8	166.9	230.6	167.5	231.4	168.1	232.2	168.7	233.0	169.2	54	
3¼		225.7	167.4	226.5	168.0	227.3	168.6	228.1	169.2	228.9	169.8	229.7	170.4	230.5	171.0	231.3	171.6		53
	37	224.4	169.1	225.2	169.7	226.0	170.3	226.8	170.9	227.6	171.5	228.4	172.1	229.2	172.7	230.0	173.3	53	
	38	221.4	173.0	222.2	173.6	223.0	174.2	223.8	174.8	224.6	175.5	225.4	176.1	226.2	176.7	226.9	177.3	52	
	39	218.4	176.8	219.2	177.5	219.9	178.1	220.7	178.7	221.5	179.4	222.3	180.0	223.0	180.6	223.8	181.2	51	
3½		217.2	178.3	218.0	178.9	218.8	179.5	219.5	180.2	220.3	180.8	221.1	181.4	221.9	182.1	222.6	182.7		50
	40	215.3	180.6	216.0	181.3	216.8	181.9	217.6	182.6	218.3	183.2	219.1	183.8	219.9	184.5	220.6	185.1	50	
	41	212.1	184.4	212.8	185.0	213.6	185.7	214.3	186.3	215.1	187.0	215.8	187.6	216.6	188.3	217.4	188.9	49	
	42	208.8	188.0	209.6	188.7	210.3	189.4	211.1	190.0	211.8	190.7	212.5	191.4	213.3	192.0	214.0	192.7	48	
3¾		208.2	188.7	208.9	189.4	209.7	190.1	210.4	190.7	211.2	191.4	211.9	192.1	212.7	192.7	213.4	193.4		47
	43	205.5	191.6	206.2	192.3	207.0	193.0	207.7	193.7	208.4	194.4	209.2	195.1	209.9	195.7	210.6	196.4	47	
	44	202.1	195.2	202.9	195.9	203.6	196.6	204.3	197.3	205.0	198.0	205.7	198.7	206.5	199.4	207.2	200.1	46	
4	45	198.7	198.7	199.4	199.4	200.1	200.1	200.8	200.8	201.5	201.5	202.2	202.2	202.9	202.9	203.6	203.6	45	
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		
		281		282		283		284		285		286		287		288			
Crse.																			

Distance.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Course Degrees	DISTANCE. 289 Diff. Lat.	289 Departure.	290 Diff. Lat.	290 Departure.	291 Diff. Lat.	291 Departure.	292 Diff. Lat.	292 Departure.	293 Diff. Lat.	293 Departure.	294 Diff. Lat.	294 Departure.	295 Diff. Lat.	295 Departure.	296 Diff. Lat.	296 Departure.	Degrees	Course Points
0	289.0	00.0	290.0	00.0	291.0	00.0	292.0	00.0	293.0	00.0	294.0	00.0	295.0	00.0	296.0	00.0	90	8
1	289.0	05.0	290.0	05.1	291.0	05.1	292.0	05.1	293.0	05.1	294.0	05.1	295.0	05.1	296.0	05.2	89	
2	288.8	10.1	289.8	10.1	290.8	10.2	291.8	10.2	292.8	10.2	293.8	10.3	294.8	10.3	295.8	10.3	88	
3	288.7	14.2	289.7	14.2	290.7	14.3	291.7	14.3	292.7	14.4	293.6	14.4	294.6	14.5	295.6	14.5		7¾
3	288.6	15.1	289.6	15.2	290.6	15.2	291.6	15.3	292.6	15.3	293.6	15.4	294.6	15.4	295.6	15.5	87	
4	288.3	20.2	289.3	20.2	290.3	20.3	291.3	20.4	292.3	20.4	293.3	20.5	294.3	20.6	295.3	20.6	86	
5	287.9	25.2	288.9	25.3	289.9	25.4	290.9	25.4	291.9	25.5	292.9	25.6	293.9	25.7	294.9	25.8	85	
6	287.6	28.3	288.6	28.4	289.6	28.5	290.6	28.6	291.6	28.7	292.6	28.8	293.6	28.9	294.6	29.0		7½
6	287.4	30.2	288.4	30.3	289.4	30.4	290.4	30.5	291.4	30.6	292.4	30.7	293.4	30.8	294.4	30.9	84	
7	286.8	35.2	287.8	35.3	288.8	35.5	289.8	35.6	290.8	35.7	291.8	35.8	292.8	36.0	293.8	36.1	83	
8	286.2	40.2	287.2	40.4	288.2	40.5	289.2	40.6	290.1	40.8	291.1	40.9	292.1	41.1	293.1	41.2	82	
9	285.9	42.4	286.9	42.5	287.8	42.7	288.8	42.8	289.8	43.0	290.8	43.1	291.8	43.3	292.8	43.4		7¾
9	285.4	45.2	286.4	45.4	287.4	45.5	288.4	45.7	289.4	45.8	290.4	46.0	291.4	46.1	292.4	46.3	81	
10	284.6	50.2	285.6	50.4	286.6	50.5	287.6	50.7	288.5	50.9	289.5	51.1	290.5	51.2	291.5	51.4	80	
11	283.7	55.1	284.7	55.3	285.7	55.5	286.6	55.7	287.6	55.9	288.6	56.1	289.6	56.3	290.6	56.5	79	
12	283.4	56.4	284.4	56.6	285.4	56.8	286.4	57.0	287.4	57.2	288.3	57.4	289.3	57.6	290.3	57.7		7
12	282.7	60.1	283.7	60.3	284.6	60.5	285.6	60.7	286.6	60.9	287.6	61.1	288.6	61.3	289.5	61.5	78	
13	281.6	65.0	282.6	65.2	283.5	65.5	284.5	65.7	285.5	65.9	286.5	66.1	287.4	66.4	288.4	66.6	77	
14	280.4	69.9	281.4	70.2	282.4	70.4	283.3	70.6	284.3	70.9	285.3	71.1	286.2	71.4	287.2	71.6	76	
15	280.3	70.2	281.3	70.5	282.3	70.7	283.2	71.0	284.2	71.2	285.2	71.4	286.2	71.7	287.1	71.9		6¾
15	279.2	74.8	280.0	75.1	281.1	75.3	282.1	75.6	283.0	75.8	284.0	76.1	284.9	76.4	285.9	76.6	75	
16	277.8	79.7	278.8	79.9	279.7	80.2	280.7	80.5	281.6	80.8	282.6	81.0	283.6	81.3	284.5	81.6	74	
17	276.6	83.9	277.5	84.2	278.5	84.5	279.4	84.8	280.4	85.1	281.3	85.3	282.3	85.6	283.3	85.9		6½
17	276.4	84.5	277.3	84.8	278.3	85.1	279.2	85.4	280.2	85.7	281.2	86.0	282.1	86.2	283.1	86.5	73	
18	274.9	89.3	275.8	89.6	276.8	89.9	277.7	90.2	278.7	90.5	279.6	90.9	280.6	91.2	281.5	91.5	72	
19	273.3	94.1	274.2	94.4	275.1	94.7	276.1	95.1	277.0	95.4	278.0	95.7	278.9	96.0	279.9	96.4	71	
20	272.1	97.4	273.0	97.7	274.0	98.0	274.9	98.4	275.9	98.7	276.8	99.0	277.8	99.4	278.7	99.7		6¼
21	271.6	98.8	272.5	99.2	273.5	99.5	274.4	99.9	275.3	100.2	276.3	100.6	277.2	100.9	278.1	101.2	70	
21	269.8	103.6	270.7	103.9	271.7	104.3	272.6	104.6	273.5	105.0	274.5	105.4	275.4	105.7	276.3	106.1	69	
22	268.0	108.3	268.9	108.6	269.8	109.0	270.7	109.4	271.7	109.8	272.6	110.1	273.5	110.5	274.4	110.9	68	
23	267.0	110.6	267.9	111.0	268.8	111.4	269.8	111.7	270.7	112.1	271.6	112.5	272.5	112.9	273.5	113.3		6
23	266.0	112.9	266.9	113.3	267.9	113.7	268.8	114.1	269.7	114.5	270.6	114.9	271.5	115.3	272.5	115.7	67	
24	264.0	117.5	264.9	118.0	265.8	118.4	266.8	118.8	267.7	119.2	268.6	119.6	269.5	120.0	270.4	120.4	66	
25	261.9	122.1	262.8	122.6	263.7	123.0	264.6	123.4	265.5	123.8	266.5	124.2	267.4	124.7	268.3	125.1	65	
26	261.3	123.6	262.2	124.0	263.1	124.4	264.0	124.8	264.9	125.3	265.8	125.7	266.7	126.1	267.6	126.6		5¾
26	259.8	126.7	260.7	127.1	261.5	127.6	262.4	128.0	263.3	128.4	264.2	128.9	265.1	129.3	266.0	129.8	64	
27	257.5	131.2	258.4	131.7	259.3	132.1	260.2	132.6	261.1	133.0	262.0	133.5	262.8	133.9	263.7	134.4	63	
28	255.2	135.7	256.1	136.1	256.9	136.6	257.8	137.1	258.7	137.6	259.6	138.0	260.5	138.5	261.4	139.0	62	
29	254.9	136.2	255.8	136.7	256.6	137.2	257.5	137.6	258.4	138.1	259.3	138.6	260.2	139.1	261.0	139.5		5½
29	252.8	140.1	253.6	140.6	254.5	141.1	255.4	141.6	256.3	142.0	257.1	142.5	258.0	143.0	258.9	143.5	61	
30	250.3	144.5	251.1	145.0	252.0	145.5	252.9	146.0	253.7	146.5	254.6	147.0	255.5	147.5	256.3	148.0	60	
31	247.9	148.6	248.7	149.1	249.6	149.6	250.5	150.1	251.3	150.6	252.2	151.1	253.0	151.7	253.9	152.2		5¼
31	247.7	148.8	248.6	149.4	249.4	149.9	250.3	150.4	251.2	150.9	252.0	151.4	252.9	151.9	253.7	152.5	59	
32	245.1	153.1	245.9	153.7	246.8	154.2	247.6	154.7	248.5	155.3	249.3	155.8	250.2	156.3	251.0	156.9	58	
33	242.4	157.4	243.2	157.9	244.1	158.5	244.9	159.0	245.7	159.6	246.6	160.1	247.4	160.7	248.2	161.2	57	
34	240.3	160.5	241.1	161.1	242.0	161.7	242.8	162.2	243.6	162.8	244.5	163.3	245.3	163.9	246.1	164.4		5
34	239.6	161.6	240.4	162.2	241.2	162.7	242.1	163.3	242.9	163.8	243.7	164.4	244.6	165.0	245.4	165.5	56	
35	236.7	165.8	237.6	166.3	238.4	166.9	239.2	167.5	240.0	168.1	240.8	168.6	241.6	169.2	242.5	169.8	55	
36	233.8	169.9	234.6	170.5	235.4	171.0	236.2	171.6	237.0	172.2	237.9	172.8	238.7	173.4	239.5	174.0	54	
37	232.1	172.2	232.9	172.8	233.7	173.3	234.5	173.9	235.3	174.5	236.1	175.1	236.9	175.7	237.7	176.3		4¾
37	230.8	173.9	231.6	174.5	232.4	175.1	233.2	175.7	234.0	176.3	234.8	176.9	235.6	177.5	236.4	178.1	53	
38	227.7	177.9	228.5	178.5	229.3	179.2	230.1	179.8	230.9	180.4	231.7	181.0	232.5	181.6	233.3	182.2	52	
39	224.6	181.9	225.4	182.5	226.1	183.1	226.9	183.8	227.7	184.4	228.5	185.0	229.3	185.6	230.0	186.3	51	
40	223.4	183.3	224.2	184.0	224.9	184.6	225.7	185.2	226.5	185.9	227.3	186.5	228.0	187.1	228.8	187.8		4½
40	221.4	185.8	222.2	186.4	222.9	187.1	223.7	187.7	224.5	188.3	225.2	189.0	226.0	189.6	226.7	190.3	50	
41	218.1	189.6	218.9	190.3	219.6	190.9	220.4	191.6	221.1	192.2	221.9	192.9	222.6	193.5	223.4	194.2	49	
42	214.8	193.4	215.5	194.0	216.3	194.7	217.0	195.4	217.7	196.1	218.5	196.7	219.2	197.4	220.0	198.1	48	
43	214.1	194.1	214.9	194.8	215.6	195.4	216.4	196.1	217.1	196.8	217.8	197.4	218.6	198.1	219.3	198.8		4¼
43	211.4	197.1	212.1	197.8	212.8	198.5	213.6	199.1	214.3	199.8	215.0	200.5	215.7	201.2	216.5	201.9	47	
44	207.9	200.8	208.6	201.5	209.3	202.1	210.0	202.8	210.8	203.5	211.5	204.2	212.2	204.9	212.9	205.6	46	
45	204.4	204.4	205.1	205.1	205.8	205.8	206.5	206.5	207.2	207.2	207.9	207.9	208.6	208.6	209.3	209.3	45	4
	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees	Points
	289		290		291		292		293		294		295		296			

DISTANCE.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse. Points	Crse. Degrees	Distance 297 Diff. Lat.	297 Departure	298 Diff. Lat.	298 Departure	299 Diff. Lat.	299 Departure	300 Diff. Lat.	300 Departure	301 Diff. Lat.	301 Departure	302 Diff. Lat.	302 Departure	303 Diff. Lat.	303 Departure	304 Diff. Lat.	304 Departure
0	0	297.0	00.0	298.0	00.0	299.0	00.0	300.0	00.0	301.0	00.0	302.0	00.0	303.0	00.0	304.0	00.0
	1	297.0	05.2	298.0	05.2	299.0	05.2	300.0	05.2	301.0	05.3	302.0	05.3	303.0	05.3	304.0	05.3
	2	296.8	10.4	297.8	10.4	298.8	10.4	299.8	10.5	300.8	10.5	301.8	10.5	302.8	10.6	303.8	10.6
0¼		296.6	14.6	297.6	14.6	298.6	14.7	299.6	14.7	300.6	14.8	301.6	14.8	302.6	14.9	303.6	14.9
	3	296.6	15.5	297.6	15.6	298.6	15.6	299.6	15.7	300.6	15.7	301.6	15.8	302.6	15.9	303.5	15.9
	4	296.3	20.7	297.3	20.8	298.3	20.9	299.3	20.9	300.3	21.0	301.3	21.1	302.2	21.1	303.2	21.2
	5	295.9	25.9	296.9	26.0	297.9	26.1	298.9	26.1	299.9	26.2	300.8	26.3	301.8	26.4	302.8	26.5
0½		295.6	29.1	296.6	29.2	297.6	29.3	298.6	29.4	299.6	29.5	300.5	29.6	301.5	29.7	302.5	29.8
	6	295.4	31.0	296.4	31.1	297.4	31.3	298.4	31.4	299.3	31.5	300.3	31.6	301.3	31.7	302.3	31.8
	7	294.8	36.2	295.8	36.3	296.8	36.4	297.8	36.6	298.7	36.7	299.7	36.8	300.7	36.9	301.7	37.0
	8	294.1	41.3	295.1	41.5	296.1	41.6	297.1	41.8	298.0	41.9	299.0	42.0	300.0	42.2	301.0	42.3
0¾		293.8	43.6	294.8	43.7	295.8	43.9	296.8	44.0	297.7	44.2	298.7	44.3	299.7	44.5	300.7	44.6
	9	293.3	46.5	294.3	46.6	295.3	46.8	296.3	46.9	297.3	47.1	298.3	47.2	299.3	47.4	300.3	47.6
	10	292.5	51.6	293.5	51.7	294.5	51.9	295.4	52.1	296.4	52.3	297.4	52.5	298.4	52.6	299.4	52.8
	11	291.5	56.7	292.5	56.9	293.5	57.1	294.5	57.2	295.4	57.4	296.4	57.6	297.4	57.8	298.4	58.0
1		291.3	57.9	292.3	58.1	293.3	58.3	294.2	58.5	295.2	58.7	296.2	58.9	297.2	59.1	298.2	59.3
	12	290.5	61.7	291.5	62.0	292.5	62.2	293.4	62.4	294.4	62.6	295.4	62.8	296.4	63.0	297.4	63.2
	13	289.4	66.8	290.4	67.0	291.3	67.3	292.3	67.5	293.3	67.7	294.3	67.9	295.2	68.1	296.2	68.4
	14	288.2	71.9	289.1	72.1	290.1	72.3	291.1	72.6	292.0	72.8	293.0	73.0	294.0	73.3	294.9	73.5
1¼		288.1	72.2	289.1	72.4	290.0	72.7	291.0	72.9	292.0	73.1	293.0	73.3	293.9	73.6	294.9	73.8
	15	286.9	76.9	287.8	77.1	288.8	77.4	289.8	77.6	290.7	77.9	291.7	78.2	292.7	78.4	293.6	78.7
	16	285.5	81.9	286.5	82.1	287.4	82.4	288.4	82.7	289.3	82.9	290.3	83.2	291.2	83.5	292.2	83.8
1½		284.2	86.2	285.2	86.5	286.1	86.8	287.1	87.1	288.0	87.3	289.0	87.6	289.9	87.9	290.9	88.2
	17	284.0	86.8	285.0	87.1	285.9	87.4	286.9	87.7	287.8	88.0	288.8	88.3	289.7	88.6	290.7	88.9
	18	282.5	91.8	283.4	92.1	284.4	92.4	285.3	92.7	286.3	93.0	287.2	93.3	288.2	93.7	289.1	94.0
	19	280.8	96.7	281.8	97.0	282.7	97.3	283.7	97.7	284.7	98.0	285.6	98.3	286.5	98.6	287.5	99.0
1¾		279.6	100.1	280.6	100.4	281.5	100.7	282.5	101.1	283.4	101.4	284.3	101.7	285.3	102.1	286.2	102.4
	20	279.1	101.6	280.0	101.9	281.0	102.3	281.9	102.6	282.9	103.0	283.8	103.3	284.7	103.6	285.7	104.0
	21	277.3	106.4	278.2	106.8	279.1	107.2	280.1	107.5	281.0	107.9	281.9	108.2	282.9	108.6	283.8	108.9
	22	275.4	111.3	276.3	111.6	277.2	112.0	278.2	112.4	279.1	112.7	280.0	113.1	280.9	113.5	281.9	113.9
2		274.4	113.7	275.3	114.0	276.2	114.4	277.2	114.8	278.1	115.2	279.0	115.6	279.9	116.0	280.9	116.3
	23	273.4	116.0	274.3	116.4	275.2	116.8	276.2	117.2	277.1	117.6	278.0	118.0	278.9	118.4	279.8	118.8
	24	271.3	120.8	272.2	121.2	273.2	121.6	274.1	122.0	275.0	122.4	275.9	122.8	276.8	123.2	277.7	123.7
	25	269.2	125.5	270.1	125.9	271.0	126.4	271.9	126.8	272.8	127.2	273.7	127.6	274.6	128.0	275.5	128.4
2¼		268.5	127.0	269.4	127.4	270.3	127.8	271.2	128.3	272.1	128.7	273.0	129.1	273.9	129.5	274.8	130.0
	26	266.9	130.2	267.8	130.6	268.7	131.1	269.6	131.5	270.5	132.0	271.4	132.4	272.3	132.8	273.2	133.3
	27	264.6	134.8	265.5	135.3	266.4	135.7	267.3	136.2	268.2	136.7	269.1	137.1	270.0	137.6	270.9	138.0
	28	262.2	139.4	263.1	139.9	264.0	140.4	264.9	140.8	265.7	141.3	266.6	141.8	267.5	142.3	268.4	142.7
2½		261.9	140.0	262.8	140.5	263.7	140.9	264.6	141.4	265.4	141.9	266.3	142.4	267.2	142.8	268.1	143.3
	29	259.8	144.0	260.6	144.5	261.5	145.0	262.4	145.4	263.2	145.9	264.1	146.4	265.0	146.9	265.9	147.4
	30	257.2	148.5	258.1	149.0	258.9	149.5	259.8	150.0	260.7	150.5	261.5	151.0	262.4	151.5	263.3	152.0
2¾		254.7	152.7	255.6	153.2	256.5	153.7	257.3	154.2	258.2	154.7	259.0	155.3	259.9	155.8	260.8	156.3
	31	254.6	153.0	255.4	153.5	256.3	154.0	257.1	154.5	258.0	155.0	258.9	155.5	259.7	156.1	260.6	156.6
	32	251.9	157.4	252.7	157.9	253.6	158.4	254.4	159.0	255.3	159.5	256.1	160.0	257.0	160.5	257.8	161.1
	33	249.1	161.8	249.9	162.3	250.8	162.8	251.6	163.4	252.4	163.9	253.3	164.4	254.1	165.0	255.0	165.5
3		246.9	165.0	247.8	165.5	248.6	166.1	249.4	166.7	250.3	167.2	251.1	167.8	251.9	168.3	252.8	168.9
	34	246.2	166.1	247.1	166.6	247.9	167.2	248.7	167.8	249.5	168.3	250.4	168.9	251.2	169.4	252.0	170.0
	35	243.3	170.4	244.1	170.9	244.9	171.5	245.7	172.1	246.6	172.6	247.4	173.2	248.2	173.8	249.0	174.3
	36	240.3	174.6	241.1	175.2	241.9	175.7	242.7	176.3	243.5	176.9	244.3	177.5	245.1	178.1	246.0	178.7
3¼		238.6	176.9	239.4	177.5	240.2	178.1	241.0	178.7	241.8	179.3	242.6	179.9	243.4	180.5	244.2	181.1
	37	237.2	178.7	238.0	179.3	238.8	179.9	239.6	180.5	240.4	181.1	241.2	181.7	242.0	182.4	242.7	183.0
	38	234.0	182.9	234.8	183.5	235.6	184.1	236.4	184.7	237.2	185.3	238.0	185.9	238.8	186.6	239.6	187.2
	39	230.8	186.9	231.6	187.5	232.4	188.2	233.1	188.8	233.9	189.4	234.7	190.0	235.5	190.6	236.3	191.3
3½		229.6	188.4	230.4	189.0	231.1	189.7	231.9	190.3	232.7	191.0	233.5	191.6	234.2	192.2	235.0	192.9
	40	227.5	190.9	228.3	191.6	229.0	192.2	229.8	192.8	230.6	193.5	231.3	194.1	232.1	194.8	232.9	195.4
	41	224.1	194.8	224.9	195.5	225.7	196.2	226.4	196.8	227.2	197.5	227.9	198.1	228.7	198.8	229.4	199.4
	42	220.7	198.7	221.5	199.4	222.2	200.1	222.9	200.7	223.7	201.4	224.4	202.1	225.2	202.8	225.9	203.4
3¾		220.1	199.5	220.8	200.1	221.5	200.8	222.3	201.5	223.0	202.1	223.7	202.8	224.5	203.5	225.2	204.1
	43	217.2	202.6	217.9	203.2	218.7	203.9	219.4	204.6	220.1	205.3	220.9	206.0	221.6	206.7	222.3	207.3
	44	213.6	206.3	214.4	207.0	215.1	207.7	215.8	208.4	216.5	209.1	217.2	209.8	218.0	210.5	218.7	211.2
4	45	210.0	210.0	210.7	210.7	211.4	211.4	212.1	212.1	212.8	212.8	213.5	213.5	214.3	214.3	215.0	215.0
Points	Degrees	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.
Crse.		Distance 297		298		299		300		301		302		303		304	

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MERIDIONAL PARTS.

DEGREES OF LATITUDE.

Minutes of Lat.	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	Minutes of Lat.
0	0.0	60.0	120.0	180.1	240.2	300.4	360.7	421.1	481.6	542.2	603.1	664.1	725.3	786.8	848.5	910.5	0
1	1.0	61.0	121.0	181.1	241.2	301.4	361.7	422.1	482.6	543.3	604.1	665.1	726.3	787.8	849.5	911.5	1
2	2.0	62.0	122.0	182.1	242.2	302.4	362.7	423.1	483.6	544.3	605.1	666.1	727.4	788.8	850.6	912.5	2
3	3.0	63.0	123.0	183.1	243.2	303.4	363.7	424.1	484.6	545.3	606.2	667.2	728.4	789.9	851.6	913.6	3
4	4.0	64.0	124.0	184.1	244.2	304.4	364.7	425.1	485.6	546.3	607.2	668.2	729.4	790.9	852.6	914.6	4
5	5.0	65.0	125.0	185.1	245.2	305.4	365.7	426.1	486.6	547.3	608.2	669.2	730.4	791.9	853.6	915.6	5
6	6.0	66.0	126.0	186.1	246.2	306.4	366.7	427.1	487.6	548.3	609.2	670.2	731.5	792.9	854.7	916.7	6
7	7.0	67.0	127.0	187.1	247.2	307.4	367.7	428.1	488.6	549.3	610.2	671.2	732.5	794.0	855.7	917.7	7
8	8.0	68.0	128.0	188.1	248.2	308.4	368.7	429.1	489.6	550.3	611.2	672.2	733.5	795.0	856.7	918.8	8
9	9.0	69.0	129.0	189.1	249.2	309.4	369.7	430.1	490.7	551.4	612.2	673.3	734.5	796.0	857.8	919.8	9
10	10.0	70.0	130.0	190.1	250.2	310.4	370.7	431.1	491.7	552.4	613.2	674.3	735.6	797.0	858.8	920.8	10
11	11.0	71.0	131.0	191.1	251.2	311.4	371.7	432.1	492.7	553.4	614.2	675.3	736.6	798.1	859.8	921.9	11
12	12.0	72.0	132.0	192.1	252.2	312.4	372.7	433.1	493.7	554.4	615.3	676.3	737.6	799.1	860.9	922.9	12
13	13.0	73.0	133.0	193.1	253.2	313.4	373.7	434.2	494.7	555.4	616.3	677.3	738.6	800.1	861.9	923.9	13
14	14.0	74.0	134.0	194.1	254.2	314.4	374.7	435.2	495.7	556.4	617.3	678.4	739.6	801.2	862.9	925.0	14
15	15.0	75.0	135.0	195.1	255.2	315.4	375.7	436.2	496.7	557.4	618.3	679.4	740.7	802.2	864.0	926.0	15
16	16.0	76.0	136.0	196.1	256.2	316.4	376.8	437.2	497.7	558.4	619.3	680.4	741.7	803.2	865.0	927.0	16
17	17.0	77.0	137.0	197.1	257.2	317.5	377.8	438.2	498.7	559.4	620.3	681.4	742.7	804.2	866.0	928.1	17
18	18.0	78.0	138.0	198.1	258.2	318.5	378.8	439.2	499.8	560.5	621.4	682.4	743.7	805.3	867.1	929.1	18
19	19.0	79.0	139.0	199.1	259.2	319.5	379.8	440.2	500.8	561.5	622.4	683.5	744.8	806.3	868.1	930.1	19
20	20.0	80.0	140.0	200.1	260.2	320.5	380.8	441.2	501.8	562.5	623.4	684.5	745.8	807.3	869.1	931.2	20
21	21.0	81.0	141.0	201.1	261.3	321.5	381.8	442.2	502.8	563.5	624.4	685.5	746.8	808.4	870.1	932.2	21
22	22.0	82.0	142.0	202.1	262.3	322.5	382.8	443.2	503.8	564.5	625.4	686.5	747.8	809.4	871.2	933.3	22
23	23.0	83.0	143.0	203.1	263.3	323.5	383.8	444.2	504.8	565.5	626.4	687.5	748.9	810.4	872.2	934.3	23
24	24.0	84.0	144.0	204.1	264.3	324.5	384.8	445.2	505.8	566.6	627.4	688.6	749.9	811.4	873.2	935.3	24
25	25.0	85.0	145.0	205.1	265.3	325.5	385.8	446.3	506.8	567.6	628.5	689.6	750.9	812.5	874.3	936.4	25
26	26.0	86.0	146.0	206.1	266.3	326.5	386.8	447.3	507.8	568.6	629.5	690.6	751.9	813.5	875.3	937.4	26
27	27.0	87.0	147.0	207.1	267.3	327.5	387.8	448.3	508.9	569.6	630.5	691.6	753.0	814.5	876.3	938.4	27
28	28.0	88.0	148.0	208.1	268.3	328.5	388.8	449.3	509.9	570.6	631.5	692.6	754.0	815.5	877.4	939.5	28
29	29.0	89.0	149.0	209.1	269.3	329.5	389.8	450.3	510.9	571.6	632.5	693.7	755.0	816.6	878.4	940.5	29
30	30.0	90.0	150.0	210.1	270.3	330.5	390.8	451.3	511.9	572.6	633.6	694.7	756.0	817.6	879.4	941.6	30
31	31.0	91.0	151.1	211.1	271.3	331.5	391.8	452.3	512.9	573.6	634.6	695.7	757.1	818.6	880.5	942.6	31
32	32.0	92.0	152.1	212.1	272.3	332.5	392.9	453.3	513.9	574.7	635.6	696.7	758.1	819.7	881.5	943.6	32
33	33.0	93.0	153.1	213.1	273.3	333.5	393.9	454.3	514.9	575.7	636.6	697.7	759.1	820.7	882.5	944.7	33
34	34.0	94.0	154.1	214.1	274.3	334.5	394.9	455.3	515.9	576.7	637.6	698.8	760.1	821.7	883.6	945.7	34
35	35.0	95.0	155.1	215.1	275.3	335.5	395.9	456.3	516.9	577.7	638.6	699.8	761.1	822.7	884.6	946.7	35
36	36.0	96.0	156.1	216.1	276.3	336.5	396.9	457.3	518.0	578.7	639.7	700.8	762.2	823.8	885.6	947.8	36
37	37.0	97.0	157.1	217.1	277.3	337.5	397.9	458.4	519.0	579.7	640.7	701.8	763.2	824.8	886.7	948.8	37
38	38.0	98.0	158.1	218.2	278.3	338.5	398.9	459.4	520.0	580.7	641.7	702.8	764.2	825.8	887.7	949.9	38
39	39.0	99.0	159.1	219.2	279.3	339.6	399.9	460.4	521.0	581.8	642.7	703.9	765.2	826.9	888.7	950.9	39
40	40.0	100.0	160.1	220.2	280.3	340.6	400.9	461.4	522.0	582.8	643.7	704.9	766.3	827.9	889.8	951.9	40
41	41.0	101.0	161.1	221.2	281.3	341.6	401.9	462.4	523.0	583.8	644.7	705.9	767.3	828.9	890.8	953.0	41
42	42.0	102.0	162.1	222.2	282.3	342.6	402.9	463.4	524.0	584.8	645.8	706.9	768.3	829.9	891.8	954.0	42
43	43.0	103.0	163.1	223.2	283.3	343.6	403.9	464.4	525.0	585.8	646.8	707.9	769.3	831.0	892.9	955.0	43
44	44.0	104.0	164.1	224.2	284.3	344.6	404.9	465.4	526.0	586.8	647.8	709.0	770.4	832.0	893.9	956.1	44
45	45.0	105.0	165.1	225.2	285.3	345.6	405.9	466.4	527.1	587.8	648.8	710.0	771.4	833.0	894.9	957.1	45
46	46.0	106.0	166.1	226.2	286.3	346.6	407.0	467.4	528.1	588.9	649.8	711.0	772.4	834.1	896.0	958.2	46
47	47.0	107.0	167.1	227.2	287.3	347.6	408.0	468.4	529.1	589.9	650.8	712.0	773.4	835.1	897.0	959.2	47
48	48.0	108.0	168.1	228.2	288.3	348.6	409.0	469.5	530.1	590.9	651.9	713.1	774.5	836.1	898.0	960.2	48
49	49.0	109.0	169.1	229.2	289.3	349.6	410.0	470.5	531.1	591.9	652.9	714.1	775.5	837.2	899.1	961.3	49
50	50.0	110.0	170.1	230.2	290.3	350.6	411.0	471.5	532.1	592.9	653.9	715.1	776.5	838.2	900.1	962.3	50
51	51.0	111.0	171.1	231.2	291.3	351.6	412.0	472.5	533.1	593.9	654.9	716.1	777.5	839.2	901.2	963.4	51
52	52.0	112.0	172.1	232.2	292.4	352.6	413.0	473.5	534.1	595.0	655.9	717.1	778.6	840.2	902.2	964.4	52
53	53.0	113.0	173.1	233.2	293.4	353.6	414.0	474.5	535.1	596.0	657.0	718.2	779.6	841.3	903.2	965.5	53
54	54.0	114.0	174.1	234.2	294.4	354.6	415.0	475.5	536.2	597.0	658.0	719.2	780.6	842.3	904.3	966.5	54
55	55.0	115.0	175.1	235.2	295.4	355.6	416.0	476.5	537.2	598.0	659.0	720.2	781.7	843.3	905.3	967.5	55
56	56.0	116.0	176.1	236.2	296.4	356.6	417.0	477.5	538.2	599.0	660.0	721.2	782.7	844.4	906.3	968.6	56
57	57.0	117.0	177.1	237.2	297.4	357.6	418.0	478.5	539.2	600.0	661.0	722.3	783.7	845.4	907.4	969.6	57
58	58.0	118.0	178.1	238.2	298.4	358.6	419.0	479.5	540.2	601.0	662.1	723.3	784.7	846.4	908.4	970.7	58
59	59.0	119.0	179.1	239.2	299.4	359.7	420.0	480.6	541.2	602.1	663.1	724.3	785.8	847.5	909.4	971.7	59
Minutes of Lat.	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	Minutes of Lat.

DEGREES OF LATITUDE.

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Minutes of Lat.	DEGREES OF LATITUDE.													Minutes of Lat.
	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	
0	972.7	1035.3	1098.2	1161.5	1225.1	1289.2	1353.7	1418.6	1484.1	1550.0	1616.5	1683.5	1751.2	0
1	973.8	1036.3	1099.3	1162.5	1226.2	1290.3	1354.8	1419.7	1485.1	1551.1	1617.6	1684.6	1752.3	1
2	974.8	1037.4	1100.3	1163.6	1227.3	1291.3	1355.8	1420.8	1486.2	1552.2	1618.7	1685.8	1753.4	2
3	975.9	1038.4	1101.4	1164.7	1228.3	1292.4	1356.9	1421.9	1487.3	1553.3	1619.8	1686.9	1754.6	3
4	976.9	1039.5	1102.4	1165.7	1229.4	1293.5	1358.0	1423.0	1488.4	1554.4	1620.9	1688.0	1755.7	4
5	978.0	1040.5	1103.5	1166.8	1230.5	1294.5	1359.1	1424.1	1489.5	1555.5	1622.0	1689.1	1756.8	5
6	979.0	1041.6	1104.5	1167.8	1231.5	1295.6	1360.2	1425.1	1490.6	1556.6	1623.1	1690.2	1758.0	6
7	980.0	1042.6	1105.6	1168.9	1232.6	1296.7	1361.2	1426.2	1491.7	1557.7	1624.3	1691.4	1759.1	7
8	981.1	1043.7	1106.6	1169.9	1233.7	1297.8	1362.3	1427.3	1492.8	1558.8	1625.4	1692.5	1760.2	8
9	982.1	1044.7	1107.7	1171.0	1234.7	1298.8	1363.4	1428.4	1493.9	1559.9	1626.5	1693.6	1761.4	9
10	983.1	1045.8	1108.7	1172.1	1235.8	1299.9	1364.5	1429.5	1495.0	1561.0	1627.6	1694.7	1762.5	10
11	984.2	1046.8	1109.8	1173.1	1236.8	1301.0	1365.6	1430.6	1496.1	1562.1	1628.7	1695.9	1763.6	11
12	985.2	1047.9	1110.8	1174.2	1237.9	1302.1	1366.6	1431.7	1497.2	1563.2	1629.8	1697.0	1764.8	12
13	986.3	1048.9	1111.9	1175.2	1239.0	1303.1	1367.7	1432.8	1498.3	1564.3	1630.9	1698.1	1765.9	13
14	987.3	1049.9	1112.9	1176.3	1240.0	1304.2	1368.8	1433.8	1499.4	1565.5	1632.1	1699.2	1767.0	14
15	988.3	1051.0	1114.0	1177.4	1241.1	1305.3	1369.9	1434.9	1500.5	1566.6	1633.2	1700.4	1768.2	15
16	989.4	1052.0	1115.0	1178.4	1242.2	1306.3	1371.0	1436.0	1501.6	1567.7	1634.3	1701.5	1769.3	16
17	990.4	1053.1	1116.1	1179.5	1243.2	1307.4	1372.0	1437.1	1502.7	1568.8	1635.4	1702.6	1770.4	17
18	991.5	1054.1	1117.2	1180.5	1244.3	1308.5	1373.1	1438.2	1503.8	1569.9	1636.5	1703.7	1771.6	18
19	992.5	1055.2	1118.2	1181.6	1245.4	1309.6	1374.2	1439.3	1504.9	1571.0	1637.6	1704.9	1772.7	19
20	993.6	1056.2	1119.3	1182.7	1246.4	1310.6	1375.3	1440.4	1506.0	1572.1	1638.8	1706.0	1773.8	20
21	994.6	1057.3	1120.3	1183.7	1247.5	1311.7	1376.4	1441.5	1507.1	1573.2	1639.9	1707.1	1775.0	21
22	995.6	1058.3	1121.4	1184.8	1248.6	1312.8	1377.4	1442.6	1508.2	1574.3	1641.0	1708.2	1776.1	22
23	996.7	1059.4	1122.4	1185.8	1249.6	1313.9	1378.5	1443.6	1509.3	1575.4	1642.1	1709.4	1777.3	23
24	997.7	1060.4	1123.5	1186.9	1250.7	1314.9	1379.6	1444.7	1510.4	1576.5	1643.2	1710.5	1778.4	24
25	998.8	1061.5	1124.5	1188.0	1251.8	1316.0	1380.7	1445.8	1511.5	1577.6	1644.3	1711.6	1779.5	25
26	999.8	1062.5	1125.6	1189.0	1252.8	1317.1	1381.8	1446.9	1512.6	1578.7	1645.4	1712.7	1780.7	26
27	1000.8	1063.6	1126.6	1190.1	1253.9	1318.2	1382.8	1448.0	1513.7	1579.8	1646.6	1713.9	1781.8	27
28	1001.9	1064.6	1127.7	1191.1	1255.0	1319.2	1383.9	1449.1	1514.8	1580.9	1647.7	1715.0	1782.9	28
29	1002.9	1065.7	1128.7	1192.2	1256.0	1320.3	1385.0	1450.2	1515.9	1582.1	1648.8	1716.1	1784.1	29
30	1004.0	1066.7	1129.8	1193.3	1257.1	1321.4	1386.1	1451.3	1517.0	1583.2	1649.9	1717.3	1785.2	30
31	1005.0	1067.8	1130.9	1194.3	1258.2	1322.4	1387.2	1452.4	1518.1	1584.3	1651.0	1718.4	1786.4	31
32	1006.1	1068.8	1131.9	1195.4	1259.2	1323.5	1388.3	1453.5	1519.2	1585.4	1652.2	1719.5	1787.5	32
33	1007.1	1069.9	1133.0	1196.4	1260.3	1324.6	1389.3	1454.6	1520.3	1586.5	1653.3	1720.6	1788.6	33
34	1008.1	1070.9	1134.0	1197.5	1261.4	1325.7	1390.4	1455.6	1521.4	1587.6	1654.4	1721.8	1789.8	34
35	1009.2	1072.0	1135.1	1198.6	1262.4	1326.7	1391.5	1456.7	1522.5	1588.7	1655.5	1722.9	1790.9	35
36	1010.2	1073.0	1136.1	1199.6	1263.5	1327.8	1392.6	1457.8	1523.6	1589.8	1656.6	1724.0	1792.0	36
37	1011.3	1074.1	1137.2	1200.7	1264.6	1328.9	1393.7	1458.9	1524.7	1590.9	1657.7	1725.2	1793.2	37
38	1012.3	1075.1	1138.2	1201.7	1265.7	1330.0	1394.8	1460.0	1525.8	1592.0	1658.9	1726.3	1794.3	38
39	1013.4	1076.2	1139.3	1202.8	1266.7	1331.1	1395.8	1461.1	1526.9	1593.1	1660.0	1727.4	1795.5	39
40	1014.4	1077.2	1140.4	1203.9	1267.8	1332.1	1396.9	1462.2	1528.0	1594.2	1661.1	1728.5	1796.6	40
41	1015.4	1078.3	1141.4	1204.9	1268.9	1333.2	1398.0	1463.3	1529.1	1595.4	1662.2	1729.7	1797.7	41
42	1016.5	1079.3	1142.5	1206.0	1269.9	1334.3	1399.1	1464.4	1530.2	1596.5	1663.3	1730.8	1798.9	42
43	1017.5	1080.4	1143.5	1207.1	1271.0	1335.4	1400.2	1465.5	1531.3	1597.6	1664.5	1731.9	1800.0	43
44	1018.6	1081.4	1144.6	1208.1	1272.1	1336.4	1401.3	1466.6	1532.4	1598.7	1665.6	1733.1	1801.2	44
45	1019.6	1082.5	1145.6	1209.2	1273.1	1337.5	1402.3	1467.6	1533.5	1599.8	1666.7	1734.2	1802.3	45
46	1020.7	1083.5	1146.7	1210.2	1274.2	1338.6	1403.4	1468.7	1534.6	1600.9	1667.8	1735.3	1803.4	46
47	1021.7	1084.6	1147.7	1211.3	1275.3	1339.7	1404.5	1469.8	1535.7	1602.0	1668.9	1736.4	1804.6	47
48	1022.8	1085.6	1148.8	1212.4	1276.3	1340.7	1405.6	1470.9	1536.8	1603.1	1670.1	1737.6	1805.7	48
49	1023.8	1086.7	1149.9	1213.4	1277.4	1341.8	1406.7	1472.0	1537.9	1604.2	1671.2	1738.7	1806.9	49
50	1024.8	1087.7	1150.9	1214.5	1278.5	1342.9	1407.8	1473.1	1539.0	1605.3	1672.3	1739.8	1808.0	50
51	1025.9	1088.8	1152.0	1215.6	1279.6	1344.0	1408.9	1474.2	1540.1	1606.5	1673.4	1741.0	1809.1	51
52	1026.9	1089.8	1153.0	1216.6	1280.6	1345.1	1409.9	1475.3	1541.2	1607.6	1674.5	1742.1	1810.3	52
53	1028.0	1090.9	1154.1	1217.7	1281.7	1346.1	1411.0	1476.4	1542.3	1608.7	1675.7	1743.2	1811.4	53
54	1029.0	1091.9	1155.1	1218.8	1282.8	1347.2	1412.1	1477.5	1543.4	1609.8	1676.8	1744.4	1812.6	54
55	1030.1	1093.0	1156.2	1219.8	1283.8	1348.3	1413.2	1478.6	1544.5	1610.9	1677.9	1745.5	1813.7	55
56	1031.1	1094.0	1157.3	1220.9	1284.9	1349.4	1414.3	1479.7	1545.6	1612.0	1679.0	1746.6	1814.9	56
57	1032.2	1095.1	1158.3	1221.9	1286.0	1350.4	1415.4	1480.8	1546.7	1613.1	1680.1	1747.8	1816.0	57
58	1033.2	1096.1	1159.4	1223.0	1287.0	1351.5	1416.5	1481.9	1547.8	1614.2	1681.3	1748.9	1817.1	58
59	1034.3	1097.2	1160.4	1224.1	1288.1	1352.6	1417.5	1483.0	1548.9	1615.4	1682.4	1750.0	1818.3	59
Minutes of Lat.	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	Minutes of Lat.
	DEGREES OF LATITUDE.													

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Minutes of Lat.	DEGREES OF LATITUDE. 29°	30°	31°	32°	33°	34°	35°	36°	37°	38°	39°	40°	41°	Minutes of Lat.
0	1819.4	1888.4	1958.0	2028.4	2099.5	2171.5	2244.3	2318.0	2392.6	2468.3	2544.9	2622.7	2701.6	0
1	1820.6	1889.5	1959.2	2029.6	2100.7	2172.7	2245.5	2319.2	2393.9	2469.5	2546.2	2624.0	2702.9	1
2	1821.7	1890.7	1960.3	2030.7	2101.9	2173.9	2246.7	2320.5	2395.1	2470.8	2547.5	2625.3	2704.2	2
3	1822.9	1891.8	1961.5	2031.9	2103.1	2175.1	2247.9	2321.7	2396.4	2472.1	2548.8	2626.6	2705.6	3
4	1824.0	1893.0	1962.7	2033.1	2104.3	2176.3	2249.2	2322.9	2397.6	2473.3	2550.1	2627.9	2706.9	4
5	1825.2	1894.1	1963.8	2034.3	2105.5	2177.5	2250.4	2324.2	2398.9	2474.6	2551.4	2629.2	2708.2	5
6	1826.3	1895.3	1965.0	2035.5	2106.7	2178.7	2251.6	2325.4	2400.1	2475.9	2552.7	2630.5	2709.5	6
7	1827.4	1896.5	1966.2	2036.6	2107.9	2179.9	2252.8	2326.6	2401.4	2477.1	2553.9	2631.8	2710.9	7
8	1828.6	1897.6	1967.3	2037.8	2109.1	2181.1	2254.1	2327.9	2402.7	2478.4	2555.2	2633.1	2712.2	8
9	1829.7	1898.8	1968.5	2039.0	2110.3	2182.3	2255.3	2329.1	2403.9	2479.7	2556.5	2634.4	2713.5	9
10	1830.9	1899.9	1969.7	2040.2	2111.5	2183.5	2256.5	2330.4	2405.2	2481.0	2557.8	2635.8	2714.9	10
11	1832.0	1901.1	1970.9	2041.4	2112.7	2184.8	2257.7	2331.6	2406.4	2482.2	2559.1	2637.1	2716.2	11
12	1833.2	1902.2	1972.0	2042.5	2113.8	2186.0	2258.9	2332.8	2407.7	2483.5	2560.4	2638.4	2717.5	12
13	1834.3	1903.4	1973.2	2043.7	2115.0	2187.2	2260.2	2334.1	2408.9	2484.8	2561.7	2639.7	2718.8	13
14	1835.5	1904.6	1974.4	2044.9	2116.2	2188.4	2261.4	2335.3	2410.2	2486.1	2563.0	2641.0	2720.2	14
15	1836.6	1905.7	1975.5	2046.1	2117.4	2189.6	2262.6	2336.6	2411.4	2487.3	2564.3	2642.3	2721.5	15
16	1837.7	1906.9	1976.7	2047.3	2118.6	2190.8	2263.8	2337.8	2412.7	2488.6	2565.6	2643.6	2722.8	16
17	1838.9	1908.0	1977.9	2048.5	2119.8	2192.0	2265.1	2339.0	2414.0	2489.9	2566.8	2644.9	2724.2	17
18	1840.0	1909.2	1979.1	2049.6	2121.0	2193.2	2266.3	2340.3	2415.2	2491.1	2568.1	2646.2	2725.5	18
19	1841.2	1910.3	1980.2	2050.8	2122.2	2194.4	2267.5	2341.5	2416.5	2492.4	2569.4	2647.5	2726.8	19
20	1842.3	1911.5	1981.4	2052.0	2123.4	2195.6	2268.7	2342.8	2417.7	2493.7	2570.7	2648.9	2728.2	20
21	1843.5	1912.7	1982.6	2053.2	2124.6	2196.9	2270.0	2344.0	2419.0	2495.0	2572.0	2650.2	2729.5	21
22	1844.6	1913.8	1983.7	2054.4	2125.8	2198.1	2271.2	2345.2	2420.2	2496.2	2573.3	2651.5	2730.8	22
23	1845.8	1915.0	1984.9	2055.6	2127.0	2199.3	2272.4	2346.5	2421.5	2497.5	2574.6	2652.8	2732.2	23
24	1846.9	1916.1	1986.1	2056.7	2128.2	2200.5	2273.7	2347.7	2422.8	2498.8	2575.9	2654.1	2733.5	24
25	1848.1	1917.3	1987.2	2057.9	2129.4	2201.7	2274.9	2349.0	2424.0	2500.1	2577.2	2655.4	2734.8	25
26	1849.2	1918.5	1988.4	2059.1	2130.6	2202.9	2276.1	2350.2	2425.3	2501.3	2578.5	2656.7	2736.2	26
27	1850.4	1919.6	1989.6	2060.3	2131.8	2204.1	2277.3	2351.5	2426.5	2502.6	2579.8	2658.0	2737.5	27
28	1851.5	1920.8	1990.8	2061.5	2133.0	2205.3	2278.6	2352.7	2427.8	2503.9	2581.1	2659.4	2738.8	28
29	1852.7	1921.9	1991.9	2062.7	2134.2	2206.6	2279.8	2353.9	2429.1	2505.2	2582.4	2660.7	2740.2	29
30	1853.8	1923.1	1993.1	2063.9	2135.4	2207.8	2281.0	2355.2	2430.3	2506.5	2583.7	2662.0	2741.5	30
31	1855.0	1924.3	1994.3	2065.0	2136.6	2209.0	2282.2	2356.4	2431.6	2507.7	2585.0	2663.3	2742.8	31
32	1856.1	1925.4	1995.4	2066.2	2137.8	2210.2	2283.5	2357.7	2432.8	2509.0	2586.3	2664.6	2744.2	32
33	1857.3	1926.6	1996.6	2067.4	2139.0	2211.4	2284.7	2358.9	2434.1	2510.3	2587.6	2665.9	2745.5	33
34	1858.4	1927.7	1997.8	2068.6	2140.2	2212.6	2285.9	2360.2	2435.4	2511.6	2588.9	2667.3	2746.8	34
35	1859.6	1928.9	1999.0	2069.8	2141.4	2213.8	2287.2	2361.4	2436.6	2512.9	2590.1	2668.6	2748.2	35
36	1860.7	1930.1	2000.1	2071.0	2142.6	2215.1	2288.4	2362.7	2437.9	2514.1	2591.4	2669.9	2749.5	36
37	1861.9	1931.2	2001.3	2072.2	2143.8	2216.3	2289.6	2363.9	2439.1	2515.4	2592.7	2671.2	2750.8	37
38	1863.0	1932.4	2002.5	2073.3	2145.0	2217.5	2290.9	2365.1	2440.4	2516.7	2594.0	2672.5	2752.2	38
39	1864.2	1933.6	2003.7	2074.5	2146.2	2218.7	2292.1	2366.4	2441.7	2518.0	2595.3	2673.8	2753.5	39
40	1865.3	1934.7	2004.8	2075.7	2147.4	2219.9	2293.3	2367.6	2442.9	2519.2	2596.6	2675.2	2754.9	40
41	1866.5	1935.9	2006.0	2076.9	2148.6	2221.1	2294.5	2368.9	2444.2	2520.5	2597.9	2676.5	2756.2	41
42	1867.6	1937.0	2007.2	2078.1	2149.8	2222.3	2295.8	2370.1	2445.5	2521.8	2599.2	2677.8	2757.5	42
43	1868.8	1938.2	2008.4	2079.3	2151.0	2223.6	2297.0	2371.4	2446.7	2523.1	2600.5	2679.1	2758.9	43
44	1869.9	1939.4	2009.5	2080.5	2152.2	2224.8	2298.2	2372.6	2448.0	2524.4	2601.8	2680.4	2760.2	44
45	1871.1	1940.5	2010.7	2081.7	2153.4	2226.0	2299.5	2373.9	2449.3	2525.7	2603.1	2681.8	2761.6	45
46	1872.2	1941.7	2011.9	2082.9	2154.6	2227.2	2300.7	2375.1	2450.5	2526.9	2604.4	2683.1	2762.9	46
47	1873.4	1942.9	2013.1	2084.0	2155.8	2228.4	2301.9	2376.4	2451.8	2528.2	2605.7	2684.4	2764.2	47
48	1874.5	1944.0	2014.2	2085.2	2157.0	2229.7	2303.2	2377.6	2453.0	2529.5	2607.0	2685.7	2765.6	48
49	1875.7	1945.2	2015.4	2086.4	2158.2	2230.9	2304.4	2378.9	2454.3	2530.8	2608.3	2687.0	2766.9	49
50	1876.8	1946.4	2016.6	2087.6	2159.4	2232.1	2305.6	2380.1	2455.6	2532.1	2609.6	2688.4	2768.3	50
51	1878.0	1947.5	2017.8	2088.8	2160.6	2233.3	2306.9	2381.4	2456.8	2533.4	2610.9	2689.7	2769.6	51
52	1879.1	1948.7	2019.0	2090.0	2161.8	2234.5	2308.1	2382.6	2458.1	2534.6	2612.3	2691.0	2771.0	52
53	1880.3	1949.8	2020.1	2091.2	2163.0	2235.7	2309.3	2383.9	2459.4	2535.9	2613.6	2692.3	2772.3	53
54	1881.4	1951.0	2021.3	2092.4	2164.2	2237.0	2310.6	2385.1	2460.6	2537.2	2614.9	2693.6	2773.6	54
55	1882.6	1952.2	2022.5	2093.6	2165.4	2238.2	2311.8	2386.4	2461.9	2538.5	2616.2	2695.0	2775.0	55
56	1883.8	1953.3	2023.7	2094.8	2166.7	2239.4	2313.0	2387.6	2463.2	2539.8	2617.5	2696.3	2776.3	56
57	1884.9	1954.5	2024.8	2096.0	2167.9	2240.6	2314.3	2388.9	2464.5	2541.1	2618.8	2697.6	2777.7	57
58	1886.1	1955.7	2026.0	2097.1	2169.1	2241.8	2315.5	2390.1	2465.7	2542.4	2620.1	2698.9	2779.0	58
59	1887.2	1956.8	2027.2	2098.3	2170.3	2243.1	2316.7	2391.4	2467.0	2543.6	2621.4	2700.3	2780.4	59
Minutes of Lat.	29°	30°	31°	32°	33°	34°	35°	36°	37°	38°	39°	40°	41°	Minutes of Lat.
	DEGREES OF LATITUDE.													

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Minutes of Lat.	DEGREES OF LATITUDE. 42°	43°	44°	45°	46°	47°	48°	49°	50°	51°	52°	53°	54°	Minutes of Lat.
0	2781.7	2863.1	2945.8	3029.9	3115.5	3202.7	3291.5	3382.1	3474.5	3568.8	3665.2	3763.8	3864.6	0
1	2783.1	2864.5	2947.2	3031.3	3117.0	3204.2	3293.0	3383.6	3476.0	3570.4	3666.8	3765.4	3866.3	1
2	2784.4	2865.8	2948.6	3032.8	3118.4	3205.6	3294.5	3385.1	3477.6	3572.0	3668.4	3767.1	3868.0	2
3	2785.7	2867.2	2950.0	3034.2	3119.9	3207.1	3296.0	3386.7	3479.1	3573.6	3670.1	3768.7	3869.7	3
4	2787.1	2868.6	2951.4	3035.6	3121.3	3208.6	3297.5	3388.2	3480.7	3575.2	3671.7	3770.4	3871.4	4
5	2788.4	2869.9	2952.8	3037.0	3122.7	3210.0	3299.0	3389.7	3482.3	3576.8	3673.3	3772.1	3873.1	5
6	2789.8	2871.3	2954.2	3038.4	3124.2	3211.5	3300.5	3391.2	3483.8	3578.3	3674.9	3773.7	3874.9	6
7	2791.1	2872.7	2955.6	3039.8	3125.6	3213.0	3302.0	3392.8	3485.4	3579.9	3676.6	3775.4	3876.6	7
8	2792.5	2874.0	2956.9	3041.3	3127.1	3214.5	3303.5	3394.3	3486.9	3581.5	3678.2	3777.1	3878.3	8
9	2793.8	2875.4	2958.3	3042.7	3128.5	3215.9	3305.0	3395.8	3488.5	3583.1	3679.8	3778.7	3880.0	9
10	2795.2	2876.8	2959.7	3044.1	3130.0	3217.4	3306.5	3397.3	3490.1	3584.7	3681.5	3780.4	3881.7	10
11	2796.5	2878.2	2961.1	3045.5	3131.4	3218.9	3308.0	3398.9	3491.6	3586.3	3683.1	3782.1	3883.4	11
12	2797.9	2879.5	2962.5	3046.9	3132.8	3220.3	3309.5	3400.4	3493.2	3587.9	3684.7	3783.7	3885.1	12
13	2799.2	2880.9	2963.9	3048.4	3134.3	3221.8	3311.0	3401.9	3494.7	3589.5	3686.4	3785.4	3886.8	13
14	2800.6	2882.3	2965.3	3049.8	3135.7	3223.3	3312.5	3403.5	3496.3	3591.1	3688.0	3787.1	3888.5	14
15	2801.9	2883.6	2966.7	3051.2	3137.2	3224.8	3314.0	3405.0	3497.9	3592.7	3689.6	3788.8	3890.2	15
16	2803.3	2885.0	2968.1	3052.6	3138.6	3226.2	3315.5	3406.5	3499.4	3594.3	3691.3	3790.4	3891.9	16
17	2804.6	2886.4	2969.5	3054.0	3140.1	3227.7	3317.0	3408.1	3501.0	3595.9	3692.9	3792.1	3893.7	17
18	2806.0	2887.8	2970.9	3055.5	3141.5	3229.2	3318.5	3409.6	3502.6	3597.5	3694.5	3793.8	3895.4	18
19	2807.3	2889.1	2972.3	3056.9	3143.0	3230.7	3320.0	3411.1	3504.1	3599.1	3696.2	3795.4	3897.1	19
20	2808.7	2890.5	2973.7	3058.3	3144.4	3232.1	3321.5	3412.7	3505.7	3600.7	3697.8	3797.1	3898.8	20
21	2810.0	2891.9	2975.1	3059.7	3145.9	3233.6	3323.0	3414.2	3507.3	3602.3	3699.4	3798.8	3900.5	21
22	2811.4	2893.3	2976.5	3061.1	3147.3	3235.1	3324.5	3415.7	3508.8	3603.9	3701.1	3800.5	3902.2	22
23	2812.8	2894.6	2977.9	3062.6	3148.8	3236.6	3326.0	3417.3	3510.4	3605.5	3702.7	3802.1	3903.9	23
24	2814.1	2896.0	2979.3	3064.0	3150.2	3238.0	3327.5	3418.8	3512.0	3607.1	3704.3	3803.8	3905.7	24
25	2815.5	2897.4	2980.7	3065.4	3151.7	3239.5	3329.0	3420.3	3513.5	3608.7	3706.0	3805.5	3907.4	25
26	2816.8	2898.8	2982.1	3066.8	3153.1	3241.0	3330.6	3421.9	3515.1	3610.3	3707.6	3807.2	3909.1	26
27	2818.2	2900.1	2983.5	3068.3	3154.6	3242.5	3332.1	3423.4	3516.7	3611.9	3709.3	3808.9	3910.8	27
28	2819.5	2901.5	2984.9	3069.7	3156.0	3243.9	3333.6	3425.0	3518.2	3613.5	3710.9	3810.5	3912.5	28
29	2820.9	2902.9	2986.3	3071.1	3157.5	3245.4	3335.1	3426.5	3519.8	3615.1	3712.6	3812.2	3914.3	29
30	2822.2	2904.3	2987.7	3072.5	3158.9	3246.9	3336.6	3428.0	3521.4	3616.7	3714.2	3813.9	3916.0	30
31	2823.6	2905.7	2989.1	3074.0	3160.4	3248.4	3338.1	3429.6	3523.0	3618.3	3715.8	3815.6	3917.7	31
32	2824.9	2907.0	2990.5	3075.4	3161.8	3249.9	3339.6	3431.1	3524.5	3619.9	3717.5	3817.3	3919.4	32
33	2826.3	2908.4	2991.9	3076.8	3163.3	3251.3	3341.1	3432.7	3526.1	3621.6	3719.1	3818.9	3921.2	33
34	2827.7	2909.8	2993.3	3078.3	3164.7	3252.8	3342.6	3434.2	3527.7	3623.2	3720.8	3820.6	3922.9	34
35	2829.0	2911.2	2994.7	3079.7	3166.2	3254.3	3344.1	3435.7	3529.3	3624.8	3722.4	3822.3	3924.6	35
36	2830.4	2912.6	2996.1	3081.1	3167.6	3255.8	3345.6	3437.3	3530.8	3626.4	3724.1	3824.0	3926.3	36
37	2831.7	2913.9	2997.5	3082.5	3169.1	3257.3	3347.2	3438.8	3532.4	3628.0	3725.7	3825.7	3928.1	37
38	2833.1	2915.3	2998.9	3084.0	3170.6	3258.8	3348.7	3440.4	3534.0	3629.6	3727.4	3827.4	3929.8	38
39	2834.5	2916.7	3000.3	3085.4	3172.0	3260.2	3350.2	3441.9	3535.6	3631.2	3729.0	3829.1	3931.5	39
40	2835.8	2918.1	3001.7	3086.8	3173.5	3261.7	3351.7	3443.5	3537.1	3632.8	3730.7	3830.7	3933.2	40
41	2837.2	2919.5	3003.1	3088.3	3174.9	3263.2	3353.2	3445.0	3538.7	3634.4	3732.3	3832.4	3935.0	41
42	2838.5	2920.8	3004.5	3089.7	3176.4	3264.7	3354.7	3446.6	3540.3	3636.1	3733.9	3834.1	3936.7	42
43	2839.9	2922.2	3006.0	3091.1	3177.8	3266.2	3356.2	3448.1	3541.9	3637.7	3735.6	3835.8	3938.4	43
44	2841.3	2923.6	3007.4	3092.6	3179.3	3267.7	3357.8	3449.6	3543.4	3639.3	3737.3	3837.5	3940.2	44
45	2842.6	2925.0	3008.8	3094.0	3180.8	3269.2	3359.3	3451.2	3545.0	3640.9	3738.9	3839.2	3941.9	45
46	2844.0	2926.4	3010.2	3095.4	3182.2	3270.6	3360.8	3452.7	3546.6	3642.5	3740.6	3840.9	3943.6	46
47	2845.3	2927.8	3011.6	3096.9	3183.7	3272.1	3362.3	3454.3	3548.2	3644.1	3742.2	3842.6	3945.4	47
48	2846.7	2929.2	3013.0	3098.3	3185.1	3273.6	3363.8	3455.8	3549.8	3645.7	3743.9	3844.3	3947.1	48
49	2848.1	2930.5	3014.4	3099.7	3186.6	3275.1	3365.3	3457.4	3551.4	3647.4	3745.5	3846.0	3948.8	49
50	2849.4	2931.9	3015.8	3101.2	3188.1	3276.6	3366.9	3458.9	3552.9	3649.0	3747.2	3847.7	3950.6	50
51	2850.8	2933.3	3017.2	3102.6	3189.5	3278.1	3368.4	3460.5	3554.5	3650.6	3748.8	3849.5	3952.3	51
52	2852.2	2934.7	3018.6	3104.0	3191.0	3279.6	3369.9	3462.0	3556.1	3652.2	3750.5	3851.0	3954.0	52
53	2853.5	2936.1	3020.0	3105.5	3192.5	3281.1	3371.4	3463.6	3557.7	3653.8	3752.1	3852.7	3955.8	53
54	2854.9	2937.5	3021.5	3106.9	3193.9	3282.6	3372.9	3465.1	3559.3	3655.5	3753.8	3854.4	3957.5	54
55	2856.3	2938.9	3022.9	3108.3	3195.4	3284.1	3374.5	3466.7	3560.9	3657.1	3755.5	3856.1	3959.3	55
56	2857.6	2940.3	3024.3	3109.8	3196.8	3285.6	3376.0	3468.3	3562.4	3658.7	3757.1	3857.8	3961.0	56
57	2859.0	2941.6	3025.7	3111.2	3198.3	3287.0	3377.5	3469.8	3564.0	3660.3	3758.8	3859.5	3962.7	57
58	2860.4	2943.0	3027.1	3112.7	3199.8	3288.5	3379.0	3471.4	3565.6	3661.9	3760.4	3861.2	3964.5	58
59	2861.7	2944.4	3028.5	3114.1	3201.2	3290.0	3380.6	3472.9	3567.2	3663.6	3762.1	3862.9	3966.2	59
Minutes of Lat.	42°	43°	44°	45°	46°	47°	48°	49°	50°	51°	52°	53°	54°	Minutes of Lat.
	DEGREES OF LATITUDE.													

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Minutes of Lat.	DEGREES OF LATITUDE. 55°	56°	57°	58°	59°	60°	61°	62°	63°	64°	65°	66°	Minutes of Lat.
0	3968.0	4073.9	4182.6	4294.3	4409.1	4527.4	4649.2	4775.0	4904.9	5039.4	5178.8	5323.5	0
1	3969.7	4075.7	4184.5	4296.2	4411.1	4529.4	4651.3	4777.1	4907.1	5041.7	5181.2	5326.0	1
2	3971.5	4077.5	4186.3	4298.1	4413.0	4531.4	4653.3	4779.2	4909.3	5044.0	5183.5	5328.4	2
3	3973.2	4079.3	4188.1	4300.0	4415.0	4533.4	4655.4	4781.4	4911.5	5046.3	5185.9	5330.9	3
4	3974.9	4081.1	4190.0	4301.8	4416.9	4535.4	4657.5	4783.5	4913.8	5048.6	5188.3	5333.4	4
5	3976.7	4082.9	4191.8	4303.7	4418.9	4537.4	4659.5	4785.6	4916.0	5050.8	5190.7	5335.8	5
6	3978.4	4084.6	4193.6	4305.6	4420.8	4539.4	4661.6	4787.8	4918.2	5053.1	5193.0	5338.3	6
7	3980.2	4086.4	4195.5	4307.5	4422.8	4541.4	4663.7	4789.9	4920.4	5055.4	5195.4	5340.8	7
8	3981.9	4088.2	4197.3	4309.4	4424.7	4543.4	4665.8	4792.1	4922.6	5057.7	5197.8	5343.2	8
9	3983.7	4090.0	4199.2	4311.3	4426.6	4545.4	4667.8	4794.2	4924.8	5060.0	5200.2	5345.7	9
10	3985.4	4091.8	4201.0	4313.2	4428.6	4547.4	4669.9	4796.3	4927.0	5062.3	5202.5	5348.2	10
11	3987.2	4093.6	4202.9	4315.1	4430.6	4549.4	4672.0	4798.5	4929.2	5064.6	5204.9	5350.7	11
12	3988.9	4095.4	4204.7	4317.0	4432.5	4551.4	4674.1	4800.6	4931.5	5066.9	5207.3	5353.1	12
13	3990.7	4097.2	4206.6	4318.9	4434.5	4553.4	4676.1	4802.8	4933.7	5069.2	5209.7	5355.6	13
14	3992.4	4099.0	4208.4	4320.8	4436.4	4555.5	4678.2	4804.9	4935.9	5071.5	5212.1	5358.1	14
15	3994.2	4100.8	4210.3	4322.7	4438.4	4557.5	4680.3	4807.1	4938.1	5073.8	5214.5	5360.6	15
16	3996.0	4102.6	4212.1	4324.6	4440.3	4559.5	4682.4	4809.2	4940.3	5076.1	5216.9	5363.1	16
17	3997.7	4104.4	4213.9	4326.5	4442.3	4561.5	4684.4	4811.4	4942.6	5078.4	5219.2	5365.5	17
18	3999.5	4106.2	4215.8	4328.4	4444.2	4563.5	4686.5	4813.5	4944.8	5080.7	5221.6	5368.0	18
19	4001.2	4108.0	4217.7	4330.3	4446.2	4565.5	4688.6	4815.7	4947.0	5083.0	5224.0	5370.5	19
20	4003.0	4109.8	4219.5	4332.2	4448.2	4567.6	4690.7	4817.8	4949.2	5085.3	5226.4	5373.0	20
21	4004.7	4111.6	4221.4	4334.1	4450.1	4569.6	4692.8	4820.0	4951.5	5087.6	5228.8	5375.5	21
22	4006.5	4113.4	4223.2	4336.0	4452.1	4571.6	4694.9	4822.1	4953.7	5089.9	5231.2	5378.0	22
23	4008.3	4115.2	4225.1	4337.9	4454.0	4573.6	4697.0	4824.3	4955.9	5092.2	5233.6	5380.5	23
24	4010.0	4117.0	4226.9	4339.8	4456.0	4575.7	4699.0	4826.4	4958.2	5094.6	5236.0	5383.0	24
25	4011.8	4118.8	4228.8	4341.7	4458.0	4577.7	4701.1	4828.6	4960.4	5096.9	5238.4	5385.5	25
26	4013.5	4120.7	4230.6	4343.7	4459.9	4579.7	4703.2	4830.8	4962.6	5099.2	5240.8	5388.0	26
27	4015.3	4122.5	4232.5	4345.6	4461.9	4581.7	4705.3	4832.9	4964.9	5101.5	5243.2	5390.5	27
28	4017.1	4124.3	4234.4	4347.5	4463.9	4583.8	4707.4	4835.1	4967.1	5103.8	5245.6	5393.0	28
29	4018.8	4126.1	4236.2	4349.4	4465.8	4585.8	4709.5	4837.2	4969.3	5106.2	5248.1	5395.5	29
30	4020.6	4127.9	4238.1	4351.3	4467.8	4587.8	4711.6	4839.4	4971.6	5108.5	5250.5	5398.0	30
31	4022.4	4129.7	4239.9	4353.2	4469.8	4589.9	4713.7	4841.6	4973.8	5110.8	5252.9	5400.5	31
32	4024.1	4131.5	4241.8	4355.1	4471.8	4591.9	4715.8	4843.7	4976.1	5113.1	5255.3	5403.0	32
33	4025.9	4133.3	4243.7	4357.1	4473.7	4593.9	4717.9	4845.9	4978.3	5115.4	5257.7	5405.5	33
34	4027.7	4135.2	4245.5	4359.0	4475.7	4596.0	4720.0	4848.1	4980.6	5117.8	5260.1	5408.0	34
35	4029.4	4137.0	4247.4	4360.9	4477.7	4598.0	4722.1	4850.3	4982.8	5120.1	5262.5	5410.6	35
36	4031.2	4138.8	4249.3	4362.8	4479.7	4600.0	4724.2	4852.4	4985.1	5122.4	5265.0	5413.1	36
37	4033.0	4140.6	4251.1	4364.7	4481.6	4602.1	4726.3	4854.6	4987.3	5124.8	5267.4	5415.6	37
38	4034.7	4142.4	4253.0	4366.6	4483.6	4604.1	4728.4	4856.8	4989.6	5127.1	5269.8	5418.1	38
39	4036.5	4144.2	4254.9	4368.6	4485.6	4606.1	4730.5	4859.0	4991.8	5129.4	5272.2	5420.6	39
40	4038.3	4146.1	4256.7	4370.5	4487.6	4608.2	4732.6	4861.1	4994.1	5131.8	5274.7	5423.2	40
41	4040.1	4147.9	4258.6	4372.4	4489.5	4610.2	4734.7	4863.3	4996.3	5134.1	5277.1	5425.7	41
42	4041.8	4149.7	4260.5	4374.3	4491.5	4612.3	4736.8	4865.5	4998.6	5136.4	5279.5	5428.2	42
43	4043.6	4151.5	4262.3	4376.3	4493.5	4614.3	4738.9	4867.7	5000.8	5138.8	5281.9	5430.7	43
44	4045.4	4153.3	4264.2	4378.2	4495.5	4616.4	4741.0	4869.9	5003.1	5141.1	5284.4	5433.3	44
45	4047.2	4155.2	4266.1	4380.1	4497.5	4618.4	4743.2	4872.0	5005.4	5143.5	5286.8	5435.8	45
46	4048.9	4157.0	4268.0	4382.0	4499.5	4620.4	4745.3	4874.2	5007.6	5145.8	5289.2	5438.3	46
47	4050.7	4158.8	4269.8	4384.0	4501.5	4622.5	4747.4	4876.4	5009.9	5148.2	5291.7	5440.9	47
48	4052.5	4160.6	4271.7	4385.9	4503.4	4624.5	4749.5	4878.6	5012.1	5150.5	5294.1	5443.4	48
49	4054.3	4162.5	4273.6	4387.8	4505.4	4626.6	4751.6	4880.8	5014.4	5152.9	5296.6	5446.0	49
50	4056.1	4164.3	4275.5	4389.8	4507.4	4628.6	4753.7	4883.0	5016.7	5155.2	5299.0	5448.5	50
51	4057.8	4166.1	4277.3	4391.7	4509.4	4630.7	4755.9	4885.2	5018.9	5157.6	5301.4	5451.0	51
52	4059.6	4168.0	4279.2	4393.6	4511.4	4632.8	4758.0	4887.4	5021.2	5159.9	5303.9	5453.6	52
53	4061.4	4169.8	4281.1	4395.6	4513.4	4634.8	4760.1	4889.5	5023.5	5162.3	5306.3	5456.1	53
54	4063.2	4171.6	4283.0	4397.5	4515.4	4636.9	4762.2	4891.7	5025.8	5164.6	5308.8	5458.7	54
55	4065.0	4173.4	4284.9	4399.4	4517.4	4638.9	4764.3	4893.9	5028.0	5167.0	5311.2	5461.2	55
56	4066.8	4175.3	4286.8	4401.4	4519.4	4641.0	4766.5	4896.1	5030.3	5169.4	5313.7	5463.8	56
57	4068.5	4177.1	4288.6	4403.3	4521.4	4643.0	4768.6	4898.3	5032.6	5171.7	5316.1	5466.3	57
58	4070.3	4178.9	4290.5	4405.3	4523.4	4645.1	4770.7	4900.5	5034.9	5174.1	5318.6	5468.9	58
59	4072.1	4180.8	4292.4	4407.2	4525.4	4647.2	4772.9	4902.7	5037.1	5176.4	5321.1	5471.4	59
Minutes of Lat.	55°	56°	57°	58°	59°	60°	61°	62°	63°	64°	65°	66°	Minutes of Lat.
	DEGREES OF LATITUDE.												

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MERIDIONAL PARTS.

Minutes of Lat.	DEGREES OF LATITUDE. 67°	68°	69°	70°	71°	72°	73°	74°	75°	76°	77°	78°	Minutes of Lat.
0	5474.0	5630.8	5794.6	5965.9	6145.7	6334.8	6534.4	6745.7	6970.3	7210.1	7467.2	7744.6	0
1	5476.6	5633.5	5797.3	5968.8	6148.8	6338.1	6537.8	6749.4	6974.2	7214.2	7471.7	7749.4	1
2	5479.1	5636.2	5800.1	5971.8	6151.8	6341.3	6541.3	6753.0	6978.1	7218.3	7476.1	7754.2	2
3	5481.7	5638.8	5802.9	5974.7	6154.9	6344.6	6544.7	6756.6	6981.9	7222.5	7480.6	7759.0	3
4	5484.3	5641.5	5805.7	5977.6	6158.0	6347.8	6548.1	6760.3	6985.8	7226.6	7485.0	7763.9	4
5	5486.8	5644.2	5808.5	5980.6	6161.1	6351.1	6551.6	6763.9	6989.7	7230.8	7489.5	7768.7	5
6	5489.4	5646.9	5811.3	5983.5	6164.2	6354.3	6555.0	6767.6	6993.6	7235.0	7494.0	7773.5	6
7	5492.0	5649.6	5814.1	5986.4	6167.3	6357.6	6558.4	6771.2	6997.5	7239.1	7498.5	7778.4	7
8	5494.5	5652.2	5816.9	5989.4	6170.4	6360.8	6561.9	6774.9	7001.4	7243.3	7502.9	7783.3	8
9	5497.1	5654.9	5819.8	5992.3	6173.4	6364.1	6565.3	6778.5	7005.3	7247.5	7507.4	7788.1	9
10	5499.7	5657.6	5822.6	5995.3	6176.5	6367.3	6568.8	6782.2	7009.2	7251.6	7511.9	7793.0	10
11	5502.3	5660.3	5825.4	5998.2	6179.6	6370.6	6572.2	6785.9	7013.1	7255.8	7516.4	7797.9	11
12	5504.8	5663.0	5828.2	6001.2	6182.7	6373.9	6575.7	6789.5	7017.0	7260.0	7521.0	7802.8	12
13	5507.4	5665.7	5831.0	6004.1	6185.8	6377.2	6579.2	6793.2	7020.9	7264.2	7525.5	7807.7	13
14	5510.0	5668.4	5833.8	6007.1	6189.0	6380.4	6582.6	6796.9	7024.8	7268.4	7530.0	7812.6	14
15	5512.6	5671.1	5836.7	6010.0	6192.1	6383.7	6586.1	6800.6	7028.8	7272.6	7534.5	7817.5	15
16	5515.2	5673.8	5839.5	6013.0	6195.2	6387.0	6589.6	6804.3	7032.7	7276.8	7539.1	7822.4	16
17	5517.8	5676.5	5842.3	6016.0	6198.3	6390.3	6593.0	6808.0	7036.6	7281.0	7543.6	7827.3	17
18	5520.4	5679.2	5845.1	6018.9	6201.4	6393.6	6596.5	6811.6	7040.6	7285.3	7548.1	7832.2	18
19	5522.9	5681.9	5848.0	6021.9	6204.5	6396.9	6600.0	6815.3	7044.5	7289.5	7552.7	7837.2	19
20	5525.5	5684.6	5850.8	6024.9	6207.7	6400.1	6603.5	6819.0	7048.5	7293.7	7557.3	7842.1	20
21	5528.1	5687.3	5853.6	6027.8	6210.8	6403.4	6607.0	6822.7	7052.4	7298.0	7561.8	7847.0	21
22	5530.7	5690.0	5856.5	6030.8	6213.9	6406.7	6610.5	6826.5	7056.4	7302.2	7566.4	7852.0	22
23	5533.3	5692.7	5859.3	6033.8	6217.0	6410.0	6614.0	6830.2	7060.3	7306.4	7571.0	7857.0	23
24	5535.9	5695.4	5862.1	6036.8	6220.2	6413.3	6617.5	6833.9	7064.3	7310.7	7575.5	7861.9	24
25	5538.5	5698.2	5865.0	6039.7	6223.3	6416.7	6621.0	6837.6	7068.3	7314.9	7580.1	7866.9	25
26	5541.1	5700.9	5867.8	6042.7	6226.4	6420.0	6624.5	6841.3	7072.2	7319.2	7584.7	7871.9	26
27	5543.8	5703.6	5870.7	6045.7	6229.6	6423.3	6628.0	6845.1	7076.2	7323.5	7589.3	7876.9	27
28	5546.4	5706.3	5873.5	6048.7	6232.7	6426.6	6631.5	6848.8	7080.2	7327.7	7593.9	7881.9	28
29	5549.0	5709.1	5876.4	6051.7	6235.9	6429.9	6635.0	6852.5	7084.2	7332.0	7598.5	7886.9	29
30	5551.6	5711.8	5879.2	6054.7	6239.0	6433.2	6638.5	6856.3	7088.2	7336.3	7603.2	7891.9	30
31	5554.2	5714.5	5882.1	6057.7	6242.2	6436.6	6642.0	6860.0	7092.2	7340.5	7607.8	7896.9	31
32	5556.8	5717.2	5885.0	6060.7	6245.3	6439.9	6645.6	6863.8	7096.2	7344.9	7612.4	7901.9	32
33	5559.4	5720.0	5887.8	6063.7	6248.5	6443.2	6649.1	6867.5	7100.2	7349.2	7617.0	7907.0	33
34	5562.1	5722.7	5890.7	6066.7	6251.7	6446.6	6652.6	6871.3	7104.2	7353.5	7621.7	7912.0	34
35	5564.7	5725.4	5893.5	6069.7	6254.8	6449.9	6656.2	6875.0	7108.2	7357.8	7626.3	7917.1	35
36	5567.3	5728.2	5896.4	6072.7	6258.0	6453.3	6659.7	6878.8	7112.2	7362.1	7631.0	7922.1	36
37	5569.9	5730.9	5899.3	6075.7	6261.2	6456.6	6663.3	6882.6	7116.2	7366.4	7635.6	7927.2	37
38	5572.5	5733.7	5902.1	6078.7	6264.3	6459.9	6666.8	6886.3	7120.3	7370.7	7640.3	7932.3	38
39	5575.2	5736.4	5905.0	6081.8	6267.5	6463.3	6670.4	6890.1	7124.3	7375.1	7645.0	7937.3	39
40	5577.8	5739.2	5907.9	6084.8	6270.7	6466.7	6673.9	6893.9	7128.3	7379.4	7649.7	7942.4	40
41	5580.4	5741.9	5910.8	6087.8	6273.9	6470.0	6677.5	6897.7	7132.4	7383.7	7654.3	7947.5	41
42	5583.1	5744.7	5913.7	6090.8	6277.0	6473.4	6681.0	6901.5	7136.4	7388.1	7659.0	7952.6	42
43	5585.7	5747.4	5916.5	6093.9	6280.2	6476.7	6684.6	6905.2	7140.5	7392.4	7663.7	7957.7	43
44	5588.3	5750.2	5919.4	6096.9	6283.4	6480.1	6688.2	6909.0	7144.5	7396.8	7668.4	7962.8	44
45	5591.0	5752.9	5922.3	6099.9	6286.6	6483.5	6691.7	6912.8	7148.6	7401.1	7673.1	7968.0	45
46	5593.6	5755.7	5925.2	6102.9	6289.8	6486.9	6695.3	6916.6	7152.7	7405.5	7677.9	7973.1	46
47	5596.3	5758.5	5928.1	6106.0	6293.0	6490.2	6698.9	6920.5	7156.7	7409.9	7682.6	7978.2	47
48	5598.9	5761.2	5931.0	6109.0	6296.2	6493.6	6702.5	6924.3	7160.8	7414.3	7687.3	7983.4	48
49	5601.6	5764.0	5933.9	6112.1	6299.4	6497.0	6706.1	6928.1	7164.9	7418.6	7692.0	7988.5	49
50	5604.2	5766.8	5936.8	6115.1	6302.6	6500.4	6709.6	6931.9	7169.0	7423.0	7696.8	7993.7	50
51	5606.9	5769.5	5939.7	6118.2	6305.8	6503.8	6713.2	6935.7	7173.1	7427.4	7701.5	7998.8	51
52	5609.5	5772.3	5942.6	6121.2	6309.0	6507.2	6716.8	6939.6	7177.1	7431.8	7706.3	8004.0	52
53	5612.2	5775.1	5945.5	6124.3	6312.3	6510.6	6720.4	6943.4	7181.2	7436.2	7711.1	8009.2	53
54	5614.8	5777.9	5948.4	6127.3	6315.5	6514.0	6724.0	6947.2	7185.3	7440.6	7715.8	8014.4	54
55	5617.5	5780.6	5951.3	6130.4	6318.7	6517.4	6727.6	6951.1	7189.5	7445.0	7720.6	8019.6	55
56	5620.2	5783.4	5954.2	6133.4	6321.9	6520.8	6731.3	6954.9	7193.6	7449.5	7725.4	8024.8	56
57	5622.8	5786.2	5957.2	6136.5	6325.1	6524.2	6734.9	6958.8	7197.7	7453.9	7730.2	8030.0	57
58	5625.5	5789.0	5960.1	6139.6	6328.4	6527.6	6738.5	6962.6	7201.8	7458.3	7735.0	8035.2	58
59	5628.1	5791.8	5963.0	6142.6	6331.6	6531.0	6742.1	6966.5	7205.9	7462.8	7739.8	8040.5	59
Minutes of Lat.	67°	68°	69°	70°	71°	72°	73°	74°	75°	76°	77°	78°	Minutes of Lat.
	DEGREES OF LATITUDE.												

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MERIDIONAL PARTS.

Minutes of Lat.	DEGREES OF LATITUDE. 79°	80°	81°	82°	83°	84°	85°	86°	87°	88°	89°	Minutes of Lat.
0	8045.7	8375.2	8739.1	9145.5	9605.8	10136.9	10764.6	11532.5	12522.1	13916.4	16299.6	0
1	8050.9	8381.0	8745.5	9152.6	9614.0	10146.5	10776.1	11546.9	12541.3	13945.2	16357.3	1
2	8056.2	8386.7	8751.9	9159.9	9622.3	10156.1	10787.6	11561.3	12560.5	13974.2	16416.1	2
3	8061.5	8392.5	8758.3	9167.1	9630.5	10165.7	10799.2	11575.8	12579.9	14003.5	16475.9	3
4	8066.7	8398.3	8764.7	9174.3	9638.8	10175.4	10810.8	11590.3	12599.4	14033.0	16536.8	4
5	8072.0	8404.1	8771.2	9181.6	9647.1	10185.0	10822.5	11604.9	12619.0	14062.8	16598.7	5
6	8077.3	8409.9	8777.6	9188.8	9655.4	10194.8	10834.2	11619.6	12638.7	14092.8	16661.8	6
7	8082.6	8415.7	8784.1	9196.1	9663.7	10204.5	10845.9	11634.4	12658.5	14123.1	16726.0	7
8	8087.9	8421.6	8790.6	9203.4	9672.1	10214.3	10857.6	11649.2	12678.5	14153.7	16791.5	8
9	8093.2	8427.4	8797.1	9210.7	9680.5	10224.1	10869.5	11664.0	12698.5	14184.5	16858.3	9
10	8098.5	8433.3	8803.6	9218.1	9688.9	10233.9	10881.3	11678.9	12718.7	14215.6	16926.4	10
11	8103.8	8439.1	8810.1	9225.4	9697.3	10243.7	10893.2	11693.9	12739.0	14247.0	16995.8	11
12	8109.2	8445.0	8816.6	9232.8	9705.7	10253.6	10905.1	11709.0	12759.4	14278.7	17066.7	12
13	8114.5	8450.9	8823.2	9240.1	9714.2	10263.5	10917.1	11724.1	12779.9	14310.7	17139.1	13
14	8119.9	8456.8	8829.7	9247.5	9722.6	10273.5	10929.1	11739.3	12800.6	14343.0	17213.0	14
15	8125.2	8462.7	8836.3	9254.9	9731.1	10283.4	10941.2	11754.6	12821.4	14375.6	17288.6	15
16	8130.6	8468.6	8842.9	9262.4	9739.7	10293.4	10953.3	11769.9	12842.3	14408.5	17365.8	16
17	8135.9	8474.5	8849.5	9269.8	9748.2	10303.5	10965.4	11785.3	12863.3	14441.7	17444.9	17
18	8141.3	8480.4	8856.1	9277.3	9756.8	10313.5	10977.6	11800.7	12884.5	14475.2	17525.8	18
19	8146.7	8486.4	8862.7	9284.7	9765.3	10323.6	10989.8	11816.3	12905.7	14509.1	17608.6	19
20	8152.1	8492.3	8869.3	9292.2	9773.9	10333.7	11002.1	11831.9	12927.2	14543.3	17693.5	20
21	8157.5	8498.3	8876.0	9299.7	9782.6	10343.9	11014.4	11847.5	12948.7	14577.9	17780.5	21
22	8162.9	8504.2	8882.6	9307.2	9791.2	10354.0	11026.7	11863.3	12970.4	14612.8	17869.8	22
23	8168.4	8510.2	8889.3	9314.8	9799.9	10364.2	11039.1	11879.1	12992.3	14648.0	17961.5	23
24	8173.8	8516.2	8896.0	9322.3	9808.6	10374.5	11051.6	11895.0	13014.2	14683.7	18055.7	24
25	8179.2	8522.2	8902.7	9329.9	9817.3	10384.7	11064.1	11910.9	13036.4	14719.7	18152.5	25
26	8184.7	8528.2	8909.4	9337.5	9826.0	10395.0	11076.6	11927.0	13058.6	14756.0	18252.2	26
27	8190.1	8534.3	8916.1	9345.1	9834.8	10405.3	11089.2	11943.1	13081.0	14792.8	18354.8	27
28	8195.6	8540.3	8922.8	9352.7	9843.5	10415.7	11101.8	11959.3	13103.6	14830.0	18460.6	28
29	8201.1	8546.3	8929.6	9360.3	9852.3	10426.1	11114.5	11975.5	13126.3	14867.6	18569.8	29
30	8206.6	8552.4	8936.3	9368.0	9861.2	10436.5	11127.2	11991.9	13149.1	14905.6	18682.5	30
31	8212.1	8558.4	8943.1	9375.7	9870.0	10447.0	11140.0	12008.3	13172.1	14944.0	18799.0	31
32	8217.6	8564.5	8949.9	9383.4	9878.9	10457.4	11152.8	12024.8	13195.3	14982.8	18919.7	32
33	8223.1	8570.6	8956.7	9391.1	9881.8	10467.9	11165.7	12041.4	13218.6	15022.1	19044.7	33
34	8228.6	8576.7	8963.5	9398.8	9896.7	10478.5	11178.6	12058.0	13242.1	15061.9	19174.4	34
35	8234.1	8582.8	8970.3	9406.5	9905.6	10489.1	11191.6	12074.8	13265.7	15102.1	19309.3	35
36	8239.7	8588.9	8977.2	9414.3	9914.6	10499.7	11204.6	12091.6	13289.5	15142.8	19449.6	36
37	8245.2	8595.1	8984.0	9422.0	9923.6	10510.3	11217.6	12108.5	13313.5	15183.9	19595.9	37
38	8250.7	8601.2	8990.9	9429.8	9932.6	10521.0	11230.7	12125.5	13337.6	15225.6	19748.7	38
39	8256.3	8607.3	8997.7	9437.6	9941.6	10531.7	11243.9	12142.6	13361.9	15267.8	19908.7	39
40	8261.9	8613.5	9004.6	9445.5	9950.7	10542.4	11257.1	12159.7	13386.4	15310.5	20076.4	40
41	8267.5	8619.7	9011.5	9453.3	9959.7	10553.2	11270.4	12177.0	13411.0	15353.8	20252.7	41
42	8273.0	8625.9	9018.5	9461.2	9968.8	10564.0	11283.7	12194.3	13435.8	15397.6	20438.6	42
43	8278.6	8632.0	9025.4	9469.1	9978.0	10574.9	11297.0	12211.7	13460.9	15441.9	20635.1	43
44	8284.2	8638.3	9032.4	9477.0	9987.1	10585.8	11310.5	12229.2	13486.0	15486.9	20843.5	44
45	8289.9	8644.5	9039.3	9484.9	9996.3	10596.7	11323.9	12246.8	13511.4	15532.4	21065.4	45
46	8295.5	8650.7	9046.3	9492.8	10005.5	10607.6	11337.4	12264.5	13537.0	15578.5	21302.5	46
47	8301.1	8656.9	9053.3	9500.8	10014.7	10618.6	11351.0	12282.3	13562.7	15625.3	21557.3	47
48	8306.8	8663.2	9060.3	9508.7	10023.9	10629.6	11364.6	12300.1	13588.7	15672.7	21832.5	48
49	8312.4	8669.4	9067.3	9516.7	10033.2	10640.7	11378.3	12318.1	13614.8	15720.8	22131.6	49
50	8318.1	8675.7	9074.3	9524.7	10042.5	10651.7	11392.1	12336.1	13641.2	15769.6	22459.3	50
51	8323.7	8682.0	9081.4	9532.7	10051.8	10662.9	11405.8	12354.3	13667.7	15819.1	22821.5	51
52	8329.4	8688.3	9088.4	9540.8	10061.2	10674.0	11419.7	12372.5	13694.5	15869.2	23226.4	52
53	8335.1	8694.6	9095.5	9548.8	10070.6	10685.2	11433.6	12390.9	13721.5	15920.2	23685.4	53
54	8340.8	8700.9	9102.6	9556.9	10080.0	10696.5	11447.6	12409.3	13748.7	15971.9	24215.3	54
55	8346.5	8707.2	9109.7	9565.0	10089.4	10707.7	11461.6	12427.9	13776.1	16024.4	24842.1	55
56	8352.2	8713.6	9116.8	9573.1	10098.8	10719.0	11475.6	12446.5	13803.7	16077.7	25609.2	56
57	8358.0	8719.9	9124.0	9581.3	10108.3	10730.4	11489.8	12465.3	13831.5	16131.8	26598.2	57
58	8363.7	8726.3	9131.1	9589.4	10117.8	10741.7	11504.0	12484.1	13859.6	16186.8	27992.1	58
59	8369.4	8732.7	9138.3	9597.6	10127.3	10753.2	11518.2	12503.0	13887.9	16242.7	30375.0	59
Minutes of Lat.	79°	80°	81°	82°	83°	84°	85°	86°	87°	88°	89°	Minutes of Lat.
	DEGREES OF LATITUDE.											

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Table XLIV.

Mean Right Ascensions and Declinations of 226 of the principal Fixed Stars, adapted to the beginning of the year 1824.

S, signifies south declination; all the rest are north.

Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and *true spherical distance* of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.	Annual variation in distance.
		h m s	″	° ′ ″	″	° ′ ″	″
β Cassiopeiæ	3	0. 0. 9	+3.00	58. 10. 47	+20.00	Markab, S. by W.. 45. 32. 17	−0.42
γ Pegasi†..Algenib	2	0. 4. 11	3.08	14. 12. 21	+20.20	Altair, W. ½ S. 64. 18. 3	−0.59
β Hydri	3	0. 15. 31	2.68	78. 15. 7 S.	−20.00	α Phœnicis, N..... 34. 59. 57	+0.01
α Phœnicis.....	2.3	0. 17. 34	2.99	43. 15. 12 S.	−20.00	Fomalh. N. W. ½ W. 21. 51. 13	−0.07
δ Andromedæ	3	0. 30. 9	3.00	29. 53. 0	+20.00	Alpheratz, W. by S. 6. 58. 2	−2.36
α Cassiop. † Schedir	3	0. 30. 34	3.31	55. 34. 15	+19.80	Mirach, S. by E. .. 21. 30. 3	−0.36
β Ceti. Deneb Kaitos	2	0. 35. 9	3.00	18. 57. 17 S	−19.90	α Phœnicis, S. ¼ W... 24. 34. 45	+0.03
γ Cassiopeiæ	3	0. 46. 19	3.50	59. 45. 43	+19.70	Mirach, S. ¼ E..... 25. 10. 46	+0.13
α UMin.†Alruccabah	2.3	0. 58. 1	14.74	88. 22. 12	+19.45	Schedir, S. ¼ W. .. 32. 48. 41	+0.11
β Androm. Mirach	2	1. 0. 15	3.30	34. 41. 14	+19.60	Aldebaran, E. S. E. 49. 22. 39	+0.36
δ Cassiopeiæ	3	1. 14. 27	3.80	59. 19. 2	+19.10	Mirach, S. ¼ W. .. 24. 44. 26	−0.11
α Eridani. Achernar	1	1. 31. 9	2.25	58. 7. 59 S.	−18. 5	α Phœnic. N. W. ½ N. 18. 46. 12	−0.10
ε Cassiopeiæ	3	1. 41. 34	4.10	62. 47. 59	+18.20	Alinaach, S. ¼ E. .. 21. 23. 23	+0.06
ζ Ceti. Baten Kaitos	3	1. 43. 8	3.00	11. 12. 18 S.	−18.00	α Phœnic., S.S.W. ½ W. 37. 1. 27	+0.03
θ Arietis.....	3	1. 45. 15	3.30	19. 56. 48	+18.00	α Arietis, N.E..... 3. 52. 28	−0.13
α Piscium	3	1. 53. 10	3.10	1. 54. 39	+17.70	α Arietis, N. ¼ E..... 20. 44. 20	−0.15
γ Androm. Almaach	2	1. 53. 22	3.60	41. 28. 53	+17.70	Aldebaran, S. E. ½ E. 41. 22. 39	+0.43
α Arietis†..* Arietis	2	1. 57. 16	3.35	22. 37. 33	+17.40	Aldebaran, E. by S. 35. 32. 7	−0.02
ο Ceti..... Mira..	2	2. 10. 9	3.00	3. 46. 32 S.	−17.00	Deneb Kait., SW. by W. 27. 43. 31	−0.36
β Ceti	3	2. 30. 10	3.10	0. 25. 43 S.	−16.40	α Arietis, N by W. ¼ W. 24. 24. 22	−0.41
ε Ceti	3	2. 31. 5	2.90	12. 37. 13 S.	−15.90	α Arietis, N. by W. ¼ W. 36. 12. 24	−0.11
γ Ceti	3	2. 34. 10	3.10	2. 29. 35	+15.80	α Arietis, N.N.W. .. 22. 1. 57	−0.36
γ Persei	3	2. 51. 36	4.20	52. 48. 33	+14.80	α Persei, S.E. 4. 47. 9	+0.33
α Ceti † ..Menkar..	2	2. 53. 5	3.12	3. 23. 41	+14.75	α Arietis, N.W. by N. 23. 30. 28	−0.25
θ Persei....Algol..	var	2. 56. 18	3.80	40. 16. 19	+14.60	Capella, E. by N. ½ N. 23. 45. 28	+0.58
α Fornacis Chemicæ	3	3. 4. 57	2.50	29. 41. 56 S.	−14.00	Rigel, N.E. ½ E. .. 35. 27. 40	+0.34
ζ Eridani	3	3. 7. 5	2.90	9. 28. 35 S.	−13.80	Rigel, E. 29. 23. 56	+0.17
α Persei †Algeneb..	2	3. 11. 48	4.20	49. 13. 36	+13.50	Capella, E. ½ S..... 19. 5. 11	+0.38
ε Eridani.....	3	3. 25. 6	2.90	10. 3. 21 S.	−12. 7	Rigel, E. ¼ N. 24. 58. 0	−0.17
δ Persei	3	3. 30. 36	4.20	47. 13. 3	+12.30	α Persei, N. W. by W. 3. 43. 10	−0.05
δ Eridani	3	3. 35. 5	2.90	10. 22. 4 S.	−12.00	Rigel, E. ¼ N. 22. 31. 31	−0.35
η Pleiadum. Alcyone	3	3. 37. 21	3.50	23. 33. 18	+11.80	Aldebar., SE. by E. ½ E. 13. 35. 5	+0.05
ζ Persei	3	3. 43. 26	3.80	31. 21. 44	+11.40	Algol, N.W. ¼ W... 13. 2. 33	+1.00
ε Persei	3	3. 46. 32	4.00	39. 29. 57	+11.20	Algol, W. 9. 39. 33	+0.77
γ Eridani	3	3. 50. 4	2.80	14. 0. 43 S.	−10.90	Aldebar., N. by E. ½ E. 31. 25. 36	−0.38
ο Eridani	3	4. 3. 5	2.90	7. 18. 2 S.	− 9.90	Aldebar., N. by E. ¼ E. 24. 6. 50	−0.05
ε Tauri	3	4. 18. 19	3.50	18. 47. 0	+ 8.70	Aldebaran, S.E. ¼ E. 3. 11. 17	+0.02
α Tauri † * Aldebar.	1	4. 25. 50	3.43	16. 8. 49	+ 7.95	Rigel, S.S.E. 26 30. 5	−0.05
θ Eridani	3	4. 59. 8	3.00	5. 18. 54 S.	− 5.90	Rigel, S.E. ½ E.... 3. 32. 25	+0.04
α Aurigæ † Capella	1	5. 3. 42	4.41	45. 48. 27	+ 4.57	Procyon, S. E. by S. 51. 7. 6	+0.15
α Aurigæ † Capella	1	5. 3. 42	4.41	45. 48. 27	+ 4.57	Aldebaran, S. by W. 30. 41. 59	+0.17
β Orionis † Rigel..	1	5. 6. 5	2.88	8. 24. 40 S.	− 4.92	Sirius, E.S.E. 23. 40. 44	−0.54
β Tauri †	2	5. 15. 11	3.78	28. 26. 56	+ 3.83	Bellatrix, S. 22. 15. 59	−0.07
η Orionis	3	5. 15. 9	3.00	2. 33. 53 S.	− 3.90	Rigel, S. by W..... 6. 15. 59	−0.30
γ Orionis. Bellatrix	2	5. 15. 14	3.20	6. 10. 57	+ 3.90	Sirius, S.E..... 30. 26. 12	+0.28
β Leporis	3	5. 20. 59	2.60	20. 54. 18 S.	− 3.50	Rigel, N. by W. .. 13. 0. 3	+0.36
δ Orionis.....	2	5. 23. 10	3.00	0. 26. 10 S.	− 3.40	Rigel, S. by W. .. 9. 2. 29	−0.48
α Leporis	3	5. 25. 0	2.60	17. 57. 19 S.	− 3.20	Rigel, N. by W. ½ W. 10. 35. 39	−0.15
ε Orionis.....	2	5. 27. 9	3.00	1. 19. 16 S.	− 3.00	Rigel, S.S.W..... 8. 49. 0	−0.46
ζ Tauri	3	5. 27. 21	3.60	21. 1. 40	+ 3.00	Bellatrix, S. by W. 15. 7. 57	+0.94

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The Mean Right Ascensions and Declinations of the principal fixed Stars, continued.

S. signifies south declination; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and *true spherical distance* of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.		Annual variation in distance.
			h m s	″	° ′ ″	″		° ′ ″	″
50	ζ Orionis	2	5.32. 9	+3.00	2. 2.32 S.	— 2.60	Rigel, S. by W. ½ W.	9. 5.25	—0.32
51	α Columbæ	2	5.32.50	2.20	34.10.24 S.	— 2.40	Sirius, N.E. ¾ N.	22.51.43	—1.77
52	χ Orionis	3	5.39. 4	2.80	9.44.20 S.	— 1.90	α Columbæ, S. ¼ W.	24.28.34	—0.01
53	β Columbæ	3	5.44.47	2.10	35.50.25 S.	— 1.40	α Columbæ, N.W.	2.57.38	—0.41
54	α Orion. † Betelguese	1	5.45.39	3.25	7.21.57	+ 1.37	Procyon, E. ¼ S.	22.59.28	—0.66
55	β Aurigæ	2	5.46.42	4.40	44.55.12	+ 1.40	Capella, W.N.W.	7.35.57	+0.12
56	η Geminorum	3.4	6. 4.22	3.60	22.23. 3	— 0.20	Pollux, E.N.E.	21.12.14	—0.35
57	μ Geminorum	3	6.12.22	3.60	22.35.57	— 0.90	Pollux, E.N.E.	19.24.21	—0.28
58	ζ Canis Majoris	3	6.13.53	2.30	29.59.26 S.	+ 1.10	Sirius, N. by E. ½ E.	14.32.26	—1.48
59	β Canis Majoris	2	6.15. 0	2.60	17.52.31 S.	+ 1.20	Procyon, N.E.	29.57.33	—0.79
60	α Arg. Nav. Canopus	1	6.20. 3	1.33	52.36. 6 S.	+ 1.70	Procyon, N. by E. ¼ E.	60. 8.18	—1.02
60	α Arg. Nav. Canopus	1	6.20. 3	1.33	52.36. 6 S.	+ 1.70	Sirius, N. ¼ E.	36.16.55	—1.22
61	γ Geminorum	3	6.27.19	3.50	16.32.38	— 2.20	Pollux, N. E. by E.	19.31.14	—0.97
62	α Canis Maj. † Sirius	1	6.37.23	2.61	16.28.53 S.	+ 4.36	Procyon, N.E. by N.	25.41.57	+0.41
62	α Canis Maj. † Sirius	1	6.37.23	2.61	16.28.53 S.	+ 4.36	Capella, N by W. ¼ W.	65.48. 0	+0.45
63	ε Canis Majoris	3	6.52.53	2.30	28.44.16 S.	+ 4.40	Sirius, N. by W.	12.45.53	—1.18
64	ζ Geminorum	3	6.53.21	3.60	20.49.17	— 4.50	Pollux, N.E. ¼ E.	12. 3.32	—0.89
65	γ Canis Majoris	3	6.56. 1	2.70	15.22.38 S.	+ 4.70	Sirius, W. by S.	4.29.20	+1.08
66	δ Canis Majoris	2	7. 0.55	2.40	26. 7. 7 S.	+ 5.20	Procyon, N. by E. ¼ E.	32.33.53	—0.91
67	δ Geminorum	3	7. 9.22	3.60	22.17.58	— 5.80	Castor, N. by E. ½ E.	10.26.11	—0.18
68	π Argûs Navis	3	7.10.47	2.10	36.47.13 S	+ 6.00	Sirius, N.N.W.	21.36.35	—0.89
69	η Canis Majoris	2	7.16.55	2.37	28.57.51 S.	+ 6.50	Sirius, N.N.W. ¼ W.	15.26.24	—0.44
70	α Geminor. † Castor	2	7.23.21	3.85	32.15.53	— 7.06	Procyon, S. ½ E.	26.38.33	+0.90
71	α Can. Mi. † Procyon	1	7.30. 5	3.15	5.40. 7	— 8.54	Pollux, N.	22.47.54	+0.90
71	α Can. Mi. † Procyon	1	7.30. 5	3.15	5.40. 7	— 8.54	Arcturus, E. by N.	96.48.15	+0.06
72	χ Arg. Nav. Markeb	3	7.31.55	2.40	26.25.13 S.	+ 7.70	Sirius, N.W. ¼ W.	16. 5.47	—0.67
73	β Gemin. † α Pollux	2	7.34.32	3.69	28.26.33	— 8.00	Capella, N.W. by W.	34.16. 9	—0.60
74	ξ Argûs Navis	3	7.41.57	2.50	24.25.18 S.	+ 8.50	Sirius, N.W. by W.	17. 3.40	—0.02
75	ζ Argûs Navis	2	7.57.25	2.11	39.30.36 S.	+ 9.70	Sirius, N. W. by N.	28.52.38	—0.46
76	γ Argûs Navis	2	8. 4. 6	1.85	46.49.10 S.	+10.30	Canopus, W. by S. ¼ S.	17.40.19	+0.03
77	ε Argûs Navis	2.3	8.18.54	1.25	58.56.51 S.	+11.40	Canopus, W. N. W.	17.41.44	+0.05
78	δ Argûs Navis	2.3	8.39.52	1.66	54. 3.48 S.	+12.80	Canopus, W. ¾ N.	20.42.40	+0.05
79	ι Ur æ Majoris	3	8.47. 9	4.23	48.43.49	—13.20	Dubhe, N.E. ½ E.	22. 9.56	—0.24
80	α Cancri .. Acubens.	3.4	8.49.15	3.30	12.32. 9	—13.30	Procyon, W.S.W.	20.41.59	+1.10
81	λ Argûs Navis	2.3	9. 1.31	2.21	42.43.33 S.	+14.20	Canopus, W. by S. ¼ S.	28.29. 0	+0.09
82	β Arg. Nav. Maia Pla.	1.2	9.11.17	0.75	68.59.41 S	+14.80	Canopus, N.W. ½ W.	25.39.48	+0.13
82	β Arg. Nav. Maia Pla.	1.2	9.11.17	0.75	68.59.41 S.	+14.80	Sirius, N.N.W. ½ W.	57.43.36	—0.68
83	χ Argûs Navis	2.3	9.16.42	1.86	54.15.37 S.	+15.10	Canopus, W. ½ N.	25.55.55	+0.07
84	α Hydræ † Alphard	2	9.18.56	2.95	7.53.58 S.	+15.19	Sirius, W. by S.	40.19.12	+1.16
85	θ Ursæ Majoris	3	9.21. 9	4.21	53.29. 3	—15.30	Dubhe, N. E. ½ E.	15. 4.45	+0.03
86	ε Leonis	3	9.35.50	3.43	24.34.51	—16.10	Regulus, S.S.E. ½ E.	12.58. 5	+0.03
87	μ Leonis	3	9.42.25	3.46	26.50. 1	—16.50	Regulus, S. by E. ¼ E.	14.32.19	—0.03
88	η Leonis	3.4	9.57.43	3.29	17.37. 9	—17.20	Regulus, S.	4.48.18	+0.06
89	α Leonis † α Regulus	1	9.59. 0	3.21	12.49.27	—17.33	Alphard, S.S.W.	22.59.22	—0.19
90	λ Ursæ Majoris	3	10. 6.24	3.70	43.47.27	—17.50	β Ursæ Maj., N. N. E.	15.15.37	—0.09
91	ζ Leonis	3	10. 7.18	3.40	24.17.31	—17.60	Regulus, S. ¼ W.	11.38. 4	+0.22
92	γ Leonis	2.3	10.10.15	3.30	20.43.56	—17.70	Regulus, S.S.W.	8.21.11	+0.14
93	μ Ursæ Majoris	3	10.11.23	3.60	42.22.55	—17.80	β Ursæ Maj. N. by E. ½ E.	16.14.10	+0.17
94	α Leonis Minoris	3	10.28.17	3.40	32.53.25	—18.40	Regulus, S.S.W.	21. 9. 9	+0.10
95	θ Argûs Navis	2.3	10.36.53	2.11	63.28.26 S.	+18.70	Canopus, W by N. ¼ N.	34. 1.19	—0.03
96	η Argûs Navis	2	10.38.15	2.30	58.45.45 S.	+18.80	Canopus, W. by N.	35.27. 5	+0.01
97	α Crateris .. Alkes.	3.4	10.51. 8	3.00	17.21.44 S.	+19.10	Alphard, W.N.W.	24.22. 3	+0.75
98	[illegible]	[illegible]	10.51.05	3.70	57.10.27	19.10	Rasstaneh, E by S	25. 2.18	0.10

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The Mean Right Ascensions and Declinations of the principal fixed Stars, continued.

S. signifies south declination; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and *true spherical distance* of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.	Annual variation in distance.
			h m s	s	° ′ ″	″	° ′ ″	′
100	δ Leonis	3	11. 4.14	+3.20	21.29.27	—19.40	Regulus, SWbyW ½ W. 17.48.35	+0.26
101	θ Leonis	3	11. 5.11	3.10	16.23.34	—19.40	Regulus, W. by S.. 16.23.50	—0.05
102	λ Draconis	3	11.20.25	3.70	70.18. 1	—19.80	β Ursæ Maj. S. by W. 13.20.32	—0.15
103	β Leonis † Denebola	2	11.40. 5	3.07	15.33.22	—20.04	Regulus, W. ¼ S... 24.38.12	—0.28
104	β Virginis †	3	11.41.32	3.12	2.45.25	—20.00	Regulus, W.N.W.. 27.17. 0	+0.06
105	γ Ursæ Majoris † ..	2	11.44.32	3.20	54.40.21	—20.00	Arcturus, S.E. by S. 43.51.52	+1.12
106	δ Centauri	2.3	11.59.16	3.06	49.44.49 S.	+22.00	α Crucis, S. by E. .. 12.36.49	—1.95
107	δ Crucis	3	12. 5.53	3.11	57.46.38 S.	+22.00	α Crucis, S. by E. ⅛ E. 4.32.59	—1.00
108	δ Ursæ Majoris	3	12. 7. 9	3.00	58. 1.46	—20.00	Alioth, E. ¼ S..... 5.20.19	+0.33
109	γ Corvi	3	12. 7.10	3.10	16.33.42 S.	+20.00	Spica, E.N.E..... 17.52. 0	—0.33
110	α Crucis	1	12.16.54	3.24	62. 7.26 S.	+20.00	Spica, N. by E..... 52.58.57	+0.03
110	α Crucis	1	12.16.54	3.24	62. 7.26 S.	+20.00	Antares, N. E. ⅛ E. 53.28.12	+0.06
111	δ Corvi ..Algorab..	3	12.21.10	3.10	15.31.48 S.	+20.20	Spica, E.N.E..... 14.21. 4	+0.06
112	γ Crucis	3	12.21.27	3.24	56. 7.22 S.	+20.00	α Crucis, S. ¼ W..... 6. 1.45	—0.03
113	β Corvi	3	12.25.11	3.10	22.25.10 S.	+19.90	Spica, N.E. 17.12. 3	+0.22
114	χ Draconis	3	12.26. 0	2.60	70.45.38	—19.90	Alioth, S. ¼ E. 14. 0.24	+0.13
115	γ Centauri	2.3	12.31.53	3.27	47.59.24 S.	+19.90	α Crucis, S. by W... 14.48.10	—0.06
116	γ Virginis	3	12.33.10	3.00	0.28.55 S.	+19.90	Spica, S.E..... 14.25.48	+0.03
117	β Crucis	2	12.37.32	3.41	58.43.30 S.	+19.70	Antares, N.E. by E. 50. 8.50	+0.06
118	ε Ursæ Maj. Alioth	2	12.46. 2	2.70	56.55. 3	—19.70	Arcturus, S.byE ¼ E. 39.47.12	+1.35
119	δ Virginis	3	12.47. 9	3.00	4.21.29	—19.70	Spica, S.S.E. ⅛ E. 16.15.40	+0.15
120	α Cor-Caroli	3	12.47.31	2.85	39.16.18	—19.60	Alioth, N..... 17.38.51	—0.06
121	ε Virg. Vindemiatrix	3	12.53. 9	3.00	11.54.28	—19.50	Arcturus, E. N. E. 19.39.47	—1.75
122	γ Hydræ	3	13. 9.14	3.20	22.14.17 S.	+19.20	Spica, N. ⅛ E. 12. 6.22	+0.12
123	ι Centauri	3	13.19.17	3.40	35.46.57 S.	+19.20	Spica, N. ¼ E. 25.34.34	+0.06
124	α Virginis † * Spica	1	13.15.56	3.14	10.14.19 S.	+18.95	Antares, E. S. E... 45.54.14	+0.13
124	α Virginis † * Spica	1	13.15.56	3.14	10.14.19 S.	+18.95	Zubenelg, E..... 27.28.41	—0.17
124	α Virginis † * Spica	1	13.15.56	3.14	10.14.19 S.	+18.95	Procyon, W. by N. 87.32.32	+0.33
125	ζ Ursæ Maj. Mizar	2	13.16.55	2.40	55.20.50	—19.00	Arcturus, S. by E... 36.31.2	+1.72
126	ζ Virginis	3	13.25. 9	3.00	0.18.26	—18.70	Spica, S. by W..... 10.47.31	—0.21
127	ε Centauri	2.3	13.28.47	3.71	52.29.33 S.	+18.60	β Centauri, S.S.E. ⅛ E. 7.42. 8	—0.07
128	η Urs. Maj. † Benetn.	2	13.40.36	2.38	50.11.43	—18.20	Vega, E. by S. ¼ S. 51. 0.46	+0.06
129	ζ Centauri	3	13.44.37	3.68	46.24.55 S.	+18.00	β Centauri, S. ¼ E. .. 13. 8.26	—0.05
130	η Bootæ	3	13.46. 5	2.90	19.17.21	—18.00	Arcturus, E. by N. 5. 8.13	—1.50
131	β Centauri	1.2	13.51.31	4.11	59.30.57 S.	+17.70	Antares, N. E. ⅛ N. 41.59.12	+0.05
132	α Draconis	3	13.59.56	1.60	65.13. 8	—17.40	Arcturus, S. 45. 8. 2	+1.35
133	α Bootæ † Arcturus	1	14. 7.38	2.73	20. 6.11	—18.99	Benetnach, N.byW. 30.33.58	+1.25
133	α Bootæ † Arcturus	1	14. 7.38	2.73	20. 6.11	—18.99	Vega, E. by N. ⅛ N. 59. 0.41	+2.30
134	η Centauri	2.3	14.24.21	3.75	41.22.35 S.	+16.20	α Centauri. S. 18.45. 5	+0.18
135	γ Bootæ .. Seginus	3	14.24.55	2.40	39. 4.58	—16.20	Arcturus, S. by W. 19.20.29	+2.00
136	α Centauri	1.2	14.28.18	4.45	60. 7. 4 S.	+16.10	Antares, N.E. by N. 38.59. 6	+0.10
136	α Centauri	1.2	14.28.18	4.45	60. 7. 4 S.	+16.10	Spica, N. by W. ¾ W. 51.40.19	+0.05
137	α Lupi	3	14.30.17	3.92	46.37.24 S.	+15.90	α Centauri, S. ¼ W. 13.29.51	+0.10
138	ε Bootæ .. Mirac..	3	14.37. 0	2.60	27.49.22	—15.60	Arcturus, S. W. .. 10.13.38	+1.35
139	α 1 Lib. } † Zuben. {	2.3	14.40.58	3.29	15.15.27 S.	+15.20	Spica, W. by N. ⅓ N. 21.19.12	—0.15
140	α 2 Lib. } † Zuben. {	2.3	14.41.10	+3.29	15.18.11 S.	+15.20	Spica, W. by N. ⅓ N. 21.22.34	—0.15
141	β Ursæ Mi. † Kochab	3	14.51.19	—0.32	74.52.30	—14.70	Benetn., S.S.W. ¼ W. 25.44.27	+0.05
142	β Bootæ	3	14.54.52	+2.20	41. 5.29	—14.50	Arcturus, S.S.W. ¼ W. 23.16. 0	+1.50
143	β Libræ .. Zubenelg	2.3	15. 7.14	3.20	8.43.37 S.	+13.80	Spica, W. 27.28.41	—0.17
144	δ Serpentis	3	15.26. 5	2.90	11. 8. 7	—12.60	Arcturus, W. N.W. 20.52.53	+0.25
145	α Cor.Bor. † Alphacca	2	15.27.14	2.53	27.18.47	—12.49	Arcturus, W. S. W. 19.33.49	+1.05
146	α Serpentis † .. Unuk	2	15.35.36	2.94	6.59.10	—11.73	Arcturus, NWbyW. 25. 1.47	+0.10
147	β Serpentis	3	15.38. 4	2.80	15.58.53	—11.80	Arcturus, W. by N. 21.52. 8	+1.50
148	ι Serpentis	3	15.42. 9	3.00	5. 0.51	—11.50	Arcturus, N.WbyW. 27.29.24	+0.03
149	γ Serpentis	3	15.48. 1	2.70	16.14.47	—12.00	Arcturus, W. by N. 24. 7.45	+0.[illegible]

The Mean Right Ascensions and Declinations of the principal fixed Stars, continued.

S. signifies south declination; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and *true spherical distance* of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.	Annual variation in distance.
			h m s	″	° ′ ″	″		″
0	π Scorpionis	3	15.48.22	+3.60	25.35.31 S.	+11.10	Antares, E. ¼ S.... 6.49.30	+0.08
1	δ Scorpionis	3	15.50.20	3.50	22. 6.40 S.	+10.90	Antares, S.E. by E. 7.33.14	+0.27
2	β Scorpionis	2	15.55.19	3.50	19.18.53 S.	+10.50	Spica, W. by N. .. 39.28.59	+0.54
3	θ Draconis	3	15.58.27	1.10	59. 2. 4	—10.20	Rastaben, S.E. by E. 17.43.16	+0.35
4	δ Ophiuchi .. Jed..	3	16. 5.11	3.10	3.13.51 S.	+ 9.70	Antares, S. ½ E..... 23. 1.40	+0.04
5	ε Ophiuchi	3	16. 9.11	3.10	4.15.13 S.	+ 9.40	Antares, S. ¼ E..... 21.53.42	—1.16
6	γ Herculis	3	16.14. 0	2.60	19.34.23	— 9.10	Arcturus, West, .. 29.47. 5	—0.01
7	α Scorp. † * Antares	1	16.18.38	3.66	26. 1.53 S.	+ 8.62	Arcturus, N.W. by N. 56. 1.25	—0.88
7	α Scorp. † * Antares	1	16.18.38	3.66	26. 1.53 S.	+ 8.62	Zubenelg, N.W. .. 24.13. 8	+0.16
7	α Scorp. † * Antares	1	16.18.38	3.66	26. 1.53 S.	+ 8.62	Fomalhaut, E. ¼ S. 82.50.50	+0.30
8	η Draconis	3	16.21.15	0.80	61.54.54	— 8.40	Rastaben, S.E. 16. 7.43	—0.11
9	β Herculis Rutilicus	3	16.22.59	2.60	21.52.52	— 8.30	Arcturus, West. .. 31.34.45	+1.72
0	ζ Ophiuchi	3	16.27.15	3.30	10.12. 3 S.	+ 8.00	Antares, S. ⅓ W. .. 15.57.41	—0.05
	α Trianguli Australis	2.3	16.30. 7	6.21	68.41.13 S.	+ 7.80	Antares, N. ¼ W. .. 42.41.25	+0.11
	ζ Herculis	3	16.34.53	2.30	31.55.34	— 7.20	Ras Algethi, S.S.E. 18.46.56	—0.10
	ε Scorpionis	3	16.38.29	3.90	33.57.36 S.	+ 7.10	Antares, N.W. by N. 9. 0.54	—0.02
	μ 1 Scorpionis	3	16.39.32	4.00	37.44.11 S.	+ 7.10	Antares, N.N.W... 12.30.42	—0.03
	μ 2 Scorpionis	3.4	16.40.32	4.00	37.42.33 S.	+ 7.10	Antares, N.N.W... 12.33.46	+0.03
	ζ Scorpionis	3	16.42.14	4.21	41. 2.32 S.	+ 6.80	Antares, N. by W. ¼ W. 15.48. 8	+0.45
	ε Herculis	3	16.53.53	2.30	31.11.33	— 5.80	Ras Algethi, S. ¼ E. 16.50.56	—0.26
	η Ophiuchi	2.3	17. 0.19	3.40	15.29.49 S.	+ 5.20	Antares, S.W. 14.13.28	—0.26
	α Herc. † Ras Algethi	2.3	17. 6.38	2.73	14.35.55	— 4.48	Vega, N.E. ½ N... 30.22.34	+0.26
	δ Herculis	3	17. 7.57	2.50	25. 3.24	— 4.60	Ras Algethi, S. ¼ W. 10.27.45	—0.22
	ζ Draconis	3	17. 8. 4	0.14	65.55.53	— 4.50	Rastaben, S. by E. ¼ E. 15.28.31	+0.07
	α Aræ	3	17.18.15	4.62	49.43.20 S.	+ 3.80	Antares, N.N.W. ¼ W. 26.20.21	+0.11
	λ Scorpionis. Lesath	2.3	17.21.32	4.00	36.57.52 S.	+ 3.50	Antares, N.W. ½ W. 17.15.28	—0.55
	θ Scorpionis	3	17.24.41	4.30	42.52.26 S.	+ 3.20	Antares, N.W. ½ N. 21.34.25	+0.09
	α Ophiu. † Ras Alhag.	2	17.26.46	2.77	12.41.46	— 3.10	Vega, N.E. by N. 29.35.12	+0.57
	β Ophiuchi.....	3	17.35. 9	3.00	4.39. 0	— 2.20	Vega, N.N.E. 36.15.56	+0.22
	γ Ophiuchi.....	3	17.39. 9	3.00	2.47. 0	— 2.00	Vega, N. by E. ½ E. 37.44.36	+0.55
	γ Dracon. † Rastaben	2.3	17.52.31	1.38	51.30.48	— 0.70	Vega, S.E. by S. .. 14.32.21	—0.17
	γ 1 Sagittarii	3.4	17.53.27	3.80	29.34.35 S.	+ 0.70	Antares, W. by N. 21.13.35	—0.36
	γ 2 Sagittarii	3.4	17.54.29	3.90	30.24.45 S.	+ 0.70	Antares, W. by N. 21.31.12	+0.60
	δ Sagittarii	3	18. 9.27	3.80	29.53.35 S.	— 0.70	Antares, W. by N. 24.42.42	—0.49
	ε Sagittarii	2.3	18.12.12	3.98	34.27.23 S.	— 0.90	Antares, W. by N. ¼ N. 25.49.48	—0.05
	α Lyræ † .. Vega ..	1	18.30.59	+2.03	38.37.32	+ 3.00	Deneb, E. by N ½ N. 23.51.41	—0.32
	α Lyræ † .. Vega ..	1	18.30.59	+2.03	38.37.32	+ 3.00	Antares, S.S.W. ¼ W. 71.41.16	+0.42
	δ Ursæ Minoris	3	18.31.20	—1.90	86.35.16	+ 3.40	Vega, South..... 47.57.44	+0.40
	β Lyræ	2.3	18.43.51	+2.20	33.10. 1	+ 3.60	Vega, N.N.W. ¼ W. 6. 2.51	+0.30
	σ Sagittarii.....	3	18.44.25	3.70	26.30.16 S.	— 3.70	β Capricorni, E.N.E. 23. 6.16	+0.54
	θ Serpentis.....	3	18.47. 9	3.00	3.58.44	+ 4.00	Vega, N. ½ W. 34.50.29	+0.41
	ζ Lyræ	3	18.48.47	2.10	36.40.51	+ 4.10	Vega, N.W. 4. 1.25	+0.05
	τ Sagittarii.....	3	18.51.27	3.80	30. 7.19 S.	— 4.30	β Capricorni, N.E. by E. 23.32.33	+0.45
	γ Lyræ	3	18.51.51	2.20	32.27. 6	+ 4.50	Vega, N.W. by N. 7.29.21	—0.17
	ε Aquilæ	3	18.52. 1	2.70	14.50.24	+ 4.30	Altair, S.E. ½ S... 13.51.41	+0.53
	τ Aquilæ	3	18.57. 4	2.80	13.36.37	+ 4.80	Altair, S.E. ½ S... 12.13.51	—0.31
	π Sagittarii.....	3	18.59.22	3.60	21.17.41 S.	— 4.90	β Capricorni, E.N.E. 18. 3.51	—0.05
	ι Sagittarii.....	3.4	19.11.41	4.19	40.56. 3 S.	— 6.00	β Capricorni, N.E. by N. 28.40.49	+0.02
	δ Draconis	3	19.12. 4	0.03	67.21. 4	+ 6.20	Vega, S. by W. .. 29.17.42	—0.30
	δ Aquilæ	3	19.16. 9	3.00	2.46. 0	+ 6.40	Altair, N.E..... 8.35.33	+0.90
	δ Vulpeculæ	3.4	19.20.57	2.50	24.19. 3	+ 6.90	Altair, S. by E. .. 16.41.49	—0.24
	β Cygni .. Albireo..	3	19.23.55	2.40	27.35.47	+ 7.10	Altair, S. by E. .. 19.39.57	—0.30
	γ Aquilæ †	3	19.37.54	2.85	10.11.32	+ 8.38	Altair, S.S.E. ½ E. 2. 4.21	+0.01

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The Mean Right Ascensions and Declinations of the principal Fixed Stars, continued.

S. signifies south declination; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and *true spherical distance* of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.	Annual variation in distance.
			h m s	″	° ′ ″	″	° ′ ″	″
200	δ Cygni	3	19.39.42	+1.90	44.42.10	+ 8.30	Vega, S. W. by W. 14. 9.44	−0.00
201	α Vulpeculæ	2.3	19.39.57	2.50	26.53. 5	+ 8.40	Altair, S. 18.28.54	−0.48
202	α Aquilæ†..*Altair	1.2	19.42.12	2.93	8.24.39	+ 9.06	Vega, N.N.W.½W. 34.11.41	+0.01
203	β Aquilæ†	3	19.46.40	2.95	5.58.30	+ 8.57	Altair, N.N.W.½W. 2.40.33	+0.34
204	θ Aquilæ.....	3	20. 2.10	3.10	1.20.18 S.	−10.10	β Capricorni, S. ½ E. 14.10.21	+0.15
205	α 1 Capricorni† ..	3	20. 7.53	3.33	13. 2.38 S.	−10.80	α Pavonis, S. 44.15. 2	+0.40
206	α 2 Capricorni†....	3	20. 8.17	3.33	13. 4.54 S.	−10.80	α Pavonis, S. 44.12.42	+0.35
207	β Capricorni	3	20.11.17	3.40	15.19.52 S.	−10.70	α Pavonis, S. 41.57.27	+0.00
208	α Pavonis	1.2	20.11.39	4.84	57.17.19 S.	−10.70	β Capricorni, N. 41.57.27	+0.00
209	γ Cygni	3	20.15.51	2.20	39.41.52	+11.10	Deneb, N.E. ½ N.. 6. 8.22	−0.2
210	ε Delphini	3	20.25. 5	2.90	10.42.44	+11.70	Altair, W. by S. .. 10.49. 6	−0.15
211	β Delphini.....	3	20.29. 4	2.80	13.58.44	+12.10	Altair, W.S.W..... 12.45.58	−0.7
212	α Delphini	3	20.33. 4	2.80	15.17.43	+12.20	Altair, W.S.W..... 14.12.52	−0.5
213	δ Delphini	3	20.35. 4	2.80	14.27. 0	+12.50	Altair, W.S.W..... 14.17. 9	−0.7
214	α Cygni†..Deneb..	1.2	20.35.26	2.04	44.39.21	+12.63	Altair, S.S.W. 38. 2.18	−0.5
215	γ Delphini	3	20.38. 4	2.80	15.29.53	+12.70	Altair, W.S.W..... 15.22.56	−0.5
216	ε Cygni	3	20.38.54	2.40	33.18.22	+12.70	Deneb, N..... 11.22.10	+0.1
217	ζ Cygni	3	21. 4 59	2.60	29.30.36	+14.40	Deneb,N.byW.½W. 16.14. 4	+0.3
218	α Cephei† Alderaim.	3	21.14.22	1.42	61.50.33	+14.90	Deneb, S.byW.½W. 18. 6.19	−0.1
219	β Aquarii	3	21.22.14	3.20	6.20.28 S.	−15.40	Fomalhaut,SE.byS. 31.28. 3	−0.1
220	β Cephei †	3	21.26.21	0.81	69.47.23	+15.70	Deneb, S.by W.½ W. 25.25.12	−0.0
221	γ Capricorni	3	21.30.15	3.30	17.27.10 S.	−15.80	Fomalhaut, S.E.¼E. 21.59.11	+0.4
222	ε Pegasi.... Enif..	2.3	21.35. 5	2.90	9. 4.22	+16.10	Markab,E.byN.½N. 20.28. 4	+0.7
223	δ Capricorni	3	21.37.16	3.31	16.54.59 S.	−16.20	Fomalhaut, S.E. .. 21. 5.38	+0.1
224	α Aquarii †	3	21.56.45	3.09	1.10.12 S.	−17.37	Fomalhaut, S. S. E. 31.47.15	+0.2
225	α Gruis	2	21.57. 5	3.85	47.48.15 S.	−17.40	α Phœnicis, E. ½ N.. 26. 3.30	+1.3
226	ζ Cephei	3	22. 4.47	2.00	57.20.21	+17.50	β Peg.or*Sch.*,S.byE¼E.31.30. 0	+0.2
227	γ Aquarii	3	22.12.10	3.10	2.16.20 S.	−17.80	FomalhautS.byE¼E.29.31. 5	−0.0
228	β Piscis Australis..	3	22.21.19	3.40	33.14 28 S.	−18.10	Fomalhaut, N.E¼E. 6.14.54	+0.7
229	ε Piscis Australis ..	3	22.31.18	3.40	27.57.33 S.	−18.20	Fomalh.,SEbyE.¼E 4.27.11	−0.6
230	ζ Pegasi	3	22.33. 9	3.00	9.55. 2	+18.60	Markab, N.E.by E. 7. 4.29	−0.0
231	δ Aquarii..Scheat..	3	22.45.14	3.20	16.45.16 S.	−18.90	Fomalhaut, S. 13.48.42	−0.1
232	α Pis.Aust.†*Fomal.	1	22.47.54	3.34	30.33.10 S.	−19.10	Achernar, S. E. ½ S. 39. 7.13	−0.1
232	α Pis.Aust.†*Fomal.	1	22.47.54	3.34	30.33.10 S.	−19.10	Vega, N.W. ½ N... 91.25.21	+0.3
233	β Pegasi .. Scheat..	2	22.55. 5	2.90	27. 7.35	+19.20	Altair, W.S.W. .. 49.12.35	−0.4
234	α Pegasi†*Markab.	2	22.56. 0	2.98	14.15.39	+19.43	Fomalhaut, S. 44.51.21	+0.1
235	γ Cephei.....	3	23.31.54	2.40	76.38.53	+19.90	Alpheratz, S.¼ E.. 48.38.26	+0.0
236	α Androm. † Alpher.	2	23.59.19	3.08	28. 7. 7	+19.99	α Arietis, E. by S. .. 27. 7.58	−0.0

Names of the Greek Characters made use of in this work.

α Alpha.	η Eta.	ν Nu.	τ Tau.
β Beta.	θ Theta.	ξ Xi.	υ Upsilon.
γ Gamma.	ι Iota.	ο O micron.	φ Phi.
δ Delta.	κ Kappa.	π Pi.	χ Chi.
ε Epsilon	λ Lambda.	ρ Rho.	ψ Psi.
ζ Zeta	μ Mu.	σ Sigma.	ω O mega.

Note.—For the method of tracing out and readily knowing any fixed star in the firmament of heav the reader is referred to the New Celestial Planisphere; to the description and use of that Planisphere; an to the Code of Practical Directions for knowing the fixed stars and Planets; which are contained betwee pages 26 and 85 of "The Young Navigator's Guide to the Sidereal and Planetary parts of Nautic Astronomy."

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Acceleration of the fixed Stars;—Or to reduce Sidereal to mean Time.

Sid. days	Acceleration in Mean Time.	Sid. hrs.	Accel. in Mean Time.	Sid. Min.	Accel. in Mean Time.	Sid. Min.	Accel. in Mean Time.	Sid. Sec.	Accel. in Mean Time.	Sid. Sec.	Accel. in Mean Time.
	h. m. s.		m. s.		m. s.		m. s.		m. s.		m. s.
1	0. 3.55.91	1	0. 9.83	1	0.0.16	31	0.5.08	1	0.0.00	31	0.0.08
2	0. 7.51.82	2	0.19.66	2	0.0.33	32	0.5.24	2	0.0.01	32	0.0.09
3	0.11.47.72	3	0.29.49	3	0.0.49	33	0.5.41	3	0.0.01	33	0.0.09
4	0.15.43.63	4	0.39.32	4	0.0.65	34	0.5.57	4	0.0.01	34	0.0.09
5	0.19.39.54	5	0.49.15	5	0.0.82	35	0.5.73	5	0.0.01	35	0.0.10
6	0.23.35.45	6	0.58.98	6	0.0.98	36	0.5.90	6	0.0.02	36	0.0.10
7	0.27.31.36	7	1. 8.81	7	0.1.15	37	0.6.06	7	0.0.02	37	0.0.10
8	0.31.27.26	8	1.18.64	8	0.1.31	38	0.6.22	8	0.0.02	38	0.0.10
9	0.35.23.17	9	1.28.46	9	0.1.47	39	0.6.39	9	0.0.02	39	0.0.11
10	0.39.19.08	10	1.38.29	10	0.1.64	40	0.6.55	10	0.0.03	40	0.0.11
11	0.43 14.99	11	1.48.12	11	0.1.80	41	0.6.72	11	0.0.03	41	0.0.11
12	0.47.10.90	12	1.57.95	12	0.1.97	42	0.6.88	12	0.0.03	42	0.0.11
13	0.51. 6.80	13	2. 7.78	13	0.2.13	43	0.7.04	13	0.0.04	43	0.0.12
14	0.55. 2.71	14	2.17.61	14	0.2.29	44	0.7.21	14	0.0.04	44	0.0.12
15	0.58.58.62	15	2.27.44	15	0.2.46	45	0.7.37	15	0.0.04	45	0.0.12
16	1. 2.54.53	16	2.37.27	16	0.2.62	46	0.7 54	16	0.0.04	46	0.0.13
17	1. 6.50.44	17	2.47.10	17	0.2.78	47	0.7.70	17	0.0.05	47	0.0.13
18	1.10.46.34	18	2.56.93	18	0.2.95	48	0.7.86	18	0.0 05	48	0.0.13
19	1.14.42.25	19	3. 6.76	19	0.3.11	49	0.8.03	19	0.0.05	49	0.0.13
20	1.18.38.16	20	3.16.59	20	0.3.28	50	0.8.19	20	0.0.05	50	0.0.14
21	1.22.34.07	21	3.26.42	21	0.3.44	51	0.8.35	21	0.0.06	51	0.0.14
22	1.26.29.98	22	3.36.25	22	0.3.60	52	0.8.52	22	0.0.06	52	0.0.14
23	1.30.25.88	23	3.46.08	23	0.3.77	53	0.8.68	23	0.0.06	53	0.0.14
24	1.34.21.79	24	3.55.91	24	0.3.93	54	0.8.85	24	0.0.07	54	0.0.15
25	1.38.17.70	25	4. 5.74	25	0.4.10	55	0.9.01	25	0.0.07	55	0.0.15
26	1.42.13.61	26	4.15.57	26	0.4.26	56	0.9.17	26	0.0.07	56	0.0.15
27	1.46. 9.52	27	4.25.40	27	0.4.42	57	0.9.34	27	0.0.07	57	0.0.16
28	1.50. 5.42	28	4.35.22	28	0.4.59	58	0.9.50	28	0.0.08	58	0.0.16
29	1.54. 1.33	29	4.45.05	29	0.4.75	59	0.9.67	29	0.0.08	59	0.0.16
30	1.57.57.24	30	4.54.88	30	0.4 91	60	0.9.83	30	0.0.08	60	0.0.16

TABLE XLVI.

To reduce mean Solar Time to Sidereal Time.

Sol. days	Sidereal Time.	Sol. hrs.	Sidereal Time.	Sol. Min	Sidereal Time.	Sol. Min	Sidereal Time.	Sol. Sec.	Sidereal Time.	Sol. Sec.	Sidereal Time.
	h. m. s.		m. s.		m. s.		m. s.		h. m.		m. s.
1	0. 3.56.55	1	0. 9.86	1	0.0.16	31	0.5.09	1	0.0.00	31	0.0.08
2	0. 7.53.11	2	0.19.71	2	0.0.33	32	0.5.26	2	0.0.01	32	0.0.09
3	0.11.49.66	3	0.29.57	3	0.0.49	33	0.5.42	3	0.0.01	33	0.0.09
4	0.15.46.22	4	0.39.43	4	0.0.66	34	0.5.59	4	0.0.01	34	0.0.09
5	0.19.42.77	5	0.49.28	5	0.0.82	35	0.5.75	5	0.0.01	35	0.0.10
6	0.23.39.33	6	0.59.14	6	0.0.99	36	0.5.91	6	0.0.02	36	0.0.10
7	0.27.35.88	7	1. 8.99	7	0.1.15	37	0.6.08	7	0.0.02	37	0.0.10
8	0.31.32.44	8	1.18.85	8	0.1.31	38	0.6.24	8	0.0.02	38	0.0.10
9	0.35.28.99	9	1.28.71	9	0.1.48	39	0.6.41	9	0.0.02	39	0.0.11
10	0.39.25.55	10	1.38.56	10	0.1.64	40	0.6.57	10	0.0.03	40	0.0.11
11	0.43.22.10	11	1.48.42	11	0.1.81	41	0.6.74	11	0.0.03	41	0.0.11
12	0.47.18.66	12	1.58.28	12	0.1.97	42	0.6.90	12	0.0.03	42	0.0.11
13	0.51.15.21	13	2. 8.13	13	0.2.14	43	0.7.06	13	0.0.04	43	0.0.12
14	0.55.11.77	14	2.17.99	14	0.2.30	44	0.7.23	14	0.0.04	44	0.0.12
15	0.59. 8.32	15	2.27.85	15	0.2.46	45	0.7.39	15	0.0.04	45	0.0.12
16	1. 3. 4.88	16	2.37.70	16	0.2.63	46	0.7.56	16	0.0.04	46	0.0.13
17	1. 7. 1.43	17	2.47.56	17	0.2.79	47	0.7.72	17	0.0.05	47	0.0.13
18	1.10.57.99	18	2.57.42	18	0.2.96	48	0.7.88	18	0.0.05	48	0.0.13
19	1.14.54.54	19	3. 7.27	19	0.3.12	49	0.8.05	19	0.0.05	49	0.0.13
20	1.18.51.10	20	3.17.13	20	0.3.29	50	0.8.21	20	0.0.05	50	0.0.14
21	1.22.47.65	21	3.26.98	21	0.3.45	51	0.8.38	21	0.0.06	51	0.0.14
22	1.26.44.21	22	3.36.84	22	0.3.61	52	0.8.54	22	0.0.06	52	0.0.14
23	1.30.40.76	23	3.46.70	23	0.3.78	53	0.8.71	23	0.0.06	53	0.0.15
24	1.34.37.32	24	3.56.55	24	0.3.94	54	0.8.87	24	0.0.07	54	0.0.15
25	1.38.33.87	25	4. 6.41	25	0.4.11	55	0.9.03	25	0.0.07	55	0.0.15
26	1.42.30.43	26	4.16.27	26	0.4.27	56	0.9.20	26	0.0.07	56	0.0.15
27	1.46.26.98	27	4.26.12	27	0.4.44	57	0.9.36	27	0.0.07	57	0.0.16
28	1.50.23.54	28	4.35.98	28	0.4.60	58	0.9.53	28	0.0.08	58	0.0.16
29	1.54.20.09	29	4.45.83	29	0.4.76	59	0.9.69	29	0.0.08	59	0.0.16
30	1.58.16.65	30	4.55.69	30	0.4.93	60	0.9.86	30	0.0.08	60	0.0.16

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Time from Noon when the Sun's Centre is in the prime Vertical; being the instant at which the Altitude of that object should be observed, in order to ascertain the apparent time with the greatest accuracy.

Lat.	Declination, of the same name with the Latitude.												
	0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°
	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
0													
0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0
1	6. 0	4. 0	5. 2	5.22	5.31	5.37	5.41	5.44	5.46	5.48	5.49	5.50	5.51
2	6. 0	0. 0	4. 0	4.42	5. 2	5.14	5.22	5.28	5.32	5.35	5.38	5.40	5.42
3	6. 0	3.13	2.46	4. 0	4.32	4.51	5. 3	5.11	5.18	5.23	5.27	5.30	5.33
4	6. 0	4. 0	0. 0	3.13	4. 1	4.27	4.43	4.55	5. 4	5.10	5.16	5.20	5.24
5	6. 0	4.26	2.28	2.15	3.26	4. 1	4.23	4.38	4.49	4.58	5. 4	5.10	5.15
6	6. 0	4.42	3.13	0. 0	2.46	3.34	4. 1	4.20	4.34	4.45	4.53	5. 0	5. 5
7	6. 0	4.54	3.41	2. 5	1.56	3. 3	3.39	4. 2	4.19	4.31	4.41	4.49	4.56
8	6. 0	5. 2	4. 1	2.46	0. 0	2.29	3.14	3.43	4. 3	4.17	4.29	4.39	4.46
9	6. 0	5. 9	4.15	3.14	1.50	1.44	2.47	3.22	3.46	4. 3	4.17	4.28	4.37
10	6. 0	5.14	4.27	3.34	2.29	0. 0	2.16	3. 0	3.28	3.49	4. 4	4.16	4.27
11	6. 0	5.19	4.36	3.49	2.55	1.40	1.35	2.35	3. 9	3.33	3.51	4. 5	4.16
12	6. 0	5.22	4.43	4. 1	3.14	2.16	0. 0	2. 6	2.49	3.17	3.37	3.53	4. 6
13	6. 0	5.25	4.49	4.12	3.30	2.41	1.32	1.29	2.26	2.59	3.23	3.41	3.55
14	6. 0	5.28	4.55	4.20	3.43	3. 0	2. 6	0. 0	1.58	2.40	3. 7	3.28	3.44
15	6. 0	5.30	4.59	4.28	3.53	3.15	2.30	1.26	1.23	2.18	2.50	3.14	3.32
16	6. 0	5.32	5. 4	4.34	4. 3	3.28	2.49	1.58	0. 0	1.52	2.32	2.59	3.20
17	6. 0	5.34	5. 7	4.40	4.11	3.39	3. 4	2.21	1.21	1.19	2.11	2.43	3. 7
18	6. 0	5.35	5.10	4.45	4.17	3.49	3.17	2.40	1.52	0. 0	1.47	2.26	2.53
19	6. 0	5.37	5.13	4.49	4.24	3.57	3.28	2.54	2.14	1.17	1.16	2. 6	2.37
20	6. 0	5.38	5.16	4.53	4.29	4. 4	3.37	3. 7	2.32	1.47	0. 0	1.43	2.21
21	6. 0	5.39	5.18	4.56	4.34	4.11	3.46	3.18	2.47	2. 9	1.14	1.13	2. 2
22	6. 0	5.40	5.20	5. 0	4.39	4.16	3.53	3.28	2.59	2.26	1.43	0. 0	1.39
23	6. 0	5.41	5.22	5. 3	4.43	4.22	4. 0	3.36	3.10	2.40	2. 4	1.11	1.10
24	6. 0	5.42	5.24	5. 5	4.46	4.27	4. 6	3.44	3.20	2.53	2.21	1.39	0. 0
25	6. 0	5.43	5.26	5. 8	4.50	4.31	4.12	3.51	3.28	3. 3	2.35	2. 0	1. 9
26	6. 0	5.44	5.27	5.10	4.53	4.35	4.17	3.57	3.36	3.13	2.47	2.16	1.36
27	6. 0	5.44	5.28	5.12	4.56	4.39	4.21	4. 3	3.43	3.22	3. 0	2.30	1.50
28	6. 0	5.45	5.30	5.14	4.59	4.43	4.26	4. 8	3.49	3.29	3. 7	2.42	2.13
29	6. 0	5.46	5.31	5.16	5. 1	4.46	4.30	4.13	3.55	3.36	3.16	2.53	2.26
30	6. 0	5.46	5.32	5.18	5. 4	4.49	4.34	4.18	4. 1	3.43	3.24	3. 2	2.38
31	6. 0	5.47	5.33	5.20	5. 6	4.52	4.37	4.22	4. 6	3.49	3.31	3.11	2.49
32	6. 0	5.47	5.34	5.21	5. 8	4.54	4.40	4.26	4.11	3.55	3.38	3.19	2.58
33	6. 0	5.48	5.35	5.23	5.10	4.57	4.44	4.30	4.15	4. 0	3.44	3.26	3. 7
34	6. 0	5.48	5.36	5.24	5.12	4.59	4.47	4.33	4.19	4. 5	3.49	3.33	3.15
35	6. 0	5.49	5.37	5.25	5.14	5. 2	4.49	4.37	4.23	4. 9	3.55	3.39	3.22
36	6. 0	5.49	5.38	5.27	5.15	5. 4	4.52	4.40	4.27	4.14	4. 0	3.45	3.29
37	6. 0	5.49	5.39	5.28	5.17	5. 6	4.54	4.43	4.31	4.18	4. 4	3.50	3.35
38	6. 0	5.50	5.39	5.29	5.19	5. 8	4.57	4.46	4.34	4.22	4. 9	3.55	3.41
39	6. 0	5.50	5.40	5.30	5.20	5.10	4.59	4.48	4.37	4.25	4.13	4. 0	3.47
40	6. 0	5.50	5.41	5.31	5.21	5.11	5. 1	4.51	4.40	4.29	4.17	4. 5	3.53
42	6. 0	5.51	5.42	5.33	5.24	5.15	5. 5	4.56	4.46	4.35	4.25	4.13	4. 1
44	6. 0	5.52	5.43	5.35	5.27	5.18	5. 9	5. 0	4.51	4.41	4.31	4.21	4.10
46	6. 0	5.52	5.45	5.37	5.29	5.21	5.13	5. 4	4.56	4.47	4.38	4.28	4.18
48	6. 0	5.53	5.46	5.38	5.31	5.23	5.16	5. 8	5. 0	4.52	4.43	4.35	4.25
50	6. 0	5.53	5.47	5.40	5.33	5.26	5.19	5.12	5. 4	4.57	4.49	4.41	4.32
52	6. 0	5.54	5.47	5.41	5.35	5.28	5.22	5.15	5. 8	5. 1	4.54	4.46	4.39
54	6. 0	5.54	5.48	5.42	5.37	5.31	5.24	5.18	5.12	5. 5	4.59	4.52	4.45
56	6. 0	5.55	5.49	5.44	5.38	5.33	5.27	5.21	5.15	5. 9	5. 3	4.57	4.50
58	6. 0	5.55	5.50	5.45	5.40	5.35	5.29	5.24	5.19	5.13	5. 7	5. 2	4.55
60	6. 0	5.55	5.51	5.46	5.41	5.37	5.32	5.27	5.22	5.17	5.11	5. 6	5. 0
62	6. 0	5.56	5.51	5.47	5.43	5.38	5.34	5.30	5.25	5.20	5.15	5.10	5. 5
64	6. 0	5.56	5.52	5.48	5.44	5.40	5.36	5.32	5.28	5.24	5.19	5.15	5.10
66	6. 0	5.56	5.53	5.49	5.46	5.42	5.38	5.35	5.31	5.27	5.23	5.19	5.14
68	6. 0	5.57	5.54	5.50	5.47	5.44	5.40	5.37	5.33	5.30	5.26	5.22	5.19
70	6. 0	5.57	5.54	5.51	5.48	5.45	5.42	5.39	5.36	5.33	5.30	5.26	5.23
72	6. 0	5.57	5.55	5.52	5.50	5.47	5.44	5.41	5.39	5.36	5.33	5.30	5.27
74	6. 0	5.58	5.55	5.53	5.51	5.48	5.46	5.43	5.41	5.39	5.36	5.33	5.31
76	6. 0	5.58	5.56	5.54	5.52	5.49	5.48	5.45	5.44	5.41	5.39	5.36	5.34
78	6. 0	5.58	5.57	5.55	5.53	5.51	5.50	5.48	5.46	5.44	5.42	5.40	5.38
Lat.	0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°
	Declination, of the same name with the Latitude.												

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Altitude of a Celestial object, (when its centre is in the prime Vertical,) most proper for determining the Apparent Time with the greatest accuracy.

Lat.	Declination of the object, of the same name as the Latitude.													Lat.
	0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	
°	° °	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	°
0	0.to90 ° ′	0. 0	0. 0	0. 0	0. 0	0 .0	0 .0	0. 0	0. 0	0. 0	0. 0	0. 0	0. 0	0
1	0.0	30. 0	14.29	9.37	7.12	5.46	4.49	4. 8	3.38	3.14	2.55	2.40	2.28	1
2	0.0	90. 0	30. 1	19.30	14.31	11.36	9.40	8.18	7.17	6.29	5.52	5.21	4.55	2
3	0.0	41.49	48.37	30. 3	22. 5	17.32	14.35	12.30	10.57	9.45	8.48	8. 2	7.24	3
4	0.0	30. 1	90. 0	41.52	30. 5	23.41	19.36	16.45	14.40	13. 3	11.46	10.44	9.53	4
5	0.0	23.36	53.10	56.30	38.46	30. 8	24.47	21. 7	18.26	16.23	14.46	13.27	12.22	5
6	0.0	19.30	41.52	90. 0	48.40	40. 9	30.11	25.36	22.17	19.46	17.48	16.12	14.53	6
7	0.0	16.38	34.55	59. 4	61. 7	44.34	35.53	30.15	26.14	23.14	20.52	18.59	17.26	7
8	0.0	14.31	30. 5	48.41	90. 0	53.16	42. 1	35. 7	30.20	26.46	24. 1	21.48	20. 1	8
9	0.0	12.23	26.29	41.56	62.50	64.16	48.48	40.17	34.35	30.25	27.13	24.41	22.37	9
10	0.0	11.35	23.41	37. 0	53.17	90. 0	56.38	45.52	39. 3	34.11	30.30	27.37	25.16	10
11	0.0	10.32	21.27	33.13	46.50	65.31	69.36	52. 4	43.48	38. 8	33.55	30.47	27.59	11
12	0.0	9.40	19.36	30.11	42. 2	56.39	90. 0	59.15	48.58	42.17	37.26	33.42	30.44	12
13	0.0	8.55	18. 4	27.41	38.13	50.32	67.33	68.25	54.42	46.43	41. 8	36.54	33.35	13
14	0.0	8.18	16.45	25.36	35. 7	45.53	59.15	90. 0	61.22	51.31	45. 1	40.13	36.30	14
15	0.0	7.45	15.38	23.49	32.32	42. 8	53.27	69.11	69.53	56.53	49.11	43.43	39.31	15
16	0.0	7.16	14.40	22.17	30.20	39. 4	48.59	61.23	90. 0	63. 6	50.12	47.22	42.39	16
17	0.0	6.51	13.48	20.57	28.26	36.26	45.20	55.50	70.31	71. 7	58.44	51.18	45.57	17
18	0.0	6.29	13. 3	19.46	26.46	34.11	42.17	51.32	63. 8	90. 0	64.37	55.34	49.26	18
19	0.0	6. 9	12.22	18.44	25.18	32.14	39.41	48. 0	57.51	71.39	72. 9	60.21	53.10	19
20	0.0	5.51	11.46	17.48	24. 1	30.31	37.27	45. 2	53.43	64.40	90. 0	65.54	57.13	20
21	0.0	5.35	11.13	16.57	22.51	28.59	35.28	42.28	50.17	59.34	72.37	73. 4	61.46	21
22	0.0	5.21	10.44	16.12	21.49	27.37	33.43	40.14	47.22	55.35	65.56	90. 0	67. 5	22
23	0.0	5. 7	10.17	15.31	20.52	26.23	32. 9	38.15	44.52	52.16	61. 5	73.29	73.52	23
24	0.0	4.55	9.53	14.53	20. 1	25.17	30.45	36.30	42.40	49.27	57.15	67. 6	90. 0	24
25	0.0	4.44	9.30	14.19	19.14	24.16	29.28	34.55	40.43	46.59	54. 2	62.25	74.14	25
26	0.0	4.34	9. 9	13.48	18.31	23.21	28.19	33.30	38.58	44.50	51.18	58.44	68. 7	26
27	0.0	4.25	8.50	13.19	17.51	22.29	27.15	32.12	37.23	42.54	48.53	55.36	63.37	27
28	0.0	4.16	8.33	12.52	17.15	21.43	26.17	31. 1	35.57	41.10	46.47	52.57	60. 3	28
29	0.0	4. 8	8.16	12.27	16.41	20.59	25.23	29.56	34.39	39.36	44.55	50.37	57. 2	29
30	0.0	4. 0	8. 1	12. 4	16.10	20.19	24.34	28.56	33.57	38.11	43.10	48.32	54.26	30
31	0.0	3.53	7.47	11.43	15.41	19.42	23.48	28. 1	32.21	36.52	41.37	46.40	52. 9	31
32	0.0	3.47	7.34	11.23	15.14	19. 8	23. 6	27.10	31.20	35.41	40.12	45. 0	50. 8	32
33	0.0	3.40	7.22	11. 4	14.48	18.36	22.26	26.22	30.24	34.34	38.54	43.27	48.19	33
34	0.0	3.35	7.10	10.46	14.25	18. 8	21.50	25.38	29.32	33.33	37.43	42. 4	46.40	34
35	0.0	3.29	6.59	10.30	14. 3	17.37	21.15	24.57	28.43	32.36	36.36	40.47	45.10	35
36	0.0	3.24	6.49	10.15	13.42	17.12	20.43	24.18	27.58	31.43	35.35	39.36	43.48	36
37	0.0	3.19	6.39	10. 0	13.22	16.46	20.12	23.42	27.16	30.54	34.38	38.30	42.31	37
38	0.0	3.15	6.31	9.47	13. 4	16.23	19.44	23. 9	26.36	30. 8	33.45	37.29	41.22	38
39	0.0	3.11	6.22	9.34	12.47	16. 1	19.17	22.36	25.59	29.24	32.55	36.32	40.16	39
40	0.0	3. 7	6.14	9.21	12.30	15.40	18.52	22. 7	25.24	28.44	32. 9	35.39	39.15	40
42	0.0	2.59	5.59	8.59	12.59	15. 3	18. 6	22.12	24.20	27.30	30.45	34. 3	37.26	42
44	0.0	2.53	5.46	8.39	11.33	14.29	17.25	20.23	23.23	26.25	29.30	32.38	35.50	44
46	0.0	2.47	5.34	8.21	11.10	13.58	16.48	19.39	22.32	25.27	28.24	31.23	34.26	46
48	0.0	2.41	5.23	8. 5	10.48	13.31	16.15	19. 0	21.46	24.34	27.27	30.16	33.11	48
50	0.0	2.36	5.13	7.50	10.28	13. 6	15.45	18.25	21. 5	23.48	26.32	29.17	32. 4	50
52	0.0	2.32	5. 5	7.37	10.11	12.44	15.18	17.53	20.29	23. 6	25.44	28.23	31. 5	52
54	0.0	2.28	4.57	7.25	9.54	12.24	14.53	17.24	19.55	22.28	25. 1	27.35	30.11	54
56	0.0	2.25	4.50	7.14	9.40	12. 6	14.32	16.58	19.25	21.53	24.22	26.52	29.23	56
58	0.0	2.22	4.43	7. 4	9.27	11.49	14.12	16.35	18.58	21.22	23.47	26.13	28.40	58
60	0.0	2.19	4.37	6.56	9.15	11.34	13.54	16.15	18.33	20.54	23.16	25.38	28. 1	60
62	0.0	2.16	4.31	6.48	9. 4	11.21	13.37	15.54	18.12	20.30	22.48	25. 7	27.26	62
64	0.0	2.14	4.27	6.41	8.53	11. 9	13.23	15.37	17.53	20. 7	22.22	24.38	26.54	64
66	0.0	2.12	4.22	6.34	8.44	10.58	13.10	15.22	17.34	19.46	22. 0	24.13	26.26	66
68	0.0	2. 9	4.19	6.28	8.37	10.48	12.58	15. 8	17.18	19.28	21.39	23.50	26. 1	68
70	0.0	2. 8	4.15	6.23	8.31	10.39	12.47	14.55	17. 3	19.12	21.21	23.30	25.39	70
72	0.0	2. 6	4.12	6.19	8.25	10.31	12.38	14.44	16.51	18.54	21. 5	23.12	25.19	72
74	0.0	2. 5	4. 9	6.15	8.20	10.25	12.30	14.35	16.40	18.45	20.51	22.56	25. 2	74
76	0.0	2. 4	4. 7	6.11	8.15	10.19	12.23	14.27	16.30	18.34	20.39	22.43	24.47	76
78	0.0	2. 3	4. 5	6. 8	8.11	10.14	12.16	14.19	16.22	18.25	20.29	22.31	24.34	78
	0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	Lat.
	Declination of the object, of the same name as the Latitude.													

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Amplitudes of a celestial object, reckoned from the true East, or West Point of the Horizon.

Lat.	Declination 0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	15° 30′	Lat.
°	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	°
0	0. 0	1. 0	2. 0	3. 0	4. 0	5. 0	6. 0	7. 0	8. 0	9. 0	10. 0	11. 0	12. 0	13. 0	14. 0	15. 0	15. 30	0
1	0. 0	1. 0	2. 0	3. 0	4. 0	5. 0	6. 0	7. 0	8. 0	9. 0	10. 0	11. 0	12. 0	13. 0	14. 0	15. 0	15. 30	1
2	0. 0	1. 0	2. 0	3. 0	4. 0	5. 0	6. 0	7. 0	8. 0	9. 0	10. 0	11. 0	12. 0	13. 0	14. 0	15. 0	15. 31	2
3	0. 0	1. 0	2. 0	3. 0	4. 0	5. 0	6. 0	7. 1	8. 1	9. 1	10. 1	11. 1	12. 1	13. 1	14. 1	15. 1	15. 31	3
4	0. 0	1. 0	2. 0	3. 0	4. 1	5. 1	6. 1	7. 1	8. 1	9. 1	10. 2	11. 2	12. 2	13. 2	14. 2	15. 2	15. 32	4
5	0. 0	1. 0	2. 0	3. 0	4. 1	5. 1	6. 1	7. 2	8. 2	9. 2	10. 3	11. 3	12. 3	13. 3	14. 3	15. 4	15. 34	5
6	0. 0	1. 0	2. 0	3. 1	4. 1	5. 1	6. 2	7. 3	8. 3	9. 3	10. 4	11. 4	12. 4	13. 4	14. 4	15. 5	15. 35	6
7	0. 0	1. 0	2. 1	3. 1	4. 2	5. 2	6. 3	7. 4	8. 4	9. 4	10. 5	11. 5	12. 5	13. 6	14. 6	15. 7	15. 37	7
8	0. 0	1. 0	2. 1	3. 2	4. 3	5. 3	6. 4	7. 5	8. 5	9. 5	10. 6	11. 7	12. 7	13. 8	14. 8	15. 9	15. 39	8
9	0. 0	1. 0	2. 1	3. 2	4. 3	5. 3	6. 5	7. 5	8. 6	9. 7	10. 8	11. 8	12. 9	13. 10	14. 10	15. 11	15. 42	9
10	0. 0	1. 1	2. 2	3. 3	4. 4	5. 5	6. 6	7. 7	8. 8	9. 9	10. 10	11. 11	12. 12	13. 13	14. 14	15. 15	15. 44	10
11	0. 0	1. 1	2. 2	3. 3	4. 4	5. 6	6. 7	7. 9	8. 9	9. 10	10. 12	11. 13	12. 14	13. 15	14. 16	15. 17	15. 48	11
12	0. 0	1. 1	2. 3	3. 4	4. 5	5. 7	6. 8	7. 10	8. 11	9. 12	10. 14	11. 15	12. 16	13. 18	14. 19	15. 21	15. 51	12
13	0. 0	1. 2	2. 3	3. 5	4. 6	5. 8	6. 10	7. 11	8. 13	9. 14	10. 16	11. 18	12. 19	13. 21	14. 23	15. 24	15. 55	13
14	0. 0	1. 2	2. 4	3. 6	4. 7	5. 9	6. 11	7. 13	8. 15	9. 17	10. 19	11. 20	12. 22	13. 24	14. 26	15. 28	15. 59	14
15	0. 0	1. 2	2. 4	3. 6	4. 8	5. 11	6. 13	7. 15	8. 17	9. 19	10. 21	11. 24	12. 26	13. 28	14. 30	15. 33	16. 4	15
16	0. 0	1. 2	2. 5	3. 7	4. 10	5. 12	6. 15	7. 17	8. 19	9. 22	10. 24	11. 27	12. 29	13. 32	14. 35	15. 37	16. 8	16
17	0. 0	1. 3	2. 5	3. 8	4. 11	5. 14	6. 17	7. 19	8. 22	9. 25	10. 28	11. 31	12. 33	13. 36	14. 39	15. 42	16. 14	17
18	0. 0	1. 3	2. 6	3. 9	4. 12	5. 15	6. 19	7. 22	8. 25	9. 28	10. 31	11. 34	12. 38	13. 41	14. 44	15. 47	16. 19	18
19	0. 0	1. 3	2. 7	3. 10	4. 14	5. 17	6. 21	7. 24	8. 28	9. 31	10. 35	11. 39	12. 42	13. 46	14. 49	15. 53	16. 25	19
20	0. 0	1. 4	2. 8	3. 12	4. 15	5. 19	6. 23	7. 27	8. 31	9. 35	10. 39	11. 43	12. 47	13. 51	14. 55	15. 59	16. 31	20
21	0. 0	1. 4	2. 9	3. 13	4. 17	5. 21	6. 26	7. 30	8. 34	9. 39	10. 43	11. 48	12. 52	13. 57	15. 1	16. 6	16. 38	21
22	0. 0	1. 5	2. 9	3. 14	4. 19	5. 24	6. 28	7. 33	8. 38	9. 43	10. 48	11. 53	12. 57	14. 2	15. 7	16. 13	16. 45	22
23	0. 0	1. 5	2. 10	3. 16	4. 21	5. 26	6. 31	7. 36	8. 42	9. 47	10. 52	11. 58	13. 3	14. 9	15. 14	16. 20	16. 53	23
24	0. 0	1. 6	2. 11	3. 17	4. 23	5. 28	6. 34	7. 40	8. 46	9. 52	10. 57	12. 3	13. 9	14. 15	15. 21	16. 27	17. 1	24
25	0. 0	1. 6	2. 12	3. 19	4. 25	5. 31	6. 37	7. 44	8. 50	9. 56	11. 3	12. 9	13. 16	14. 22	15. 29	16. 36	17. 9	25
26	0. 0	1. 7	2. 14	3. 20	4. 27	5. 34	6. 41	7. 48	8. 54	10. 1	11. 8	12. 15	13. 22	14. 30	15. 37	16. 44	17. 18	26
27	0. 0	1. 7	2. 15	3. 22	4. 29	5. 37	6. 44	7. 52	8. 59	10. 7	11. 14	12. 22	13. 30	14. 37	15. 45	16. 53	17. 27	27
28	0. 0	1. 8	2. 16	3. 24	4. 32	5. 40	6. 48	7. 56	9. 4	10. 12	11. 21	12. 29	13. 37	14. 46	15. 54	17. 3	17. 36	28
29	0. 0	1. 9	2. 17	3. 26	4. 34	5. 43	6. 52	8. 1	9. 9	10. 18	11. 27	12. 36	13. 45	14. 54	16. 3	17. 13	17. 47	29
30	0. 0	1. 9	2. 19	3. 28	4. 37	5. 47	6. 56	8. 5	9. 15	10. 24	11. 34	12. 44	13. 53	15. 3	16. 13	17. 23	17. 58	30
31	0. 0	1. 10	2. 20	3. 30	4. 40	5. 50	7. 0	8. 10	9. 21	10. 31	11. 41	12. 52	14. 2	15. 13	16. 24	17. 34	18. 10	31
32	0. 0	1. 11	2. 22	3. 32	4. 43	5. 54	7. 5	8. 16	9. 27	10. 38	11. 49	13. 0	14. 11	15. 23	16. 34	17. 46	18. 22	32
33	0. 0	1. 12	2. 23	3. 35	4. 46	5. 58	7. 10	8. 21	9. 33	10. 45	11. 57	13. 9	14. 21	15. 34	16. 46	17. 59	18. 35	33
34	0. 0	1. 12	2. 25	3. 37	4. 50	6. 2	7. 15	8. 27	9. 40	10. 53	12. 5	13. 18	14. 31	15. 45	16. 58	18. 11	18. 48	34
35	0. 0	1. 13	2. 27	3. 40	4. 53	6. 6	7. 20	8. 33	9. 47	11. 1	12. 14	13. 28	14. 42	15. 56	17. 11	18. 25	19. 2	35
36	0. 0	1. 14	2. 28	3. 43	4. 57	6. 11	7. 25	8. 40	9. 54	11. 9	12. 24	13. 39	14. 54	16. 9	17. 24	18. 39	19. 17	36
37	0. 0	1. 15	2. 30	3. 45	5. 1	6. 16	7. 31	8. 47	10. 2	11. 18	12. 33	13. 49	15. 5	16. 22	17. 38	18. 55	19. 33	37
38	0. 0	1. 16	2. 32	3. 48	5. 5	6. 21	7. 37	8. 54	10. 10	11. 27	12. 44	14. 1	15. 18	16. 35	17. 53	19. 10	19. 49	38
39	0. 0	1. 17	2. 34	3. 52	5. 9	6. 26	7. 44	9. 1	10. 19	11. 37	12. 55	14. 13	15. 31	16. 50	18. 8	19. 27	20. 7	39
40	0. 0	1. 18	2. 37	3. 55	5. 13	6. 32	7. 51	9. 9	10. 28	11. 47	13. 6	14. 25	15. 45	17. 5	18. 25	19. 45	20. 25	40
41	0. 0	1. 20	2. 39	3. 59	5. 18	6. 38	7. 58	9. 18	10. 38	11. 58	13. 18	14. 39	15. 59	17. 20	18. 42	20. 3	20. 44	41
42	0. 0	1. 21	2. 42	4. 2	5. 23	6. 44	8. 5	9. 26	10. 48	12. 9	13. 31	14. 53	16. 15	17. 37	19. 0	20. 23	21. 5	42
43	0. 0	1. 22	2. 44	4. 6	5. 28	6. 51	8. 13	9. 36	10. 58	12. 21	13. 44	15. 7	16. 31	17. 55	19. 19	20. 44	21. 23	43
44	0. 0	1. 23	2. 47	4. 10	5. 34	6. 58	8. 21	9. 45	11. 9	12. 34	13. 58	15. 23	16. 48	18. 13	19. 39	21. 5	21. 49	44
45	0. 0	1. 25	2. 50	4. 15	5. 40	7. 5	8. 30	9. 55	11. 21	12. 47	14. 13	15. 39	17. 6	18. 33	20. 0	21. 28	22. 12	45
46	0. 0	1. 26	2. 53	4. 19	5. 46	7. 12	8. 39	10. 6	11. 33	13. 1	14. 29	15. 57	17. 25	18. 54	20. 23	21. 53	22. 38	46
47	0. 0	1. 28	2. 57	4. 24	5. 52	7. 21	8. 49	10. 18	11. 46	13. 16	14. 45	16. 15	17. 45	19. 16	20. 47	22. 18	23. 4	47
48	0. 0	1. 30	2. 59	4. 29	5. 59	7. 29	8. 59	10. 30	12. 0	13. 31	15. 2	16. 34	18. 6	19. 39	21. 12	22. 45	23. 33	48
49	0. 0	1. 31	3. 3	4. 35	6. 6	7. 38	9. 10	10. 42	12. 15	13. 48	15. 21	16. 54	18. 29	20. 3	21. 38	23. 14	24. 3	49
50	0. 0	1. 33	3. 7	4. 40	6. 14	7. 48	9. 22	10. 56	12. 30	14. 5	15. 40	17. 16	18. 52	20. 29	22. 7	23. 45	24. 34	50
51	0. 0	1. 35	3. 11	4. 46	6. 22	7. 58	9. 34	11. 10	12. 47	14. 24	16. 1	17. 39	19. 17	20. 57	22. 36	24. 17	25. 8	51
52	0. 0	1. 37	3. 15	4. 53	6. 30	8. 8	9. 47	11. 25	13. 4	14. 43	16. 23	18. 3	19. 44	21. 26	23. 8	24. 52	25. 44	52
53	0. 0	1. 40	3. 19	4. 59	6. 39	8. 20	10. 0	11. 41	13. 22	15. 4	16. 46	18. 29	20. 13	21. 57	23. 42	25. 28	26. 22	53
54	0. 0	1. 42	3. 24	5. 7	6. 49	8. 32	10. 15	11. 58	13. 42	15. 26	17. 11	18. 57	20. 43	22. 30	24. 18	26. 7	27. 3	54
55	0. 0	1. 46	3. 29	5. 14	6. 59	8. 44	10. 30	12. 16	14. 3	15. 50	17. 37	19. 26	21. 15	23. 5	24. 57	26. 49	27. 46	55
56	0. 0	1. 47	3. 35	5. 22	7. 10	8. 58	10. 46	12. 35	14. 25	16. 15	18. 5	19. 57	21. 50	23. 43	25. 38	27. 34	28. 33	56
57	0. 0	1. 50	3. 40	5. 31	7. 22	9. 13	11. 4	12. 56	14. 48	16. 42	18. 36	20. 30	22. 26	24. 24	26. 22	28. 22	29. 23	57
58	0. 0	1. 53	3. 47	5. 40	7. 34	9. 28	11. 23	13. 18	15. 14	17. 10	19. 8	21. 6	23. 6	25. 7	27. 10	29. 14	30. 17	58
59	0. 0	1. 57	3. 53	5. 59	7. 47	9. 45	11. 43	13. 41	15. 41	17. 41	19. 42	21. 45	23. 49	25. 54	28. 1	30. 10	31. 16	59
60	0. 0	2. 0	4. 0	6. 0	8. 1	10. 2	12. 4	14. 6	16. 10	18. 14	20. 19	22. 26	24. 34	26. 44	28. 56	31. 10	32. 18	60
Lat.	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	15° 30′	Lat.

DECLINATION.

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Amplitudes of a celestial object, reckoned from the true East or West Point of the Horizon.

Lat.	Declination 16°	16° 30′	17°	17° 30′	18°	18° 30′	19°	19° 30′	20°	20° 30′	21°	21° 30′	22°	22° 30′	23°	23° 30′	Lat.
°	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	°
0	16. 0	16. 30	17. 0	17. 30	18. 0	18. 30	19. 0	19. 30	20. 0	20. 30	21. 0	21. 30	22. 0	22. 30	23. 0	23. 30	0
1	16. 0	16. 30	17. 0	17. 30	18. 0	18. 30	19. 0	19. 30	20. 0	20. 30	21. 0	21. 30	22. 0	22. 30	23. 1	23. 31	1
2	16. 1	16. 31	17. 1	17. 31	18. 1	18. 31	19. 1	19. 31	20. 1	20. 31	21. 1	21. 31	22. 1	22. 31	23. 2	23. 32	2
3	16. 1	16. 31	17. 2	17. 32	18. 2	18. 32	19. 2	19. 32	20. 2	20. 32	21. 2	21. 32	22. 2	22. 32	23. 3	23. 33	3
4	16. 2	16. 32	17. 3	17. 33	18. 3	18. 33	19. 3	19. 33	20. 3	20. 33	21. 3	21. 33	22. 3	22. 33	23. 4	23. 34	4
5	16. 4	16. 34	17. 4	17. 34	18. 4	18. 34	19. 4	19. 35	20. 5	20. 35	21. 5	21. 35	22. 5	22. 35	23. 5	23. 36	5
6	16. 5	16. 35	17. 5	17. 36	18. 6	18. 36	19. 6	19. 37	20. 7	20. 37	21. 7	21. 37	22. 7	22. 38	23. 8	23. 38	6
7	16. 7	16. 38	17. 8	17. 38	18. 8	18. 39	19. 9	19. 39	20. 9	20. 40	21. 10	21. 40	22. 10	22. 41	23. 11	23. 41	7
8	16. 10	16. 40	17. 10	17. 40	18. 11	18. 41	19. 12	19. 42	20. 12	20. 43	21. 13	21. 43	22. 14	22. 44	23. 14	23. 44	8
9	16. 12	16. 43	17. 13	17. 43	18. 14	18. 44	19. 15	19. 45	20. 16	20. 46	21. 17	21. 47	22. 18	22. 48	23. 18	23. 48	9
10	16. 16	16. 45	17. 17	17. 46	18. 18	18. 47	19. 19	19. 48	20. 20	20. 50	21. 21	21. 51	22. 22	22. 52	23. 23	23. 53	10
11	16. 18	16. 49	17. 20	17. 50	18. 21	18. 51	19. 22	19. 53	20. 24	20. 54	21. 25	21. 55	22. 26	22. 57	23. 27	23. 58	11
12	16. 22	16. 52	17. 23	17. 54	18. 25	18. 55	19. 26	19. 57	20. 28	20. 59	21. 30	22. 0	22. 31	23. 2	23. 33	24. 3	12
13	16. 26	16. 57	17. 28	17. 59	18. 29	19. 0	19. 31	20. 2	20. 33	21. 4	21. 35	22. 6	22. 37	23. 8	23. 38	24. 9	13
14	16. 30	17. 1	17. 32	18. 3	18. 34	19. 5	19. 36	20. 7	20. 38	21. 9	21. 40	22. 11	22. 43	23. 14	23. 45	24. 16	14
15	16. 35	17. 6	17. 37	18. 8	18. 39	19. 11	19. 42	20. 13	20. 44	21. 15	21. 47	22. 18	22. 49	23. 20	23. 52	24. 23	15
16	16. 40	17. 11	17. 42	18. 14	18. 45	19. 16	19. 48	20. 19	20. 51	21. 22	21. 53	22. 25	22. 56	23. 28	23. 59	24. 30	16
17	16. 45	17. 17	17. 48	18. 20	18. 51	19. 23	19. 54	20. 26	20. 57	21. 29	22. 1	22. 32	23. 4	23. 35	24. 7	24. 39	17
18	16. 51	17. 22	17. 54	18. 26	18. 58	19. 29	20. 1	20. 33	21. 5	21. 36	22. 8	22. 40	23. 12	23. 44	24. 15	24. 47	18
19	16. 57	17. 29	18. 1	18. 33	19. 5	19. 37	20. 8	20. 40	21. 12	21. 44	22. 16	22. 49	23. 20	23. 52	24. 25	24. 57	19
20	17. 3	17. 36	18. 8	18. 40	19. 12	19. 44	20. 16	20. 48	21. 21	21. 53	22. 25	22. 57	23. 30	24. 2	24. 34	25. 7	20
21	17. 10	17. 43	18. 15	18. 47	19. 20	19. 52	20. 25	20. 57	21. 29	22. 2	22. 34	23. 7	23. 39	24. 12	24. 45	25. 17	21
22	17. 18	17. 50	18. 23	18. 55	19. 28	20. 1	20. 33	21. 6	21. 39	22. 12	22. 44	23. 17	23. 50	24. 23	24. 55	25. 28	22
23	17. 25	17. 58	18. 31	19. 4	19. 37	20. 10	20. 43	21. 16	21. 49	22. 22	22. 55	23. 28	24. 1	24. 34	25. 7	25. 40	23
24	17. 34	18. 7	18. 40	19. 13	19. 46	20. 19	20. 53	21. 26	21. 59	22. 32	23. 6	23. 39	24. 13	24. 46	25. 19	25. 53	24
25	17. 42	18. 16	18. 49	19. 23	19. 56	20. 30	21. 3	21. 37	22. 10	22. 44	23. 18	23. 51	24. 25	24. 59	25. 32	26. 6	25
26	17. 52	18. 25	18. 59	19. 33	20. 7	20. 40	21. 14	21. 48	22. 22	22. 56	23. 30	24. 4	24. 38	25. 12	25. 46	26. 20	26
27	18. 1	18. 35	19. 9	19. 43	20. 18	20. 52	21. 26	22. 0	22. 34	23. 9	23. 43	24. 17	24. 52	25. 26	26. 1	26. 35	27
28	18. 11	18. 45	19. 20	19. 54	20. 29	21. 3	21. 38	22. 12	22. 47	23. 22	23. 57	24. 31	25. 6	25. 41	26. 16	26. 51	28
29	18. 22	18. 57	19. 32	20. 7	20. 41	21. 16	21. 51	22. 27	23. 1	23. 36	24. 11	24. 46	25. 22	25. 57	26. 32	27. 7	29
30	18. 34	19. 9	19. 44	20. 19	20. 54	21. 30	22. 5	22. 40	23. 16	23. 51	24. 27	25. 2	25. 38	26. 13	26. 49	27. 25	30
31	18. 48	19. 21	19. 57	20. 32	21. 8	21. 44	22. 19	22. 55	23. 31	24. 7	24. 43	25. 19	25. 55	26. 31	27. 7	27. 43	31
32	18. 58	19. 34	20. 10	20. 46	21. 22	21. 58	22. 35	23. 11	23. 47	24. 26	25. 0	25. 36	26. 13	26. 49	27. 26	28. 3	32
33	19. 11	19. 48	20. 24	21. 1	21. 37	22. 14	22. 51	23. 27	24. 4	24. 41	25. 18	25. 55	26. 32	27. 9	27. 46	28. 23	33
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44	22. 32	23. 15	23. 59	24. 43	25. 26	26. 11	26. 55	27. 39	28. 23	29. 8	29. 53	30. 38	31. 23	32. 8	32. 54	33. 39	44
45	22. 57	23. 41	24. 25	25. 10	25. 55	26. 40	27. 25	28. 10	28. 56	29. 41	30. 27	31. 13	31. 59	32. 46	33. 33	34. 20	45
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50	25. 24	26. 13	27. 3	27. 53	28. 44	29. 35	30. 26	31. 18	32. 9	33. 1	33. 53	34. 46	35. 39	36. 32	37. 26	38. 20	50
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52	26. 36	27. 28	28. 21	29. 14	30. 8	31. 1	31. 56	32. 50	33. 45	34. 40	35. 36	36. 32	37. 29	38. 26	39. 24	40. 22	52
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55	28. 43	29. 41	30. 39	31. 37	32. 36	33. 35	34. 35	35. 35	36. 36	37. 38	38. 40	39. 43	40. 47	41. 51	42. 56	44. 3	55
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59	32. 21	33. 28	34. 35	35. 43	36. 52	38. 2	39. 12	40. 24	41. 37	42. 50	44. 6	45. 22	46. 40	47. 59	49. 21	50. 44	59
60	33. 27	34. 37	35. 47	36. 58	38. 10	39. 24	40. 38	41. 53	43. 10	44. 28	45. 47	47. 8	48. 31	49. 56	51. 24	52. 54	60
Lat.	16°	16° 30′	17°	17° 30′	18°	18° 30′	19°	19° 30′	20°	20° 30′	21°	21° 30′	22°	22° 30′	23°	23° 30′	Lat.

Declination.

Digitized by Google

TO FIND THE TIMES OF RISING AND SETTING OF A CELESTIAL OBJECT.

Lat.	Declination.																Lat.
	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	15°30	
°	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	°
0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	0
1	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	1
2	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 2	6. 2	6. 2	6. 2	6. 2	2
3	6. 0	6. 0	6. 0	6. 1	6. 1	6. 1	6. 1	6. 1	6. 2	6. 2	6. 2	6. 2	6. 3	6. 3	6. 3	6. 3	6. 3	3
4	6. 0	6. 0	6. 0	6. 1	6. 1	6. 1	6. 2	6. 2	6. 2	6. 3	6. 3	6. 3	6. 3	6. 4	6. 4	6. 4	6. 4	4
5	6. 0	6. 0	6. 1	6. 1	6. 1	6. 2	6. 2	6. 2	6. 3	6. 3	6. 4	6. 4	6. 4	6. 5	6. 5	6. 5	6. 5	5
6	6. 0	6. 0	6. 1	6. 1	6. 2	6. 2	6. 3	6. 3	6. 3	6. 4	6. 4	6. 5	6. 5	6. 6	6. 6	6. 6	6. 7	6
7	6. 0	6. 0	6. 1	6. 1	6. 2	6. 2	6. 3	6. 3	6. 4	6. 4	6. 5	6. 5	6. 6	6. 6	6. 7	6. 8	6. 8	7
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13	6. 0	6. 1	6. 2	6. 3	6. 4	6. 5	6. 6	6. 6	6. 7	6. 8	6. 9	6. 10	6. 11	6. 12	6. 13	6. 14	6. 15	13
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15	6. 0	6. 1	6. 2	6. 3	6. 4	6. 5	6. 6	6. 8	6. 9	6. 10	6. 11	6. 12	6. 13	6. 14	6. 15	6. 16	6. 17	15
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22	6. 0	6. 2	6. 3	6. 5	6. 6	6. 8	6. 10	6. 11	6. 13	6. 15	6. 16	6. 18	6. 20	6. 21	6. 23	6. 25	6. 26	22
23	6. 0	6. 2	6. 3	6. 5	6. 7	6. 9	6. 10	6. 12	6. 14	6. 15	6. 17	6. 19	6. 21	6. 22	6. 24	6. 26	6. 27	23
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28	6. 0	6. 2	6. 4	6. 6	6. 9	6. 11	6. 13	6. 15	6. 17	6. 19	6. 22	6. 24	6. 26	6. 28	6. 30	6. 33	6. 34	28
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60	6. 0	6. 7	6. 14	6. 21	6. 28	6. 35	6. 42	6. 49	6. 56	7. 4	7. 11	7. 19	7. 26	7. 34	7. 42	7. 51	7. 55	60
Lat.	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	15°30	Lat.
	Declination.																	

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TO FIND THE TIMES OF RISING AND SETTING OF A CELESTIAL OBJECT.

Lat.	DECLINATION.																							
	° 16	° ′ 16.30	° 17	° ′ 17.30	° 18	° ′ 18.30	° 19	° ′ 19.30	° 20	° ′ 20.30	° 21	° ′ 21.30	° 22	° ′ 22.30	° 23	° ′ 23.30	Lat.
°	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	°
0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	6. 0	0
1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 1	6. 2	6. 2	6. 2	6. 2	6. 2	6. 2	1
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3	6. 3	6. 4	6. 4	6. 4	6. 4	6. 4	6. 4	6. 4	6. 4	6. 4	6. 5	6. 5	6. 5	6. 5	6. 5	6. 5	3
4	6. 5	6. 5	6. 5	6. 5	6. 5	6. 5	6. 5	6. 6	6. 6	6. 6	6. 6	6. 6	6. 6	6. 7	6. 7	6. 7	4
5	6. 6	6. 6	6. 6	6. 6	6. 7	6. 7	6. 7	6. 7	6. 7	6. 7	6. 8	6. 8	6. 8	6. 8	6. 9	6. 9	5
6	6. 7	6. 7	6. 7	6. 8	6. 8	6. 8	6. 8	6. 9	6. 9	6. 9	6. 9	6. 10	6. 10	6. 10	6. 10	6. 10	6
7	6. 8	6. 8	6. 9	6. 9	6. 9	6. 9	6. 10	6. 10	6. 10	6. 11	6. 11	6. 11	6. 11	6. 12	6. 12	6. 12	7
8	6. 9	6. 9	6. 10	6. 10	6. 10	6. 11	6. 11	6. 11	6. 12	6. 12	6. 12	6. 13	6. 13	6. 13	6. 14	6. 14	8
9	6. 10	6. 11	6. 11	6. 12	6. 12	6. 12	6. 13	6. 13	6. 13	6. 14	6. 14	6. 14	6. 15	6. 15	6. 15	6. 16	9
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11	6. 13	6. 13	6. 14	6. 14	6. 14	6. 15	6. 15	6. 16	6. 16	6. 17	6. 17	6. 18	6. 18	6. 18	6. 19	6. 19	11
12	6. 14	6. 14	6. 15	6. 15	6. 16	6. 16	6. 17	6. 17	6. 18	6. 18	6. 19	6. 19	6. 20	6. 20	6. 21	6. 21	12
13	6. 15	6. 16	6. 16	6. 17	6. 17	6. 18	6. 18	6. 19	6. 19	6. 20	6. 20	6. 21	6. 21	6. 22	6. 22	6. 23	13
14	6. 16	6. 17	6. 17	6. 18	6. 19	6. 19	6. 20	6. 20	6. 21	6. 21	6. 22	6. 23	6. 23	6. 24	6. 24	6. 25	14
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24	6. 29	6. 30	6. 31	6. 32	6. 33	6. 34	6. 35	6. 36	6. 37	6. 38	6. 39	6. 40	6. 41	6. 42	6. 44	6. 45	24
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27	6. 34	6. 35	6. 36	6. 37	6. 38	6. 39	6. 40	6. 42	6. 43	6. 44	6. 45	6. 46	6. 48	6. 49	6. 50	6. 51	27
28	6. 35	6. 36	6. 37	6. 39	6. 40	6. 41	6. 42	6. 43	6. 45	6. 46	6. 47	6. 48	6. 50	6. 51	6. 52	6. 53	28
29	6. 37	6. 38	6. 39	6. 40	6. 42	6. 43	6. 44	6. 45	6. 47	6. 48	6. 49	6. 50	6. 52	6. 53	6. 54	6. 56	29
30	6. 38	6. 39	6. 41	6. 42	6. 43	6. 45	6. 46	6. 47	6. 49	6. 50	6. 51	6. 53	6. 54	6. 55	6. 57	6. 58	30
31	6. 40	6. 41	6. 42	6. 44	6. 45	6. 46	6. 48	6. 49	6. 51	6. 52	6. 53	6. 55	6. 56	6. 58	6. 59	7. 1	31
32	6. 41	6. 43	6. 44	6. 46	6. 47	6. 48	6. 50	6. 51	6. 53	6. 54	6. 56	6. 57	6. 58	7. 0	7. 1	7. 3	32
33	6. 43	6. 44	6. 46	6. 47	6. 49	6. 50	6. 52	6. 53	6. 55	6. 56	6. 58	6. 59	7. 1	7. 2	7. 4	7. 5	33
34	6. 45	6. 46	6. 48	6. 49	6. 51	6. 52	6. 54	6. 55	6. 57	6. 58	7. 0	7. 2	7. 3	7. 5	7. 7	7. 8	34
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36	6. 48	6. 50	6. 51	6. 53	6. 55	6. 56	6. 58	7. 0	7. 1	7. 3	7. 5	7. 7	7. 8	7. 10	7. 12	7. 14	36
37	6. 50	6. 52	6. 53	6. 55	6. 57	6. 58	7. 0	7. 2	7. 4	7. 5	7. 7	7. 9	7. 11	7. 13	7. 15	7. 16	37
38	6. 52	6. 53	6. 55	6. 57	6. 59	7. 1	7. 2	7. 4	7. 6	7. 8	7. 10	7. 12	7. 14	7. 16	7. 17	7. 19	38
39	6. 54	6. 55	6. 57	6. 59	7. 1	7. 3	7. 5	7. 7	7. 9	7. 10	7. 12	7. 14	7. 16	7. 18	7. 20	7. 22	39
40	6. 56	6. 58	6. 59	7. 1	7. 3	7. 5	7. 7	7. 9	7. 11	7. 13	7. 15	7. 17	7. 19	7. 21	7. 23	7. 25	40
41	6. 58	7. 0	7. 2	7. 4	7. 6	7. 8	7. 10	7. 12	7. 14	7. 16	7. 18	7. 20	7. 22	7. 24	7. 27	7. 29	41
42	7. 0	7. 2	7. 4	7. 6	7. 8	7. 10	7. 12	7. 14	7. 17	7. 19	7. 21	7. 23	7. 25	7. 28	7. 30	7. 32	42
43	7. 2	7. 4	7. 6	7. 8	7. 11	7. 13	7. 15	7. 17	7. 19	7. 22	7. 24	7. 26	7. 29	7. 31	7. 33	7. 35	43
44	7. 4	7. 6	7. 9	7. 11	7. 13	7. 15	7. 18	7. 20	7. 22	7. 25	7. 27	7. 29	7. 32	7. 34	7. 37	7. 39	44
45	7. 7	7. 9	7. 11	7. 14	7. 16	7. 18	7. 21	7. 23	7. 25	7. 28	7. 30	7. 33	7. 35	7. 38	7. 40	7. 43	45
46	7. 9	7. 11	7. 14	7. 16	7. 19	7. 21	7. 24	7. 26	7. 29	7. 31	7. 34	7. 36	7. 39	7. 42	7. 44	7. 47	46
47	7. 10	7. 14	7. 17	7. 19	7. 22	7. 24	7. 27	7. 29	7. 32	7. 35	7. 37	7. 40	7. 43	7. 46	7. 48	7. 51	47
48	7. 14	7. 17	7. 19	7. 22	7. 25	7. 27	7. 30	7. 33	7. 35	7. 38	7. 41	7. 44	7. 47	7. 50	7. 53	7. 56	48
49	7. 17	7. 20	7. 22	7. 25	7. 28	7. 31	7. 33	7. 36	7. 39	7. 42	7. 45	7. 48	7. 51	7. 54	7. 57	8. 0	49
50	7. 20	7. 23	7. 25	7. 28	7. 31	7. 34	7. 37	7. 40	7. 43	7. 46	7. 49	7. 52	7. 55	7. 58	8. 2	8. 5	50
51	7. 23	7. 26	7. 29	7. 32	7. 35	7. 38	7. 41	7. 43	7. 47	7. 50	7. 53	7. 56	8. 0	8. 3	8. 6	8. 10	51
52	7. 26	7. 29	7. 32	7. 35	7. 38	7. 41	7. 45	7. 48	7. 51	7. 54	7. 58	8. 1	8. 5	8. 8	8. 12	8. 15	52
53	7. 29	7. 33	7. 36	7. 39	7. 42	7. 45	7. 49	7. 52	7. 56	7. 59	8. 2	8. 6	8. 10	8. 13	8. 17	8. 21	53
54	7. 33	7. 36	7. 40	7. 43	7. 46	7. 50	7. 53	7. 57	8. 0	8. 4	8. 8	8. 11	8. 15	8. 19	8. 23	8. 27	54
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56	7. 41	7. 44	7. 48	7. 51	7. 55	7. 59	8. 3	8. 7	8. 11	8. 15	8. 19	8. 23	8. 27	8. 32	8. 36	8. 40	56
57	7. 45	7. 48	7. 52	7. 56	8. 0	8. 4	8. 8	8. 12	8. 16	8. 21	8. 25	8. 29	8. 34	8. 39	8. 43	8. 48	57
58	7. 49	7. 53	7. 57	8. 1	8. 5	8. 9	8. 14	8. 18	8. 22	8. 27	8. 32	8. 36	8. 41	8. 46	8. 51	8. 56	58
59	7. 54	7. 58	8. 2	8. 7	8. 11	8. 15	8. 20	8. 24	8. 29	8. 34	8. 39	8. 44	8. 49	8. 54	9. 0	9. 5	59
60	7. 59	8. 4	8. 8	8. 12	8. 17	8. 22	8. 26	8. 31	8. 36	8. 41	8. 47	8. 52	8. 58	9. 3	9. 9	9. 15	60
Lat.	° 16	° ′ 16.30	° 17	° ′ 17.30	° 18	° ′ 18.30	° 19	° ′ 19.30	° 20	° ′ 20.30	° 21	° ′ 21.30	° 22	° ′ 22.30	° 23	° ′ 23.30	Lat.
	DECLINATION.																

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FOR COMPUTING THE MERIDIONAL ALTITUDE OF A CELESTIAL OBJECT.

Declination of the object of the same name with the Latitude.

Latitude	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	Latitude
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
0	900.53.4	110.58.5	55.57.7	37.31.4	27.55.8	22.23.8	18.37.4	15.58.1	13.55.9	12.23.8	11. 7.0	10. 5.0	9.14.0	8.22.8	0
1	110.58.5	900.45.3	110.54.5	55.54.6	37.28.7	27.53.2	22.21.6	18.35.0	15.55.7	13.49.6	12.21.6	11. 4.7	10. 2.8	9.11.8	1
2	55.57.7	110.54.5	900.21.3	110.46.5	55.49.5	37.24.6	27.49.6	22.18.3	18.32.0	15.52.9	13.50.7	12.18.9	11. 2.1	10. 0.2	2
3	37.31.4	55.54.6	110.46.5	899.39.6	110.35.4	55.42.4	37.19.1	27.45.1	22.16.2	18.28.2	15.49.4	13.47.4	12.15.7	10.59.0	3
4	27.55.8	37.28.7	55.49.5	110.35.4	898.41.9	110.18.4	55.33.2	37.12.3	27.39.5	22. 9.3	18.23.8	15.45.3	13.43.6	12.12.1	4
5	22.23.8	27.53.2	37.24.6	55.42.4	110.18.4	897.20.9	109.58.4	55.22.0	37. 4.1	27.32.9	22. 3.6	18.18.7	15.40.8	13.39.3	5
6	18.37.4	22.21.6	27.49.6	37.19.1	55.33.2	109.58.4	895.45.8	109.34.5	55. 8.8	36.54.6	27.25.3	21.57.1	18.13.6	15.36.4	6
7	15.58.1	18.35.0	22.18.3	27.45.1	37.12.3	55.22.0	109.34.5	893.53.7	109. 6.7	54.53.6	36.43.8	27.16.7	21.49.9	18. 6.5	7
8	13.55.9	15.55.7	18.32.0	22.16.2	27.39.5	37. 4.1	55. 8.8	109. 6.7	891.44.7	108.35.0	54.36.5	36.31.6	27. 7.2	21.41.8	8
9	12.23.8	13.49.6	15.52.9	18.28.2	22. 9.3	27.32.9	36.54.6	54.53.6	108.36.0	889.19.0	107.59.5	54.17.4	36.18.1	26.58.7	9
10	11. 7.0	12.21.6	13.50.7	15.49.4	18.23.8	22. 3.6	27.25.3	36.43.8	54.36.5	107.59.5	886.36.7	107.30.1	53.56.4	36. 2.4	10
11	10. 5.0	11. 4.7	12.18.9	13.47.4	15.45.3	18.18.7	21.57.1	27.16.7	36.31.6	54.17.4	107.30.1	883.38.1	106.37.1	53.33.5	11
12	9.14.0	10. 2.8	11. 2.1	12.15.7	13.43.6	15.40.6	18.13.0	21.49.9	27. 7.2	36.18.1	53.56.4	106.37.1	880.23.4	105.56.5	12
13	8.22.8	9.11.8	10. 0.2	10.59.0	12.12.1	13.39.3	15.35.4	18. 6.5	21.41.8	26.56.7	36. 3.4	53.33.5	105.50.3	876.58.7	13
14	7.52.3	8.37.6	9. 9.3	9.57.2	10.55.5	12. 8.0	13.34.5	15.29.7	17.59.6	21.33.0	26.45.2	35.47.4	53. 8.7	104.59.9	14
15	7.19.6	7.50.1	8.25.1	9. 6.4	9.53.9	10.51.7	12. 3.5	13.29.2	15.23.4	17.51.9	21.23.4	26.32.6	35.30.2	52.41.1	15
16	6.50.7	7.17.4	7.47.6	8.22.2	9. 3.3	9.50.2	10.47.5	11.58.6	13.23.5	15.16.5	17.43.7	21.13.1	26.19.5	35.17.7	16
17	6.25.1	6.48.6	7.15.0	7.44.9	8.19.1	8.59.6	9.46.2	10.42.8	11.53.3	13.17.3	15. 9.1	17.34.5	21. 2.0	26. 5.3	17
18	6. 2.5	6.22.9	6.46.1	7.12.2	7.41.8	8.15.7	8.55.8	9.41.8	10.37.8	11.47.5	13.10.6	15. 1.2	17.25.2	20.50.3	18
19	5.41.8	6. 0.4	6.20.5	6.43.5	7. 9.3	7.38.5	8.12.0	8.51.6	9.37.1	10.32.5	11.41.3	13. 3.4	14.52.8	17.15.1	19
20	5.23.6	5.39.6	5.57.4	6.17.9	6.40.6	7. 6.0	7.34.9	8. 8.0	8.47.1	9.32.1	10.26.7	11.34.7	12.55.8	14.43.9	20
21	5. 6.7	5.21.5	5.37.3	5.55.4	6.15.0	6.37.4	7. 2.6	7.31.1	8. 6.7	8.42.3	9.26.7	10.20.7	11.27.8	12.47.8	21
22	4.51.2	5. 4.6	5.19.1	5.34.7	5.52.6	6.12.0	6.34.0	6.58.8	7.26.9	7.59.1	8.37.2	9.21.0	10.14.2	11.20.4	22
23	4.37.5	4.49.1	5. 2.2	5.16.6	5.31.9	5.49.5	6. 8.7	6.30.4	6.54.8	7.22.6	7.54.3	8.31.8	9.15.0	10. 7.4	23
24	4.24.4	4.35.3	4.46.8	4.59.7	5.13.9	5.29.0	5.46.3	6. 5.1	6.26.6	6.50.6	7.17.9	7.49.2	8.26.2	9. 6.6	24
25	4.12.5	4.22.3	4.33.0	4.44.3	4.57.1	5.11.0	5.25.8	5.42.9	6. 1.4	6.22.5	6.46.2	7.13.1	7.43.8	8.20.2	25
26	4. 1.6	4.10.4	4.20.0	4.30.5	4.41.6	4.54.2	5. 7.9	5.22.5	5.39.3	5.57.5	6.18.2	6.41.5	7. 8.0	7.38.2	26
27	3.51.1	3.59.4	4. 8.1	4.17.5	4.27.9	4.38.8	4.51.2	5. 4.6	5.19.0	5.35.5	5.53.4	6.13.7	6.36.6	7. 2.6	27
28	3.41.5	3.49.0	3.57.2	4. 5.7	4.14.9	4.25.1	4.35.8	4.47.9	5. 1.1	5.15.2	5.31.5	5.49.0	6. 9.0	6.31.5	28
29	3.32.4	3.39.4	3.46.8	3.54.8	4. 3.1	4.12.2	4.22.2	4.32.7	4.44.6	4.57.5	5.11.4	5.27.2	5.44.5	6. 4.1	29
30	3.23.8	3.30.3	3.37.1	3.44.4	3.52.2	4. 0.4	4. 9.3	4.19.1	4.29.4	4.41.0	4.53.7	5. 7.3	5.22.9	5.39.8	30
31	3.15.9	3.21.9	3.28.0	3.34.7	3.41.8	3.49.5	3.57.5	4. 6.2	4.15.8	4.25.9	4.37.4	4.49.8	5. 3.1	5.18.4	31
32	3. 8.5	3.13.8	3.19.6	3.25.7	3.32.2	3.39.2	3.46.7	3.54.5	4. 3.1	4.12.5	4.22.3	4.33.5	4.45.7	4.58.7	32
33	3. 1.3	3. 6.4	3.11.6	3.17.2	3.23.2	3.29.6	3.36.4	3.43.7	3.51.4	3.59.8	4. 8.9	4.18.6	4.29.5	4.41.4	33
34	2.54.6	2.59.2	3. 4.1	3. 9.3	3.14.8	3.20.6	3.26.8	3.33.5	3.40.7	3.48.1	3.56.3	4. 5.3	4.14.7	4.25.4	34
35	2.48.3	2.52.5	2.57.0	3. 1.8	3. 6.8	3.12.2	3.17.9	3.24.0	3.30.4	3.37.5	3.44.8	3.52.7	4. 1.5	4.10.7	35
36	2.42.1	2.46.2	2.50.3	2.54.7	2.59.4	3. 4.2	3. 9.5	3.15.0	3.21.0	3.27.3	3.34.1	3.41.3	3.49.0	3.57.5	36
37	2.36.3	2.40.0	2.44.0	2.48.0	2.52.2	2.56.8	3. 1.6	3. 6.7	3.12.1	3.17.9	3.24.0	3.30.7	3.37.6	3.45.2	37
38	2.30.7	2.34.2	2.37.8	2.41.7	2.45.6	2.49.7	2.54.2	2.58.8	3. 3.8	3. 9.0	3.14.7	3.20.7	3.27.2	3.33.9	38
39	2.25.4	2.28.6	2.32.0	2.35.5	2.39.3	2.43.1	2.47.1	2.51.4	2.55.9	3. 0.8	3. 5.9	3.11.4	3.17.2	3.23.5	39
40	2.20.4	2.23.4	2.26.4	2.29.7	2.33.1	2.36.8	2.40.5	2.44.4	2.48.6	2.53.0	2.57.7	3. 2.6	3. 8.0	3.13.8	40
41	2.15.5	2.18.3	2.21.2	2.24.1	2.27.3	2.30.7	2.34.2	2.37.8	2.41.6	2.45.7	2.49.9	2.54.4	2.59.3	3. 4.5	41
42	2.10.9	2.13.4	2.16.1	2.18.9	2.21.8	2.24.9	2.28.1	2.31.5	2.35.0	2.38.7	2.42.6	2.46.8	2.51.2	2.55.9	42
43	2. 6.3	2. 8.8	2.11.2	2.13.8	2.16.5	2.19.3	2.22.4	2.25.5	2.28.8	2.32.1	2.35.7	2.39.5	2.43.5	2.47.8	43
44	2. 2.0	2. 4.2	2. 6.6	2. 9.0	2.11.5	2.14.1	2.16.8	2.19.7	2.22.8	2.26.0	2.29.2	2.32.7	2.36.4	2.40.2	44
45	1.57.8	1.59.9	2. 2.0	2. 4.4	2. 6.6	2. 9.1	2.11.6	2.14.2	2.17.0	2.20.0	2.23.1	2.26.2	2.29.5	2.33.1	45
46	1.53.7	1.55.7	1.57.7	1.59.8	2. 2.0	2. 4.2	2. 6.6	2. 9.0	2.11.6	2.14.3	2.17.1	2.20.1	2.23.1	2.26.3	46
47	1.49.8	1.51.6	1.53.5	1.55.5	1.57.5	1.59.6	2. 1.8	2. 4.0	2. 6.4	2. 8.8	2.11.4	2.14.2	2.17.1	2.20.0	47
48	1.46.1	1.47.7	1.49.5	1.51.3	1.53.2	1.55.1	1.57.2	1.59.2	2. 1.4	2. 3.7	2. 6.0	2. 8.6	2.11.2	2.14.0	48
49	1.42.4	1.44.0	1.45.6	1.47.3	1.49.0	1.50.8	1.52.7	1.54.7	1.56.6	1.58.7	2. 0.9	2. 3.2	2. 5.6	2. 8.1	49
50	1.38.8	1.40.3	1.41.8	1.43.4	1.45.0	1.46.7	1.48.4	1.50.2	1.52.1	1.54.0	1.56.0	1.58.1	2. 0.2	2. 2.5	50
52	1.32.0	1.33.3	1.34.6	1.36.0	1.37.3	1.38.8	1.40.3	1.41.8	1.43.4	1.45.0	1.46.8	1.48.5	1.50.4	1.52.3	52
54	1.25.6	1.26.7	1.27.8	1.29.0	1.30.2	1.31.4	1.32.7	1.34.0	1.35.3	1.36.7	1.38.2	1.39.7	1.41.2	1.42.8	54
56	1.19.5	1.20.4	1.21.4	1.22.4	1.23.4	1.24.4	1.25.5	1.26.7	1.27.8	1.28.9	1.30.2	1.31.4	1.32.7	1.34.1	56
58	1.13.6	1.14.4	1.15.2	1.16.1	1.17.0	1.17.9	1.18.8	1.19.7	1.20.7	1.21.7	1.22.7	1.23.8	1.24.9	1.26.0	58
60	1. 8.0	1. 8.7	1. 9.4	1.10.2	1.10.9	1.11.6	1.12.4	1.13.2	1.14.0	1.14.8	1.15.7	1.16.6	1.17.5	1.18.4	60
62	1. 2.6	1. 3.2	1. 3.8	1. 4.4	1. 5.1	1. 5.7	1. 6.3	1. 7.0	1. 7.7	1. 8.4	1. 9.1	1. 9.8	1.10.6	1.11.4	62
64	0.57.5	0.57.9	0.58.5	0.59.0	0.59.5	1. 0.0	1. 0.6	1. 1.0	1. 1.7	1. 2.3	1. 2.9	1. 3.5	1. 4.1	1. 4.7	64
66	0.52.5	0.52.8	0.53.3	0.53.7	0.54.1	0.54.6	0.55.0	0.55.5	0.56.0	0.56.4	0.56.9	0.57.5	0.57.9	0.58.4	66
68	0.47.6	0.47.9	0.48.3	0.48.6	0.49.0	0.49.3	0.49.7	0.50.1	0.50.5	0.50.8	0.51.2	0.51.7	0.52.1	0.52.5	68
70	0.42.9	0.43.2	0.43.4	0.43.7	0.44.0	0.44.3	0.44.6	0.44.9	0.45.2	0.45.5	0.45.8	0.46.1	0.46.5	0.46.8	70
72	0.38.3	0.38.5	0.38.7	0.39.0	0.39.2	0.39.4	0.39.6	0.39.9	0.40.1	0.40.3	0.40.6	0.40.9	0.41.1	0.41.4	72
Latitude	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	Latitude
	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	

Declination of the object of the same name with the Latitude.

Note.—When the object either comes *to*, or *within* one degree of the zenith, the angle of meeting made by the latitude and the declination (both of the same name) will fall within the double lines which run obliquely through the body of this Table and through the upper left hand corner of Table LII.: in this case, since the interval between the time of observation and noon or meridional passage, must not exceed one minute, the corresponding number will, therefore, be the correction of altitude direct, independently of any logarithmic calculation whatever.

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FOR COMPUTING THE MERIDIONAL ALTITUDE OF A CELESTIAL OBJECT.

Declination of the object of the same name with the Latitude.

Latitude	14°	15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	Latitude
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
0	7.52.3	7.19.6	6.50.7	6.25.1	6. 2.5	5.41.8	5.23.6	5. 6.7	4.51.2	4.37.5	4.24.4	4.12.3	4. 1.6	3.51.1	3.41.5	0
1	8.27.6	7.50.1	7.17.4	6.48.6	6.22.9	6. 0.4	5.39.6	5.21.5	5. 4.6	4.49.1	4.35.3	4.22.8	4.10.4	3.59.4	3.49.0	1
2	9. 9.3	8.25.1	7.47.6	7.15.0	6.46.1	6.20.5	5.57.4	5.37.3	5.19.1	5. 2.2	4.46.8	4.33.0	4.20.0	4. 8.1	3.57.2	2
3	9.57.2	9. 6.4	8.22.2	7.44.9	7.12.9	6.43.5	6.17.9	5.55.4	5.34.7	5.16.6	4.59.7	4.44.3	4.30.5	4.17.5	4. 5.7	3
4	10.55.2	9.53.9	9. 3.2	8.19.1	7.41.8	7. 9.3	6.40.6	6.15.0	5.52.6	5.31.9	5.13.8	4.57.1	4.41.6	4.27.9	4.14.9	4
5	12. 8.0	10.51.7	9.50.2	8.59.6	8.15.7	7.38.5	7. 6.0	6.37.4	6.12.0	5.49.5	5.29.0	5.11.0	4.54.2	4.38.8	4.24.1	5
6	13.34.5	12. 3.5	10.47.5	9.46.2	8.55.8	8.12.0	7.34.9	7. 2.6	6.34.0	6. 8.7	5.46.3	5.25.8	5. 7.9	4.51.2	4.35.8	6
7	15.29.7	13.29.2	11.58.6	10.42.8	9.41.8	8.51.6	8. 8.0	7.31.1	6.58.8	6.30.4	6. 5.1	5.42.9	5.22.5	5. 4.6	4.47.9	7
8	17.59.6	15.23.4	13.23.5	11.53.3	10.37.8	9.37.1	8.47.1	8. 3.7	7.26.9	6.54.8	6.26.6	6. 1.4	5.39.3	5.19.0	5. 1.1	8
9	21.33.0	17.51.9	15.16.5	13.17.3	11.47.5	10.32.5	9.32.1	8.42.3	7.59.1	7.22.6	6.50.6	6.22.5	5.57.5	5.35.5	5.15.2	9
10	26.45.2	21.23.4	17.43.7	15. 9.1	13.10.6	11.41.3	10.26.7	9.26.7	8.37.2	7.54.3	7.17.9	6.46.2	6.18.8	5.53.4	5.31.5	10
11	36.47.4	26.32.8	21.13.1	17.34.5	15. 1.3	13. 3.4	11.31.7	10.20.7	9.21.0	8.31.8	7.49.2	7.13.1	6.41.5	6.13.7	5.49.0	11
12	53. 8.7	35.30.2	26.19.5	21. 2.0	17.25.2	14.52.8	12.55.8	11.37.8	10.14.2	9.15.0	8.26.2	7.43.8	7. 8.0	6.36.6	6. 9.0	12
13	104.59.9	52.42.1	36.11.7	26. 5.3	20.50.3	17.15.1	14.48.9	12.47.8	11.20.4	10. 7.4	9. 8.6	8.20.2	7.38.2	7. 2.6	6.31.5	13
14	673. 6.5	104. 5.9	52.13.7	34.52.0	26.50.2	20.37.8	17. 4.5	14.34.4	12.39.4	11.12.7	10. 0.3	9. 2.0	8.14.0	7.32.3	6.57.0	14
15	104. 5.9	669. 4.8	103. 8.3	51.43.5	34.31.2	25.34.2	20.24.6	16.53.2	14.24.5	12.30.5	11. 4.6	9.52.9	8.55.1	8. 7.5	7.26.2	15
16	52.13.7	103. 8.3	664.48.1	102. 7.4	51.11.5	34. 9.2	25.17.4	20.16.8	16.41.4	14.14.2	12.21.2	10.56.2	9.45.1	8.47.9	8. 0.8	16
17	34.22.0	51.43.5	102. 7.4	860.16.7	101. 8.1	50.37.9	33.46.0	24.59.8	19.56.3	16.29.1	14. 3.3	12.11.6	10.47.4	9.37.1	8.40.4	17
18	25.50.2	34.31.2	51.11.5	101. 8.1	855.30.8	99.55.5	50. 2.6	38.21.8	24.41.3	19.41.1	16.16.2	13.52.1	12. 1.5	10.39.2	9.28.7	18
19	20.37.8	25.34.2	34. 9.2	50.37.9	99.55.5	850.30.9	98.44.7	49.25.7	38.56.5	24.22.1	19.25.4	16. 2.8	13.40.4	11.51.1	10.28.8	19
20	17. 4.5	20.24.6	25.17.4	33.46.0	50. 2.6	98.44.7	845.17.2	97.30.7	48.47.2	38.30.2	24. 2.1	19. 9.1	15.49.0	13.28.2	11.40.3	20
21	14.34.4	16.53.2	20.10.8	24.59.8	33.21.8	49.25.7	97.30.7	839.49.3	96.13.8	48. 7.2	38. 2.8	23.41.4	18.52.1	15.34.6	13.15.7	21
22	12.39.4	14.24.5	16.41.4	19.56.3	24.41.3	38.56.5	48.47.2	96.13.8	833.38.5	94.53.9	47.25.8	31.34.5	23.19.9	18.34.6	15.19.8	22
23	11.12.7	12.30.5	14.14.2	16.29.1	19.41.1	24.22.1	38.30.2	48. 7.2	94.53.9	827.14.1	93.31.1	46.42.9	31. 5.3	22.57.8	18.16.6	23
24	10. 0.3	11. 4.6	12.21.2	14. 3.3	16.16.2	19.25.4	34. 2.1	38. 2.8	47.25.8	93.31.1	820.36.4	92. 5.7	45.58.7	30.35.2	22.35.0	24
25	9. 2.0	9.52.9	10.56.2	12.11.6	13.42.1	16. 2.8	19. 9.0	23.41.4	31.34.5	46.42.9	92. 5.7	813.12.3	90.37.6	45.13.1	30. 4.2	25
26	8.14.0	8.55.1	9.45.1	10.47.4	12. 1.5	13.40.4	15.49.0	18.52.1	23.19.9	31. 5.3	45.58.7	90.37.6	806.43.5	89. 6.9	44.26.3	26
27	7.32.3	8. 7.5	8.47.9	9.37.1	10.38.2	11.51.1	13.28.2	15.34.6	18.34.6	22.57.8	30.35.2	45.13.1	89. 6.9	799.29.3	87.33.9	27
28	6.57.0	7.26.2	8. 0.8	8.40.4	9.28.7	10.28.8	11.40.3	13.15.7	15.19.8	18.16.6	22.35.0	30. 4.2	44.26.3	87.33.9	792. 3.9	28
29	6.26.2	6.51.2	7.19.9	7.53.8	8.32.7	9.30.1	10.19.0	11.29.2	13. 2.8	15. 4.6	17.58.0	22.11.6	29.32.3	43.38.2	85.58.5	29
30	5.59.1	6.20.7	6.45.2	7.13.3	7.46.5	8.24.7	9.11.2	10. 8.9	11.17.8	12.49.5	14.48.9	17.30.0	21.47.6	28.59.7	43.49.0	30
31	5.34.9	5.53.8	6.15.0	6.39.0	7. 6.5	7.39.1	8.16.5	9. 2.0	9.58.6	11. 6.0	12.35.9	14.32.9	17.19.4	21.23.0	28.26.3	31
32	5.13.7	5.30.9	5.48.3	6. 9.1	6.32.6	6.59.5	7.31.4	8. 8.0	8.52.5	9.48.0	10.53.9	12.21.9	14.16.4	16.59.5	20.37.9	32
33	4.54.2	5. 8.8	5.24.6	5.42.7	6. 3.0	6.26.0	6.52.3	7.23.5	7.59.3	8.42.8	9.37.1	10.41.6	12. 7.7	13.50.6	16.39.1	33
34	4.37.1	4.49.5	5. 3.8	5.19.3	5.36.9	5.56.7	6.19.2	6.44.9	7.15.4	7.50.4	8.32.9	9.25.9	10.28.9	11.53.1	13.42.5	34
35	4.21.1	4.32.5	4.44.6	4.58.6	5.13.7	5.31.0	5.50.3	6.12.3	6.37.4	7. 7.1	7.41.2	8.22.8	9.14.5	10.16.1	11.38.2	35
36	4. 6.6	4.16.8	4.27.8	4.39.7	4.53.3	5. 8.0	5.24.8	5.43.7	6. 5.1	6.29.6	6.56.6	7.31.9	8.12.5	9. 2.9	10. 2.9	36
37	3.53.6	4. 2.3	4.12.2	4.23.0	4.34.6	4.47.8	5. 2.2	5.18.6	5.37.6	5.57.9	6.21.7	6.50.0	7.22.4	8. 1.9	8.51.1	37
38	3.41.3	3.49.4	3.57.9	4. 7.6	4.18.1	4.29.3	4.42.3	4.56.3	5.12.2	5.30.1	5.50.4	6.13.7	6.41.2	7.12.8	7.51.2	38
39	3.30.1	3.37.3	3.45.2	3.53.4	4. 2.8	4.13.1	4.24.0	4.36.6	4.50.2	5. 5.7	5.23.1	5.42.9	6. 6.4	6.32.2	7. 2.9	39
40	3.19.8	3.26.3	3.33.1	3.40.8	3.48.8	3.58.0	4. 7.9	4.18.5	4.30.7	4.44.0	4.59.0	5.16.0	5.35.2	5.57.1	6.23.1	40
41	3.10.0	3.15.9	3.22.1	3.28.9	3.36.3	3.44.1	3.53.0	4. 2.7	4.13.0	4.24.8	4.37.6	4.52.5	5. 8.7	5.27.3	5.48.6	41
42	3. 0.9	3. 6.2	3.12.0	3.18.0	3.24.6	3.31.8	3.39.4	3.48.0	3.57.3	4. 7.3	4.18.8	4.31.2	4.45.4	5. 1.3	5.19.4	42
43	2.52.4	2.57.2	3. 2.4	3. 8.0	3.13.8	3.20.1	3.27.1	3.34.5	3.42.8	3.51.9	4. 1.5	4.12.7	4.24.7	4.38.4	4.53.9	43
44	2.44.4	2.48.8	2.53.5	2.58.5	3. 3.9	3. 9.5	3.15.6	3.22.4	3.29.5	3.37.6	3.46.3	3.55.7	4. 6.5	4.18.1	4.31.4	44
45	2.36.9	2.40.9	2.45.1	2.49.6	2.54.5	2.59.7	3. 5.1	3.11.1	3.17.6	3.24.5	3.32.2	3.40.7	3.49.7	4. 0.2	4.11.4	45
46	2.29.8	2.33.4	2.37.3	2.41.3	2.45.7	2.50.4	2.55.4	3. 0.7	3. 6.4	3.12.7	3.19.3	3.26.9	3.35.0	3.43.7	3.53.8	46
47	2.23.1	2.26.4	2.29.9	2.33.6	2.37.5	2.41.8	2.46.3	2.51.1	2.56.2	3. 1.7	3. 7.8	3.14.2	3.21.4	3.29.3	3.37.7	47
48	2.16.8	2.19.7	2.22.9	2.26.3	2.29.9	2.33.7	2.37.7	2.42.1	2.46.8	2.51.6	2.56.9	3. 2.8	3. 8.9	3.15.9	3.23.5	48
49	2.10.8	2.13.5	2.16.4	2.19.4	2.22.6	2.26.1	2.29.7	2.33.7	2.37.8	2.42.3	2.47.0	2.52.1	2.57.7	3. 3.6	3.10.3	49
50	2. 5.0	2. 7.6	2.10.1	2.12.9	2.15.9	2.18.9	2.22.3	2.25.7	2.29.5	2.33.5	2.37.8	2.42.3	2.47.2	2.52.6	2.58.3	50
52	1.54.3	1.56.4	1.58.6	2. 1.0	2. 3.3	2. 5.9	2. 8.6	2.11.4	2.14.4	2.17.6	2.21.1	2.24.7	2.28.7	2.32.8	2.37.3	52
54	1.44.5	1.46.3	1.48.1	1.50.0	1.52.0	1.54.2	1.56.3	1.58.6	2. 1.1	2. 3.7	2. 6.4	2. 9.4	2.12.5	2.15.9	2.19.5	54
56	1.38.5	1.37.0	1.38.5	1.40.1	1.41.7	1.43.5	1.45.3	1.47.3	1.49.2	1.51.3	1.53.5	1.55.9	1.58.3	2. 1.0	2. 3.9	56
58	1.27.2	1.28.4	1.29.7	1.31.0	1.32.4	1.33.8	1.35.2	1.36.8	1.38.5	1.40.2	1.42.0	1.43.8	1.45.9	1.47.9	1.50.2	58
60	1.19.4	1.20.5	1.21.5	1.22.6	1.23.7	1.24.9	1.26.1	1.27.4	1.28.7	1.30.1	1.31.5	1.33.1	1.34.7	1.36.3	1.38.1	60
62	1.12.2	1.13.0	1.13.9	1.14.8	1.15.7	1.16.7	1.17.7	1.18.7	1.19.8	1.20.9	1.22.0	1.23.3	1.24.6	1.25.9	1.27.3	62
64	1. 5.4	1. 6.1	1. 6.8	1. 7.5	1. 8.3	1. 9.1	1. 9.9	1.10.7	1.11.6	1.12.4	1.13.4	1.14.4	1.15.4	1.16.4	1.17.6	64
66	0.59.0	0.59.5	1. 0.1	1. 0.7	1. 1.3	1. 1.9	1. 2.6	1. 3.3	1. 3.9	1. 4.7	1. 5.4	1. 6.2	1. 7.0	1. 7.8	1. 8.7	66
68	0.52.9	0.53.4	0.53.8	0.54.3	0.54.8	0.55.3	0.55.8	0.56.3	0.56.9	0.57.4	0.58.0	0.58.6	0.59.3	0.59.9	1. 0.6	68
70	0.47.2	0.47.5	0.47.9	0.48.3	0.48.6	0.49.0	0.49.4	0.49.9	0.50.3	0.50.7	0.51.2	0.51.6	0.52.1	0.52.6	0.53.2	70
72	0.41.7	0.41.9	0.42.2	0.42.5	0.42.8	0.43.1	0.43.4	0.43.7	0.44.0	0.44.4	0.44.7	0.45.1	0.45.5	0.46.0	0.46.3	72
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
	14°	15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	Latitude

Declination of the object of the same name with the Latitude.

Note.—When the object either comes *to*, or *within* one degree of the zenith, the angle of meeting made by the latitude and the declination (both of the same name) will fall within the double lines which run obliquely through the body of this Table, and through the upper left hand corner of Table LII.: in this case, since the interval between the time of observation and noon or meridional passage, must not exceed one minute, the corresponding number will, therefore, be the correction of altitude direct, independently of any logarithmic calculation whatever.

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FOR COMPUTING THE MERIDIONAL ALTITUDE OF A CELESTIAL OBJECT.

Declination of the object of a different name with the Latitude.

Latitude	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	Latitude
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	°
0	900.53.4	110.58.5	55.57.7	37.31.4	27.55.8	22.23.8	18.37.4	15.58.1	13.55.9	12.23.8	11. 7.0	10. 5.0	9.14.0	8.29.8	0
1	110.58.5	55.58.4	37.32.9	27.57.3	22.25.7	18.39.1	15.59.9	13.57.6	12.25.7	11. 8.8	10. 6.9	9.15.9	8.31.7	7.54.2	1
2	55.57.7	37.32.9	27.57.8	22.26.5	18.40.1	16. 1.1	13.58.9	12.27.1	11.10.2	10. 8.4	9.17.5	8.33.3	7.55.8	7.23.2	2
3	37.31.4	27.57.3	22.26.5	18.40.5	16. 1.7	13.59.7	12.28.0	11.11.3	10. 9.5	9.18.7	8.34.5	7.57.2	7.24.5	6.55.8	3
4	27.55.8	22.25.7	18.40.1	16. 1.7	14. 0.0	12.28.5	11.11.9	10.10.3	9.19.5	8.35.5	7.58.2	7.25.6	6.56.9	6.31.4	4
5	22.23.8	18.39.1	16. 1.1	13.59.7	12.28.5	11.12.1	10.10.6	9.20.1	8.36.1	7.58.9	7.26.5	6.57.9	6.32.4	6.10.0	5
6	18.37.4	15.59.9	13.58.9	12.28.0	11.11.9	10.10.6	9.20.2	8.36.5	7.59.4	7.27.1	6.58.5	6.33.1	6.10.8	5.50.5	6
7	15.58.1	13.57.6	12.27.1	11.11.3	10.10.3	9.20.1	8.36.5	7.59.6	7.27.3	6.58.9	6.33.6	6.11.4	5.51.0	5.33.1	7
8	13.55.9	12.25.7	11.10.2	10. 9.5	9.19.5	8.36.1	7.59.4	7.27.3	6.59.0	6.33.9	6.11.7	5.51.4	5.33.4	5.17.0	8
9	12.23.8	11. 8.8	10. 8.4	9.18.7	8.35.5	7.58.9	7.27.1	6.58.9	6.33.9	6.11.9	5.51.6	5.33.9	5.17.4	5. 2.3	9
10	11. 7.0	10. 6.9	9.17.5	8.34.5	7.58.2	7.26.5	6.58.5	6.33.6	6.11.7	5.51.6	5.34.0	5.17.6	5. 2.6	4.49.2	10
11	10. 5.0	9.15.9	8.33.3	7.57.2	7.25.6	6.57.9	6.33.1	6.11.4	5.51.4	5.33.9	5.17.6	5. 2.7	4.49.4	4.36.8	11
12	9.14.0	8.31.7	7.55.8	7.24.5	6.56.9	6.32.4	6.10.8	5.51.0	5.33.4	5.17.4	5. 2.6	4.49.4	4.36.9	4.25.5	12
13	8.29.8	7.54.2	7.23.2	6.55.8	6.31.4	6.10.0	5.50.3	5.33.1	5.17.0	5. 2.3	4.49.2	4.36.8	4.25.5	4.15.2	13
14	7.52.3	7.21.5	6.54.3	6.30.2	6. 9.0	5.49.4	5.32.4	5.16.4	5. 1.8	4.48.8	4.36.6	4.25.4	4.15.1	4. 5.3	14
15	7.19.6	6.52.7	6.28.7	6. 7.7	5.48.3	5.31.4	5.15.6	5. 1.1	4.48.3	4.36.1	4.25.0	4.14.9	4. 5.1	3.56.1	15
16	6.50.7	6.27.0	6. 6.2	5.47.0	5.30.3	5.14.6	5. 0.3	4.47.6	4.35.5	4.24.5	4.14.4	4. 4.8	3.55.9	3.47.5	16
17	6.25.1	6. 4.5	5.45.6	5.28.9	5.13.4	4.59.2	4.46.7	4.34.7	4.23.8	4.13.9	4. 4.3	3.55.5	3.47.2	3.39.5	17
18	6. 2.5	5.43.7	5.27.3	5. 2.0	4.58.0	4.45.6	4.33.8	4.23.0	4.13.1	4. 3.7	3.55.0	3.46.7	3.39.1	3.31.9	18
19	5.41.8	5.25.6	5.10.5	4.56.6	4.44.3	4.32.6	4.22.0	4.12.2	4. 2.9	3.54.3	3.46.2	3.38.6	3.31.4	3.24.7	19
20	5.23.6	5. 8.7	4.55.0	4.42.8	4.31.3	4.20.8	4.11.2	4. 2.0	3.53.4	3.45.4	3.38.0	3.30.9	3.24.3	3.18.0	20
21	5. 6.7	4.53.2	4.41.7	4.29.8	4.19.5	4.10.0	4. 0.9	3.52.5	3.44.5	3.37.2	3.30.2	3.23.6	3.17.4	3.11.6	21
22	4.51.2	4.39.4	4.28.2	4.18.0	4. 8.6	3.59.6	3.51.3	3.43.5	3.36.3	3.29.4	3.22.9	3.16.8	3.11.0	3. 5.6	22
23	4.37.5	4.26.4	4.16.2	4. 7.1	3.58.2	3.50.0	3.42.3	3.35.2	3.28.4	3.22.1	3.16.0	3.10.3	3. 5.0	2.59.7	23
24	4.24.4	4.14.5	4. 5.4	3.56.7	3.48.6	3.41.0	3.34.0	3.27.3	3.21.1	3.15.1	3. 9.5	3. 4.2	2.59.1	2.54.2	24
25	4.12.5	4. 3.6	3.55.0	3.47.1	3.39.6	3.32.6	3.26.1	3.19.9	3.14.0	3. 8.5	3. 3.4	2.58.3	2.53.5	2.48.9	25
26	4. 1.6	3.53.1	3.45.3	3.38.0	3.31.2	3.24.7	3.18.7	3.12.9	3. 7.5	3. 2.4	2.57.4	2.52.7	2.48.1	2.43.9	26
27	3.51.1	3.43.5	3.36.3	3.29.6	3.23.2	3.17.3	3.11.6	3. 6.3	3. 1.3	2.56.4	2.51.7	2.47.3	2.43.1	2.39.1	27
28	3.41.5	3.34.4	3.27.8	3.21.6	3.15.7	3.10.2	3. 5.0	3. 0.0	2.55.2	2.50.7	2.46.3	2.42.2	2.38.3	2.34.4	28
29	3.32.4	3.26.0	3.19.8	3.14.1	3. 8.6	3. 3.5	2.58.7	2.54.0	2.49.5	2.45.2	2.41.2	2.37.3	2.33.6	2.30.1	29
30	3.23.8	3.17.9	3.12.4	3. 7.0	3. 2.0	2.57.2	2.52.6	2.48.2	2.44.0	2.40.1	2.36.3	2.32.6	2.29.2	2.25.8	30
31	3.15.9	3.10.5	3. 5.1	3. 0.3	2.55.7	2.51.1	2.46.8	2.42.7	2.38.9	2.35.1	2.31.5	2.28.2	2.24.8	2.21.6	31
32	3. 8.5	3. 3.3	2.58.5	2.54.0	2.49.5	2.45.3	2.41.3	2.37.5	2.33.9	2.30.4	2.27.1	2.23.8	2.20.7	2.17.7	32
33	3. 1.3	2.56.6	2.52.2	2.47.8	2.43.7	2.39.8	2.36.1	2.32.5	2.29.1	2.25.9	2.22.7	2.19.6	2.16.7	2.13.8	33
34	2.54.6	2.50.3	2.46.0	2.42.0	2.38.1	2.34.6	2.31.1	2.27.7	2.24.6	2.21.4	2.18.4	2.15.6	2.12.8	2.10.1	34
35	2.48.3	2.44.1	2.40.2	2.36.4	2.32.9	2.29.5	2.26.2	2.23.2	2.20.1	2.17.2	2.14.4	2.11.7	2. 9.0	2. 6.5	35
36	2.42.1	2.38.3	2.34.6	2.31.2	2.27.9	2.24.7	2.21.7	2.18.7	2.15.8	2.13.1	2.10.5	2. 7.9	2. 5.4	2. 3.1	36
37	2.36.3	2.32.7	2.29.4	2.26.2	2.23.0	2.20.1	2.17.2	2.14.4	2.11.8	2. 9.2	2. 6.7	2. 4.3	2. 2.0	1.59.6	37
38	2.30.7	2.27.5	2.24.3	2.21.3	2.18.4	2.15.6	2.12.9	2.10.3	2. 7.8	2. 5.3	2. 3.0	2. 0.8	1.58.5	1.56.4	38
39	2.25.4	2.22.4	2.19.4	2.16.7	2.13.9	2.11.3	2. 8.8	2. 6.3	2. 3.9	2. 1.7	1.59.5	1.57.3	1.55.2	1.53.2	39
40	2.20.4	2.17.6	2.14.8	2.12.1	2. 9.6	2. 7.1	2. 4.7	2. 2.4	2. 0.2	1.58.1	1.56.0	1.54.0	1.52.0	1.50.1	40
41	2.15.5	2.12.9	2.10.3	2. 7.8	2. 5.4	2. 3.1	2. 0.9	1.58.7	1.56.7	1.54.6	1.52.7	1.50.7	1.48.9	1.47.1	41
42	2.10.9	2. 8.3	2. 5.9	2. 3.6	2. 1.4	1.59.4	1.57.1	1.55.2	1.53.1	1.51.2	1.49.4	1.47.6	1.45.8	1.44.1	42
43	2. 6.3	2. 4.0	2. 1.8	1.59.6	1.57.5	1.55.5	1.53.6	1.51.6	1.49.8	1.48.0	1.46.3	1.44.5	1.42.9	1.41.2	43
44	2. 2.0	1.59.8	1.57.7	1.55.7	1.53.7	1.51.9	1.50.0	1.48.2	1.46.5	1.44.8	1.43.1	1.41.5	1.40.0	1.38.5	44
45	1.57.8	1.55.7	1.53.8	1.51.9	1.50.1	1.48.3	1.46.6	1.44.9	1.43.3	1.41.7	1.40.1	1.38.6	1.37.2	1.35.7	45
46	1.53.7	1.51.9	1.50.1	1.48.3	1.46.5	1.44.9	1.43.2	1.41.7	1.40.1	1.38.7	1.37.2	1.35.8	1.34.4	1.33.0	46
47	1.49.8	1.48.1	1.46.4	1.44.7	1.43.1	1.41.5	1.40.1	1.38.5	1.37.1	1.35.7	1.34.4	1.33.0	1.31.7	1.30.4	47
48	1.46.1	1.44.5	1.42.8	1.41.3	1.39.8	1.38.3	1.36.9	1.35.5	1.34.1	1.32.9	1.31.5	1.30.3	1.29.0	1.27.8	48
49	1.42.4	1.40.8	1.39.4	1.37.9	1.36.6	1.35.1	1.33.8	1.32.5	1.31.3	1.30.0	1.28.8	1.27.6	1.26.4	1.25.3	49
50	1.38.8	1.37.4	1.36.0	1.34.7	1.33.4	1.32.1	1.30.8	1.29.6	1.28.4	1.27.2	1.26.1	1.25.0	1.23.9	1.22.8	50
52	1.32.0	1.30.8	1.29.6	1.28.4	1.27.3	1.26.2	1.25.1	1.24.0	1.22.9	1.21.9	1.20.9	1.19.9	1.18.9	1.18.0	52
54	1.25.6	1.24.5	1.23.5	1.22.5	1.21.4	1.20.5	1.19.5	1.18.6	1.17.6	1.16.8	1.15.9	1.15.0	1.14.2	1.13.3	54
56	1.19.5	1.18.6	1.17.6	1.16.7	1.15.9	1.15.0	1.14.2	1.13.4	1.12.6	1.11.8	1.11.0	1.10.2	1. 9.5	1. 8.8	56
58	1.13.6	1.12.8	1.12.0	1.11.3	1.10.5	1. 9.8	1. 9.1	1. 8.4	1. 7.7	1. 7.0	1. 6.3	1. 5.7	1. 5.0	1. 4.3	58
60	1. 8.0	1. 7.3	1. 6.7	1. 6.0	1. 5.4	1. 4.7	1. 4.1	1. 3.5	1. 2.9	1. 2.3	1. 1.7	1. 1.1	1. 0.6	1. 0.0	60
62	1. 2.6	1. 2.1	1. 1.5	1. 0.9	1. 0.4	0.59.8	0.59.3	0.58.8	0.58.3	0.57.8	0.57.3	0.56.8	0.56.3	0.55.8	62
64	0.57.5	0.56.9	0.56.5	0.56.0	0.55.6	0.55.1	0.54.7	0.54.2	0.53.8	0.53.3	0.52.9	0.52.5	0.52.1	0.51.6	64
66	0.52.5	0.52.0	0.51.6	0.51.3	0.50.9	0.50.5	0.50.1	0.49.7	0.49.3	0.49.0	0.48.6	0.48.3	0.47.9	0.47.6	66
68	0.47.6	0.47.3	0.46.9	0.46.6	0.46.3	0.46.0	0.45.6	0.45.4	0.45.0	0.44.7	0.44.4	0.44.1	0.43.8	0.43.5	68
70	0.42.9	0.42.6	0.42.3	0.42.1	0.41.8	0.41.6	0.41.3	0.41.0	0.40.8	0.40.5	0.40.3	0.40.0	0.39.8	0.39.6	70
72	0.38.3	0.38.1	0.37.8	0.37.6	0.37.4	0.37.2	0.37.0	0.36.8	0.36.6	0.36.4	0.36.2	0.36.0	0.35.8	0.35.6	72
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
Latitude	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	Latitude

Declination of the object of a different name with the Latitude.

Note.—When the object either comes *to*, or *within* one degree of the zenith, the interval between the time of observation and noon, or meridional passage, must not exceed one minute: in this case, the number corresponding to the latitude, and the declination (these being of different names) will be found within the double lines at the upper left hand corner of this Table, which number will be the correction of altitude direct, independently of any logarithmic calculation whatever.

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TABLE LII.

FOR COMPUTING THE MERIDIONAL ALTITUDE OF A CELESTIAL OBJ

Latitude	Declination of the object of a different name with the Latitude.														
	14°	15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	2
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	°
0	7.52.3	7.19.6	6.50.7	6.25.1	6. 2.5	5.41.8	5.23.6	5. 6.7	4.51.2	4.37.5	4.24.4	4.12.5	4. 1.6	3.51.1	3.
1	7.21.5	6.52.7	6.27.0	6. 4.5	5.43.7	5.25.6	5. 8.7	4.53.2	4.39.4	4.26.4	4.14.5	4. 3.6	3.53.1	3.43.5	3.
2	6.54.3	6.28.7	6. 6.2	5.45.6	5.27.3	5.10.5	4.55.0	4.41.2	4.28.2	4.16.2	4. 5.4	3.55.0	3.45.3	3.36.3	3.
3	6.30.2	6. 7.7	5.47.0	5.28.9	5. 2.0	4.56.6	4.42.8	4.29.8	4.18.0	4. 7.1	3.56.7	3.47.1	3.38.0	3.29.6	3.
4	6. 9.0	5.48.3	5.30.3	5.13.4	4.58.0	4.44.3	4.31.3	4.19.5	4. 8.6	3.58.2	3.48.6	3.39.6	3.31.2	3.23.2	3.
5	5.49.4	5.31.4	5.14.6	4.59.2	4.45.6	4.32.6	4.20.8	4.10.0	3.59.6	3.50.0	3.41.0	3.32.6	3.24.7	3.17.3	3.
6	5.32.4	5.15.6	5. 0.3	4.46.7	4.33.8	4.22.0	4.11.2	4. 0.9	3.51.3	3.42.3	3.34.0	3.26.1	3.18.7	3.11.6	3.
7	5.16.4	5. 1.1	4.47.6	4.34.7	4.23.0	4.12.2	4. 2.0	3.52.5	3.43.5	3.35.2	3.27.3	3.19.9	3.12.9	3. 6.3	3.
8	5. 1.8	4.48.3	4.35.5	4.23.8	4.17.1	4. 2.9	3.53.4	3.44.5	3.36.3	3.28.4	3.35.1	3.14.0	3. 7.5	3. 1.3	2.
9	4.48.8	4.36.1	4.24.5	4.13.9	4. 3.7	3.54.3	3.45.4	3.37.2	3.29.4	3.22.1	3.15.1	3. 8.5	3. 2.4	2.56.4	2.
10	4.36.6	4.25.0	4.14.4	4. 4.3	3.55.0	3.46.2	3.38.0	3.30.2	3.22.9	3 16.0	3. 9.5	3. 3.4	2.57.4	2.51.7	2.
11	4.25.4	4.14.9	4. 4.8	3.55.5	3.46.7	3.38.6	3.30.9	3.23.6	3.16.8	3.10.3	3. 4.2	2.58.3	2.52.7	2.47.3	2.
12	4.15.1	4. 5.1	3.55.9	3.47.2	3.39.1	3.31.4	3.24.3	3.17.4	3.11.0	3. 5.0	2.59.1	2.53.5	2.48.1	2.43.1	2.
13	4. 5.3	3.56.1	3.47.5	3.39.5	3.31.9	3.24.7	3.18.0	3.11.6	3. 5.6	2.59.7	2.54.2	2.48.9	2.43.9	2.39.1	2.
14	3.56.2	3.47.6	3.39.7	3.32.1	3.25.1	3.18.4	3.12.0	3. 6.1	3. 0.3	2.54.8	2.49.5	2.44.6	2.39.8	2.35.2	2.
15	3.47.6	3.39.8	3.32.3	3.25.3	3.18.6	3.12.4	3. 6.5	3. 0.7	2.55.3	2.50.0	2.45.2	2.40.4	2.35.8	2.31.6	2.
16	3.39.7	3.32.3	3.25.4	3.18.8	3.12.6	3. 6.7	3. 1.0	2.55.6	2.50.4	2.45.6	2.40.9	2.36.4	2.32.1	2.27.9	2.
17	3.32.1	3.25.3	3.18.8	3.12.6	3. 6.9	3. 1.2	2.55.9	2.50.7	2.46.0	2.41.3	2.36.8	2.32.6	2.28.5	2.24.5	2.
18	3.25.1	3.18.6	3.12.6	3. 6.9	3. 1.3	2.56.0	2.50.9	2.46.2	2.41.6	2.27.2	2.33.0	2.28.9	2.24.9	2.21.2	2.
19	3.18.4	3.12.4	3. 6.7	3. 1.2	2.56.0	2.51.0	2.46.3	2.41.8	2.37.4	2.33.3	2.29.2	2.25.3	2.21.6	2.17.9	2.
20	3.12.0	3. 6.5	3. 1.0	2.55.9	2.50.9	2.46.3	2.41.8	2.37.5	2.33.4	2.29.4	2.25.6	2.21.9	2.18.3	2.14.8	2.
21	3. 6.1	3. 0.7	2.55.6	2.50.7	2.46.2	2.41.8	2.37.5	2.33.5	2.29.5	2.25.7	2.22.1	2.18.5	2.15.1	2.11.9	2.
22	3. 0.3	2.55.3	2.50.4	2.46.0	2.41.6	2.37.4	2.33.4	2.29.5	2.25.8	2.22.2	2.18.7	2.15.3	2.12.1	2. 9.0	2.
23	2.54.8	2.50.0	2.45.6	2.41.3	2.37.2	2.33.3	2.29.4	2.25.7	2.22.2	2.18.7	2.15.4	2.12.2	2. 9.2	2. 6.1	2.
24	2.49.5	2.45.2	2.40.9	2.36.8	2.33.0	2.29.2	2.25.6	2.22.1	2.18.7	2.15.4	2.12.3	2. 9.3	2. 6.2	2. 3.4	2.
25	2.44.6	2.40.4	2.36.4	2.32.6	2.28.9	2.25.3	2.21.9	2.18.5	2.15.3	2.12.2	2. 9.3	2. 6.3	2. 3.5	2. 0.7	1.
26	2.39.8	2.35.8	2.32.1	2.28.5	2.24.9	2.21.6	2.18.3	2.15.1	2.12.1	2. 9.2	2. 6.2	2. 3.5	2. 0.7	1.58.1	1.
27	2.35.2	2.31.6	2.27.9	2.24.5	2.21.2	2.17.9	2.14.8	2.11.9	2. 9.0	2. 6.1	2. 3.4	2. 0.7	1.58.1	1.55.6	1.
28	2.30.9	2.27.3	2.23.9	2.20.7	2.17.5	2.14.4	2.11.5	2. 8.7	2. 5.9	2. 3.2	2. 0.5	1.58.1	1.55.5	1.53.1	1.
29	2.26.6	2.23.3	2.20.1	2.16.9	2.14.0	2.11.1	2. 8.3	2. 5.5	2. 2.9	2. 0.3	1.57.9	1.55.4	1.53.0	1.50.7	1.
30	2.22.5	2.19.4	2.16.3	2.13.4	2.10.6	2. 7.8	2. 5.1	2. 2.5	2. 0.0	1.57.6	1.55.2	1.52.9	1.50.6	1.48.4	1.
31	2.18.6	2.15.6	2.12.7	2. 9.9	2. 7.3	2. 4.6	2. 2.1	1.59.6	1.57.2	1.54.9	1.52.6	1.50.4	1.48.2	1.46.1	1.
32	2.14.7	2.11.9	2. 9.2	2. 6.6	2. 4.0	2. 1.5	1.59.1	1.56.8	1.54.5	1.52.3	1.50.1	1.48.0	1.45.9	1.43.8	1.
33	2.11.0	2. 8.4	2. 5.9	2. 3.3	2. 0.9	1.58.5	1.56.3	1.54.0	1.51.8	1.49.7	1.47.7	1.45.6	1.43.6	1.41.6	1.
34	2. 7.5	2. 5.0	2. 2.5	2. 0.2	1.57.8	1.55.6	1.53.4	1.51.3	1.49.2	1.47.2	1.45.2	1.43.2	1.41.4	1.39.5	1.
35	2. 4.1	2. 1.6	1.59.3	1.57.1	1.54.9	1.52.8	1.50.7	1.48.7	1.46.7	1.44.7	1.42.8	1.41.0	1.39.2	1.37.4	1.
36	2. 0.7	1.58.4	1.56.2	1.54.1	1.52.0	1.50.0	1.48.0	1.46.1	1.44.2	1.42.3	1.40.5	1.38.8	1.37.0	1.35.3	1.
37	1.57.5	1.55.3	1.53.3	1.51.2	1.49.2	1.47.3	1.45.4	1.43.6	1.41.7	1.40.0	1.38.3	1.36.6	1.34.9	1.33.3	1.
38	1.54.3	1.52.3	1.50.3	1.48.4	1.46.5	1.44.7	1.42.9	1.41.1	1.39.4	1.37.7	1.36.0	1.34.4	1.32.9	1.31.3	1.
39	1.51.2	1.49.3	1.47.4	1.45.6	1.43.8	1.42.1	1.40.3	1.38.7	1.37.1	1.35.4	1.33.9	1.32.3	1.30.8	1.29.3	1.
40	1.48.2	1.46.4	1.44.6	1.42.9	1.41.2	1.39.5	1.37.9	1.36.3	1.34.7	1.33.2	1.31.7	1.30.2	1.28.8	1.27.3	1.
41	1.45.3	1.43.6	1.41.9	1.40.3	1.38.6	1.37.0	1.35.5	1.34.0	1.32.5	1.31.1	1.29.6	1.28.2	1.26.8	1.25.4	1.
42	1.42.4	1.40.9	1.39.2	1.37.7	1.36.2	1.34.7	1.33.2	1.31.7	1.30.3	1.28.9	1.27.6	1.26.2	1.24.9	1.23.6	1.
43	1.39.7	1.38.1	1.36.6	1.35.1	1.33.7	1.32.2	1.30.9	1.29.5	1.28.1	1.26.8	1.25.5	1.24.2	1.23.0	1.21.7	1.
44	1.37.0	1.35.5	1.34.1	1.32.7	1.31.3	1.29.9	1.28.6	1.27.3	1.26.0	1.24.7	1.23.5	1.22.3	1.21.1	1.19.8	1.
45	1.34.3	1.32.9	1.31.6	1.30.2	1.28.9	1.27.7	1.26.3	1.25.1	1.23.9	1.22.7	1.21.5	1.20.4	1.19.2	1.18.0	1.
46	1.31.7	1.30.4	1.29.1	1.27.8	1.26.6	1.25.4	1.24.2	1.23.0	1.21.8	1.20.7	1.19.6	1.18.4	1.17.3	1.16.2	1.
47	1.29.2	1.27.9	1.26.7	1.25.5	1.24.3	1.23.2	1.22.0	1.20.9	1.19.8	1.18.7	1.17.6	1.16.5	1.15.5	1.14.5	1.
48	1.26.6	1.25.5	1.24.3	1.23.2	1.22.1	1.21.0	1.19.9	1.18.8	1.17.8	1.16.7	1.15.7	1.14.7	1.13.7	1.12.7	1.
49	1.24.2	1.23.1	1.22.0	1.20.9	1.19.8	1.18.8	1.17.8	1.16.8	1.15.8	1.14.8	1.13.8	1.12.9	1.11.9	1.11.0	1.
50	1.21.8	1.20.7	1.19.7	1.18.7	1.17.7	1.16.7	1.15.7	1.14.8	1.13.8	1.12.9	1.11.9	1.11.1	1.10.1	1. 9.2	1.
51	1.17.0	1.16.1	1.15.2	1.14.3	1.13.4	1.12.5	1.11.7	1.10.8	1. 9.9	1. 9.1	1. 8.3	1. 7.4	1. 6.7	1. 5.8	1.
52	1.12.5	1.11.7	1.10.8	1.10.0	1. 9.2	1. 8.5	1. 7.7	1. 6.9	1. 6.2	1. 5.4	1. 4.7	1. 3.9	1. 3.2	1. 2.5	1.
53	1. 8.0	1. 7.3	1. 6.6	1. 5.9	1. 5.2	1. 4.5	1. 3.8	1. 3.1	1. 2.5	1. 1.8	1. 1.1	1. 0.3	0.59.8	0.59.1	0.
54	1. 3.7	1. 3.1	1. 2.4	1. 1.8	1. 1.2	1. 0.6	1. 0.0	0.59.4	0.58.8	0.58.2	0.57.6	0.57.0	0.56.4	0.55.9	0.
55	0.59.4	0.58.9	0.58.3	0.57.8	0.57.3	0.56.7	0.56.2	0.55.7	0.55.1	0.54.6	0.54.1	0.53.6	0.53.1	0.52.6	0.
56	0.55.3	0.54.8	0.54.4	0.53.9	0.53.4	0.52.9	0.52.5	0.52.0	0.51.6	0.51.1	0.50.6	0.50.2	0.49.7	0.49.3	0.
57	0.51.2	0.50.8	0.50.4	0.50.0	0.49.6	0.49.2	0.48.8	0.48.4	0.48.0	0.47.6	0.47.2	0.46.8	0.46.4	0.46.0	0.
58	0.47.2	0.46.9	0.46.5	0.46.2	0.45.8	0.45.5	0.45.1	0.44.8	0.44.5	0.44.1	0.43.8	0.43.4	0.43.1	0.42.8	0.
59	0.43.2	0.43.0	0.42.7	0.42.4	0.42.1	0.41.8	0.41.5	0.41.2	0.40.9	0.40.6	0.40.3	0.40.0	0.39.7	0.39.5	0.
60	0.39.3	0.39.1	0.38.8	0.38.6	0.38.3	0.38.1	0.37.9	0.37.6	0.37.4	0.37.1	0.36.9	0.36.6	0.36.4	0.36.2	0.
61	0.35.4	0.35.2	0.35.0	0.34.8	0.34.6	0.34.4	0.34.2	0.34.0	0.33.8	0.33.6	0.33.4	0.33.2	0.33.0	0.32.8	0.
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	°
	14°	15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28
	Declination of the object of a different name with the Latitude.														

Note.—When the object either comes *to*, or *within* one degree of the zenith, the interval between the time of obser and noon, or meridional passage, must not exceed one minute: in this case, the number corresponding to the latitude, a declination (these being of different names) will be found within the double lines at the upper left hand corner of the firs in this Table which number will be the correction of altitude direct, independently of any logarithmic calculation whate

2

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The Miles and decimal parts of a Mile contained in a degree of Longitude at every degree of Latitude.

Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.
0	60.00	13	58.46	26	53.93	39	46.63	52	36.94	65	25.36	78	12.47
1	59.99	14	58.22	27	53.46	40	45.96	53	36.11	66	24.40	79	11.45
2	59.96	15	57.95	28	52.97	41	45.28	54	35.27	67	23.44	80	10.42
3	59.92	16	57.67	29	52.47	42	44.59	55	34.41	68	22.48	81	9.39
4	59.85	17	57.38	30	51.96	43	43.88	56	33.55	69	21.50	82	8.35
5	59.77	18	57.06	31	51.43	44	43.16	57	32.68	70	20.52	83	7.31
6	59.67	19	56.73	32	50.88	45	42.43	58	31.80	71	19.53	84	6.27
7	59.55	20	56.38	33	50.32	46	41.68	59	30.90	72	18.54	85	5.23
8	59.42	21	56.01	34	49.74	47	40.92	60	30.00	73	17.54	86	4.19
9	59.26	22	55.63	35	49.15	48	40.15	61	29.09	74	16.54	87	3.14
10	59.08	23	55.23	36	48.54	49	39.36	62	28.17	75	15.53	88	2.09
11	58.89	24	54.81	37	47.92	50	38.57	63	27.24	76	14.52	89	1.05
12	58.68	25	54.38	38	47.28	51	37.76	64	26.30	77	13.50	90	0.00

TABLE LIV.—*Proportional Miles for constructing Marine or Sea Charts.*

Parallels of Latitude in Degrees.		0°	10°	20°	30°	40°	50°	60°	70°	80°	89°
Ditto in Minutes of the Equator, or Miles of Long.		Miles 0	Miles 603.1	Miles 1225.1	Miles 1888.4	Miles 2622.6	Miles 3474.5	Miles 4527.4	Miles 5965.9	Miles 8375.2	Miles 16299.6
Difference of the Parallels in Miles of Longitude.		Miles 0	Miles 603.1	Miles 622.0	Miles 663.3	Miles 734.2	Miles 851.9	Miles 1052.9	Miles 1438.5	Miles 2409.3	Miles 7924.4
The intermediate degrees of latitude, with the corresponding miles of longitude, for graduating, or sub-dividing, the respective parallels of latitude.	o	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles
	1	60.0	61.0	64.1	69.6	79.0	94.3	121.8	179.8	363.9	,,
	2	60.0	61.2	64.5	70.4	80.1	96.4	125.8	189.1	406.4	,,
	3	60.1	61.5	64.9	71.1	81.4	98.6	129.9	199.6	460.3	,,
	4	60.1	61.7	65.5	72.0	82.7	100.8	134.5	211.3	531.1	,,
	5	60.2	62.0	65.9	72.8	84.2	103.4	139.4	224.6	627.7	,,
	6	60.3	62.2	66.5	73.7	85.6	105.9	144.7	239.8	767.9	,,
	7	60.4	62.6	67.0	74.6	87.1	109.0	150.5	257.1	989.6	,,
	8	60.5	62.9	67.7	75.7	88.8	111.4	156.8	277.4	1394.3	,,
	9	60.6	63.3	68.2	76.7	90.6	114.8	163.8	301.1	2383.2	,,
	10	60.9	63.6	69.0	77.6	92.4	118.3	171.3	329.5	,,	,,

TABLE LV.—*To find the distance of Terrestrial objects at Sea.*

Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.
1	1.15	26	5.86	51	8.22	76	10.04	105	11.80	310	20.28	620	28.69	2800	60.96		
2	1.62	27	5.97	52	8.31	77	10.11	110	12.08	320	20.61	640	29.14	2900	62.04		
3	1.99	28	6.08	53	8.39	78	10.17	115	12.35	330	20.93	660	29.60	3000	63.10		
4	2.30	29	6.18	54	8.46	79	10.24	120	12.62	340	21.24	680	30.04	3100	64.14		
5	2.57	30	6.30	55	8.55	80	10.30	125	12.88	350	21.55	700	30.48	3200	65.16		
6	2.81	31	6.40	56	8.62	81	10.37	130	13.05	360	21.86	800	32.59	3300	66.18		
7	3.04	32	6.50	57	8.70	82	10.43	135	13.38	370	22.16	900	34.55	3400	67.17		
8	3.25	33	6.60	58	8.78	83	10.50	140	13.63	380	22.46	1000	36.43	3500	68.15		
9	3.45	34	6.70	59	8.85	84	10.56	145	13.87	390	22.75	1100	38.21	3600	69.12		
10	3.63	35	6.80	60	8.93	85	10.62	150	14.12	400	23.04	1200	39.91	3700	70.07		
11	3.81	36	6.90	61	9.00	86	10.68	160	14.57	410	23.32	1300	41.54	3800	71.01		
12	3.98	37	6.99	62	9.07	87	10.75	170	15.03	420	23.61	1400	43.11	3900	71.94		
13	4.14	38	7.09	63	9.14	88	10.81	180	15.46	430	23.89	1500	44.62	4000	72.86		
14	4.30	39	7.17	64	9.22	89	10.87	190	15.88	440	24.17	1600	46.08	4200	74.66		
15	4.45	40	7.27	65	9.29	90	10.93	200	16.29	450	24.44	1700	47.50	4400	76.42		
16	4.60	41	7.36	66	9.36	91	10.99	210	16.69	460	24.71	1800	48.88	4600	78.13		
17	4.73	42	7.44	67	9.42	92	11.05	220	17.08	470	24.97	1900	50.21	4800	79.82		
18	4.87	43	7.54	68	9.50	93	11.10	230	17.47	480	25.24	2000	51.52	5000	81.47		
19	5.01	44	7.62	69	9.57	94	11.17	240	17.84	490	25.50	2100	52.79	5500	85.44		
20	5.14	45	7.70	70	9.63	95	11.22	250	18.21	500	25.76	2200	54.04	6000	89.24		
21	5.26	46	7.79	71	9.71	96	11.29	260	18.58	520	26.27	2300	55.25	1 mile.	89.85		
22	5.39	47	7.88	72	9.77	97	11.34	270	18.93	540	26.77	2400	56.44	2 do.	127.65		
23	5.51	48	7.96	73	9.85	98	11.40	280	19.27	560	27.26	2500	57.60	2½ do.	142.06		
24	5.62	49	8.06	74	9.91	99	11.46	290	19.62	580	27.74	2600	58.74	3 do.	155.61		
25	5.74	50	8.15	75	9.98	100	11.52	300	19.95	600	28.22	2700	59.85	4 do.	179.71		

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TO REDUCE THE FRENCH CENTESIMAL DIVISION OF THE CIRCLE INTO THE ENGLISH SEXAGESIMAL DIVISION, AND CONVERSELY.

PART I.—*To convert French Degrees, Minutes, &c. into English.*

Fr. Degr.	English Degr., &c.	Fr. Degr.	English Degr., &c.	Fr. Degr.	English Degr., &c.	Fr. Degr.	English Degr., &c.
°	° ′	°	° ′	°	° ′	°	° ′
1	0.54	26	23.24	51	45.54	76	68.24
2	1.48	27	24.18	52	46.48	77	69.18
3	2.42	28	25.12	53	47.42	78	70.12
4	3.36	29	26. 6	54	48.36	79	71. 6
5	4.30	30	27. 0	55	49.30	80	72. 0
6	5.24	31	27.54	56	50.24	81	72.54
7	6.18	32	28.48	57	51.18	82	73.48
8	7.12	33	29.42	58	52.12	83	74.42
9	8. 6	34	30.36	59	53. 6	84	75.36
10	9. 0	35	31.30	60	54. 0	85	76.30
11	9.54	36	32.24	61	54.54	86	77.24
12	10.48	37	33.18	62	55.48	87	78.18
13	11.42	38	34.12	63	56.42	88	79.12
14	12.36	39	35. 6	64	57.36	89	80. 6
15	13.30	40	36. 0	65	58.30	90	81. 0
16	14.24	41	36.54	66	59.24	91	81.54
17	15.18	42	37.48	67	60.18	92	82.48
18	16.12	43	38.42	68	61.12	93	83.42
19	17. 6	44	39.36	69	62. 6	94	84.36
20	18. 0	45	40.30	70	63. 0	95	85.30
21	18.54	46	41.24	71	63.54	96	86.24
22	19.48	47	42.18	72	64.48	97	87.18
23	20.42	48	43.12	73	65.42	98	88.12
24	21.46	49	44. 6	74	66.36	99	89. 6
25	22.30	50	45. 0	75	67.30	100	90. 0

Fr. Min.	English Min., &c.	Fr. Min.	English Min., &c.	Fr. Min.	English Min., &c.	Fr. Min.	English Min., &c.
′	′ ″	′	′ ″	′	′ ″	′	′ ″
1	0.32.40	26	14. 2.40	51	27.32.40	76	41. 2.40
2	1. 4.80	27	14.34.80	52	28. 4.80	77	41.34.80
3	1.37.20	28	15. 7.20	53	28.37.20	78	42. 7.20
4	2. 9.60	29	15.39.60	54	29. 9.60	79	42.39.60
5	2.42.00	30	16.12.00	55	29.42.00	80	43.12.00
6	3.14.40	31	16.44.40	56	30.14.40	81	43.44.40
7	3.46.80	32	17.16.80	57	30.46.80	82	44.16.80
8	4.19.20	33	17.49.20	58	31.19.20	83	44.49.20
9	4.51.60	34	18.21.60	59	31.51.60	84	45.21.60
10	5.24.00	35	18.54.00	60	32.24.00	85	45.54.00
11	5.56.40	36	19.26.40	61	32.56.40	86	46.26.40
12	6.28.80	37	19.58.80	62	33.28.80	87	46.58.80
13	7. 1.20	38	20.31.20	63	34. 1.20	88	47.31.20
14	7.33.60	39	21. 3.60	64	34.33.60	89	48. 3.60
15	8. 6.00	40	21.36.00	65	35. 6.00	90	48.36.00
16	8.38.40	41	22. 8.40	66	35.38.40	91	49. 8.40
17	9.10.80	42	22.40.80	67	36.10.80	92	49.40.80
18	9.43.20	43	23.13.20	68	36.43.20	93	50.13.20
19	10.15.60	44	23.45.60	69	37.15.60	94	50.45.60
20	10.48.00	45	24.18.00	70	37.48.00	95	51.28.00
21	11.20.40	46	24.50.40	71	38.20.40	96	52.00.40
22	11.52.80	47	25.22.80	72	38.52.80	97	52.32.80
23	12.25.20	48	25.55.20	73	39.25.20	98	53. 5.20
24	12.57.60	49	26.27.60	74	39.57.60	99	53.37.60
25	13.30.00	50	27.00.00	75	40.30.00	100	54.00.00

Fr. Sec.	English Seconds.	Fr. Sec.	English Seconds	Fr. Sec.	English Seconds.	Fr. Sec.	English Seconds.
″	″	″	″	″	″	″	″
1	0.32	26	8.42	51	16.52	76	24.62
2	0.65	27	8.75	52	16.85	77	24.95
3	0.97	28	9.07	53	17.17	78	25.27
4	1.30	29	9.40	54	17.50	79	25.60
5	1.62	30	9.72	55	17.82	80	25.92
6	1.94	31	10.04	56	18.14	81	26.24
7	2.27	32	10.37	57	18.47	82	26.57
8	2.59	33	10.69	58	18.79	83	26.89
9	2.92	34	11.02	59	19.12	84	27.22
10	3.24	35	11.34	60	19.44	85	27.54
11	3.56	36	11.66	61	19.76	86	27.86
12	3.89	37	11.99	62	20.09	87	28.19
13	4.21	38	12.31	63	20.41	88	28.51
14	4.54	39	12.64	64	20.74	89	28.84
15	4.86	40	12.96	65	21.06	90	29.16
16	5.18	41	13.28	66	21.38	91	29.48
17	5.51	42	13.61	67	21.71	92	29.81
18	5.83	43	13.93	68	22.03	93	30.13
19	6.16	44	14.26	69	22.36	94	30.46
20	6.48	45	14.58	70	22.68	95	30.78
21	6.80	46	14.90	71	23.00	96	31.10
22	7.13	47	15.23	72	23.33	97	31.43
23	7.45	48	15.55	73	23.65	98	31.75
24	7.78	49	15.88	74	23.98	99	32.08
25	8.10	50	16.20	75	24.30	100	32.40

PART II.—*To convert English Degrees, Minutes, &c. into French.*

English Degrees.	French Degr., &c.	English Degrees.	French Degr., &c.	English Degrees.	French Degr., &c.	English Minutes.	French Degr., &c.	English Minutes.	French Degr., &c.	English Seconds.	French Min., &c.	English Seconds.	French Min., &c.
°	° ′ ″	°	° ′ ″	°	° ′ ″	′	° ′ ″	′	° ′ ″	″	′ ″	″	′ ″
1	1.11.11.11	31	34.44.44.44	61	67.77.77.78	1	0. 1.85.19	31	0.57.40.74	1	0. 3.09	31	0.95.68
2	2.22.22.22	32	35.55.55.56	62	68.88.88.89	2	0. 3.70.37	32	0.59.25.93	2	0. 6.17	32	0.98.76
3	3.33.33.33	33	36.66.66.67	63	70.00.00.00	3	0. 5.55.56	33	0.61.11.11	3	0. 9.26	33	1. 1.85
4	4.44.44.44	34	37.77.77.78	64	71.11.11.11	4	0. 7.40.74	34	0.62.96.30	4	0.12.35	34	1. 4.94
5	5.55.55.56	35	38.88.88.89	65	72.22.22.22	5	0. 9.25.93	35	0.64.81.48	5	0.15.43	35	1. 8.02
6	6.66.66.67	36	40.00.00.00	66	73.33.33.33	6	0.11.11.11	36	0.66.66.67	6	0.18.52	36	1.11.11
7	7.77.77.78	37	41.11.11.11	67	74.44.44.44	7	0.12.96.30	37	0.68.51.85	7	0.21.61	37	1.14.20
8	8.88.88.89	38	42.22.22.22	68	75.55.55.56	8	0.14.81.48	38	0.70.37.04	8	0.24.69	38	1.17.28
9	10.00.00.00	39	43.33.33.33	69	76.66.66.67	9	0.16.66.67	39	0.72.22.22	9	0.27.78	39	1.20.37
10	11.11.11.11	40	44.44.44.44	70	77.77.77.78	10	0.18.51.85	40	0.74. 7.41	10	0.30.86	40	1.23.46
11	12.22.22.22	41	45.55.55.56	71	78.88.88.89	11	0.20.37.04	41	0.75.92.59	11	0.33.95	41	1.26.54
12	13.33.33.33	42	46.66.66.67	72	80.00.00.00	12	0.22.22.22	42	0.77.77.78	12	0.37.04	42	1.29.63
13	14.44.44.44	43	47.77.77.78	73	81.11.11.11	13	0.24. 7.41	43	0.79.62.96	13	0.40.12	43	1.32.72
14	15.55.55.56	44	48.88.88.89	74	82.22.22.22	14	0.25.92.59	44	0.81.48.15	14	0.43.21	44	1.35.80
15	16.66.66.67	45	50.00.00.00	75	83.33.33.33	15	0.27.77.78	45	0.83.33.33	15	0.46.30	45	1.38.89
16	17.77.77.78	46	51.11.11.11	76	84.44.44.44	16	0.29.62.96	46	0.85.18.52	16	0.49.38	46	1.41.97
17	18.88.88.89	47	52.22.22.22	77	85.55.55.56	17	0.31.48.15	47	0.87. 3.70	17	0.52.47	47	1.45.06
18	20.00.00.00	48	53.33.33.33	78	86.66.66.67	18	0.33.33.33	48	0.88.88.89	18	0.55.56	48	1.48.15
19	21.11.11.11	49	54.44.44.44	79	87.77.77.78	19	0.35.18.52	49	0.90.74.07	19	0.58.64	49	1.51.23
20	22.22.22.22	50	55.55.55.56	80	88.88.88.89	20	0.37. 3.70	50	0.92.59.26	20	0.61.73	50	1.54.32
21	23.33.33.33	51	56.66.66.67	81	90.00.00.00	21	0.38.88.89	51	0.94.44.44	21	0.64.81	51	1.57.40
22	24.44.44.44	52	57.77.77.78	82	91.11.11.11	22	0.40.74.07	52	0.96.29.63	22	0.67.90	52	1.60.49
23	25.55.55.56	53	58.88.88.89	83	92.22.22.22	23	0.42.59.26	53	0.98.14.81	23	0.70.99	53	1.63.58
24	26.66.66.67	54	60.00.00.00	84	93.33.33.33	24	0.44.44.44	54	1.00.00.00	24	0.74.07	54	1.66.67
25	27.77.77.78	55	61.11.11.11	85	94.44.44.44	25	0.46.29.63	55	1. 1.85.19	25	0.77.16	55	1.69.75
26	28.88.88.89	56	62.22.22.22	86	95.55.55.56	26	0.48.14.81	56	1. 3.70.37	26	0.80.25	56	1.72.84
27	30.00.00.00	57	63.33.33.33	87	96.66.66.67	27	0.50.00.00	57	1. 5.55.56	27	0.83.33	57	1.75.93
28	31.11.11.11	58	64.44.44.44	88	97.77.77.78	28	0.51.85.19	58	1. 7.40.74	28	0.86.42	58	1.79.01
29	32.22.22.22	59	65.55.55.56	89	98.88.88.89	29	0.53.70.37	59	1. 9.25.93	29	0.89.51	59	1.82.10
30	33.33.33.33	60	66.66.66.67	90	100.00.00.00	30	0.55.55.56	60	1.11.11.11	30	0.92.59	60	1.85.19

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A general Table for Gauging, or finding the content of circular-headed Casks.—Part the first.

Quo. of Head div. by Bung Diam.	Logarithm for Ale Gallons.	Logarithm for Wine Gallons.	Quo. of Head div. by Bung Diam.	Logarithm for Ale Gallons.	Logarithm for Wine Gallons.	Quo. of Head div. by Bung Diam.	Logarithm for Ale Gallons.	Logarithm for Wine Gallons.	Quo. of Head div. by Bung Diam.	Logarithm for Ale Gallons.	Logarithm for Wine Gallons.	Quo. of Head div. by Bung Diam.	Logarithm for Ale Gallons.	Logarithm for Wine Gallons.
Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	0.90	407833	494
0.50	255809	342541	0.60	294047	380700	0.70	332257	418915	0.80	370273	456897	0.91	411552	498
0.51	259689	346333	0.61	297870	384515	0.71	336059	422721	0.81	374015	460672	0.92	415291	501
0.52	263518	350151	0.62	301703	388350	0.72	339869	426528	0.82	377798	464445	0.93	418997	505
0.53	267336	353955	0.63	305502	392169	0.73	343684	430333	0.83	381566	468229	0.94	422705	509
0.54	271144	357763	0.64	309332	395990	0.74	347486	434138	0.84	385338	471981	0.95	426397	513
0.55	274966	361577	0.65	313171	399812	0.75	351294	437941	0.85	389095	475744	0.96	430107	516
0.56	278777	365413	0.66	317018	403635	0.76	355087	441742	0.86	392873	479503	0.97	433802	520
0.57	282622	369234	0.67	320811	407442	0.77	358886	445542	0.87	396600	483245	0.98	437497	524
0.58	286389	373059	0.68	324612	411283	0.78	362671	449340	0.88	400365	486997	0.99	441161	527
0.59	290235	376887	0.69	328441	415090	0.79	366479	453120	0.89	404098	490731	1.00	444841	531

A general Table for Gauging, or finding the content of circular-headed Casks.—Part the second.

Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.
Inches	Index 2	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Ind. 2.3.	Inches	Index 3.	Inches	Index 3.	Inches	Index
10.0	000000	15.0	352183	20.0	602060	25.0	795880	30.0	954243	35.0	088136	40.0	204120	45.0	30
10.1	008643	15.1	357954	20.1	606392	25.1	799347	30.1	957133	35.1	090614	40.1	206289	45.1	30
10.2	017200	15.2	363687	20.2	610703	25.2	802801	30.2	960014	35.2	093085	40.2	208452	45.2	31
10.3	025674	15.3	369383	20.3	614992	25.3	806241	30.3	962885	35.3	095549	40.3	210610	45.3	31
10.4	034067	15.4	375041	20.4	619260	25.4	809667	30.4	965747	35.4	098007	40.4	212763	45.4	31
10.5	042379	15.5	380663	20.5	623508	25.5	813080	30.5	968600	35.5	100457	40.5	214910	45.5	31
10.6	050612	15.6	386249	20.6	627734	25.6	816480	30.6	971443	35.6	102900	40.6	217052	45.6	31
10.7	058768	15.7	391799	20.7	631941	25.7	819866	30.7	974277	35.7	105336	40.7	219189	45.7	31
10.8	066848	15.8	397314	20.8	636127	25.8	823239	30.8	977101	35.8	107766	40.8	221320	45.8	32
10.9	074853	15.9	402794	20.9	640293	25.9	826600	30.9	979917	35.9	110189	40.9	223447	45.9	32
11.0	082785	16.0	408240	21.0	644439	26.0	829947	31.0	982723	36.0	112605	41.0	225568	46.0	32
11.1	090646	16.1	413652	21.1	648565	26.1	833281	31.1	985521	36.1	115014	41.1	227684	46.1	32
11.2	098436	16.2	419030	21.2	652672	26.2	836603	31.2	988309	36.2	117417	41.2	229794	46.2	32
11.3	106157	16.3	424375	21.3	656759	26.3	839911	31.3	991089	36.3	119813	41.3	231900	46.3	33
11.4	113810	16.4	429688	21.4	660828	26.4	843208	31.4	993859	36.4	122203	41.4	234001	46.4	33
11.5	121396	16.5	434968	21.5	664877	26.5	846492	31.5	996621	36.5	124586	41.5	236096	46.5	33
11.6	128916	16.6	440216	21.6	668908	26.6	849763	31.6	999374	36.6	126962	41.6	238187	46.6	33
11.7	136372	16.7	445433	21.7	672919	26.7	853023	31.7	••2119	36.7	129332	41.7	240272	46.7	33
11.8	143764	16.8	450619	21.8	676913	26.8	856270	31.8	••4854	36.8	131696	41.8	242353	46.8	34
11.9	151094	16.9	455773	21.9	680888	26.9	859505	31.9	••7581	36.9	134053	41.9	244428	46.9	34
12.0	158362	17.0	460898	22.0	684845	27.0	862728	32.0	•10300	37.0	136403	42.0	246499	47.0	34
12.1	165571	17.1	465992	22.1	688785	27.1	865939	32.1	•13010	37.1	138748	42.1	248564	47.1	34
12.2	172720	17.2	471057	22.2	692706	27.2	869138	32.2	•15712	37.2	141086	42.2	250625	47.2	34
12.3	179810	17.3	476092	22.3	696610	27.3	872325	32.3	•18405	37.3	143418	42.3	252681	47.3	34
12.4	186843	17.4	481098	22.4	700496	27.4	875501	32.4	•21090	37.4	145743	42.4	254732	47.4	35
12.5	193820	17.5	486076	22.5	704365	27.5	878665	32.5	•23767	37.5	148063	42.5	256778	47.5	35
12.6	200741	17.6	491025	22.6	708217	27.6	881818	32.6	•26435	37.6	150376	42.6	258819	47.6	35
12.7	207607	17.7	495947	22.7	712052	27.7	884960	32.7	•29096	37.7	152683	42.7	260856	47.7	35
12.8	214420	17.8	500840	22.8	715870	27.8	888090	32.8	•31748	37.8	154984	42.8	262888	47.8	36
12.9	221179	17.9	505706	22.9	719671	27.9	891208	32.9	•34392	37.9	157278	42.9	264915	47.9	36
13.0	227887	18.0	510545	23.0	723456	28.0	894316	33.0	•37028	38.0	159567	43.0	266937	48.0	36
13.1	234543	18.1	515357	23.1	727224	28.1	897413	33.1	•39656	38.1	161850	43.1	268955	48.1	36
13.2	241148	18.2	520143	23.2	730976	28.2	900498	33.2	•42276	38.2	164127	43.2	270967	48.2	36
13.3	247703	18.3	524902	23.3	734712	28.3	903573	33.3	•44888	38.3	166398	43.3	272976	48.3	36
13.4	254210	18.4	529636	23.4	738432	28.4	906637	33.4	•47493	38.4	168662	43.4	274979	48.4	36
13.5	260668	18.5	534343	23.5	742136	28.5	909690	33.5	•50090	38.5	170921	43.5	276979	48.5	37
13.6	267078	18.6	539026	23.6	745824	28.6	912732	33.6	•52679	38.6	173175	43.6	278973	48.6	37
13.7	273441	18.7	543683	23.7	749497	28.7	915764	33.7	•55260	38.7	175422	43.7	280963	48.7	37
13.8	279758	18.8	548316	23.8	753154	28.8	918785	33.8	•57833	38.8	177663	43.8	282948	48.8	37
13.9	286030	18.9	552924	23.9	756796	28.9	921796	33.9	•60399	38.9	179899	43.9	284929	48.9	37
14.0	292256	19.0	557507	24.0	760422	29.0	924796	34.0	•62958	39.0	182129	44.0	286905	49.0	38
14.1	298438	19.1	562067	24.1	764034	29.1	927786	34.1	•65509	39.1	184354	44.1	288877	49.1	38
14.2	304577	19.2	566602	24.2	767631	29.2	930766	34.2	•68052	39.2	186572	44.2	290845	49.2	38
14.3	310672	19.3	571115	24.3	771213	29.3	933735	34.3	•70588	39.3	188785	44.3	292807	49.3	38
14.4	316725	19.4	575603	24.4	774780	29.4	936695	34.4	•73117	39.4	190992	44.4	294766	49.4	38
14.5	322736	19.5	580069	24.5	778332	29.5	939644	34.5	•75638	39.5	193194	44.5	296720	49.5	38
14.6	328706	19.6	584512	24.6	781870	29.6	942583	34.6	•78152	39.6	195390	44.6	298670	49.6	38
14.7	334635	19.7	588932	24.7	785394	29.7	945513	34.7	•80659	39.7	197581	44.7	300615	49.7	39
14.8	340523	19.8	593330	24.8	788903	29.8	948433	34.8	•83158	39.8	199766	44.8	302556	49.8	39
14.9	346373	19.9	597706	24.9	792399	29.9	951342	34.9	•85651	39.9	201946	44.9	304491	49.9	39
	Index 2.		Index 2.		Index 2.		Index 2.		Ind. 3.2.		Index 3.		Index 3.		Index

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Latitudes and Longitudes of the principal Sea Ports, Islands, Capes, Shoals, Rocks &c., in the known World, deduced from the latest and most approved Authorities; with the time of High Water, at the full and change of the Moon, at all places where it is known.

The Longitudes are reckoned from the Meridian of Greenwich.

	Names of Places.	Latitude.	Longitude.	high water
	COAST OF ENGLAND FROM LONDON TO SCILLY, AND THENCE TO THE ISLE OF MAN.	° ′ ″	° ′ ″	h m
South Coast of England.	London, St. Paul's	51. 30. 49 N	0. 5. 47 W	2. 46
	Greenwich Observy.	51. 28. 40	0. 0. 0	2. 28
	Gravesend	51. 27. 30	0. 21. 0 E	1. 30
	Sheerness Fort	51. 11. 25	0. 44. 26	12. 0
	North Foreland Light	51. 22. 30	1. 26. 50	11. 15
	Deal Castle	51. 13. 5	1. 23. 59	11. 15
	South Foreland Light	51. 8. 26	1. 22. 6	11. 6
	Dover Castle	51. 7. 47	1. 19. 7	11. 15
	Dungeness Light	50. 55. 0	0. 57. 48	10. 30
	Hastings	50. 52. 0	0. 38. 0	10. 36
	Beachy Head	50. 44. 24	0. 15. 12	11. 0
	Brighton Church	50. 49. 32	0. 7. 40 W	10. 6
	Shoreham	50. 50. 0	0. 16. 19	9. 21
	Arundel	50. 51. 0	0. 36. 0	9. 20
	Owers Light	50. 39. 57	0. 39. 59	11. 0
	Selsea Bill	50. 43. 30	0. 47. 54	9. 36
	Selsea Church	50. 45. 19	0. 45. 41	
	Portsmouth Church	50. 47. 27	1. 5. 57	11. 36
	Portsmouth Obser. Duck Yard	50. 48. 3	1. 5. 59	11. 36
	Kingston Ch. Steeple	50. 48. 14	1. 4. 17	
I. of Wight.	Cowes	50. 45. 37	1. 16. 15	11. 15
	Bembridge Point	50. 41. 0	1. 4. 51	11. 40
	St. Catherine's Point	50. 35. 33	1. 17. 51	8. 30
	Needles Light	50. 39. 53	1. 33. 55	8. 56
	Hurst Light	50. 42. 23	1. 32. 50	10. 0
	Poole Church	50. 42. 50	1. 58. 55	9. 0
	St. Alban's Head	50. 32. 30	2. 5. 0	7. 30
	Weymouth	50. 36. 0	2. 27. 0	6. 30
	Portland Lights	50. 31. 22	2. 26. 50	7. 15
	Exmouth Bar	50. 36. 40	3. 21. 30	6. 25
	Torbay, Berry Head	50. 24. 1	3. 28. 14	6. 10
	Dartmouth	50. 19. 40	3. 35. 30	6. 10
	Start Point	50. 13. 26	3. 38. 21	5. 55
	Praule Point	50. 13. 15	3. 42. 30	5. 55
	Bolt Head	50. 13. 45	3. 48. 3	5. 55
	Eddystone Lighthou.	50. 10. 55	4. 15. 3	5. 15
	Hand Deeps	50. 13. 0	4. 19. 0	
	Ram Head	50. 18. 52	4. 12. 29	5. 45
	Plymouth, New Ch.	50. 22. 20	4. 7. 16	5. 30
	Drake's Island	50. 21. 28	4. 8. 18	5. 30
	Fowey	50. 20. 7	4. 37. 31	5. 30
	Deadman's Point	50. 13. 20	4. 47. 4	5. 30
	Falmouth, Pendennis Castle	50. 8. 49	5. 1. 44	5. 30
	Mannacles Rocks	50. 2. 0	5. 1. 0	
	Black Head	50. 1. 12	5. 3. 59	
	Lizard Point	49. 57. 55	5. 11. 12	7. 50
	Mount's Bay, Penz.	50. 7. 45	5. 20. 15	4. 55
	Mount St. Michael, Mount's Bay	50. 7. 2	5. 27. 33	4. 50
	Runnelstone Beacon	50. 2. 0	5. 39. 0	
	Wolf Rock	49. 55. 45 N	5. 48. 0 W	
	Land's End	50. 4. 10	5. 41. 45	4. 30
Scilly I.	St. Agnes' Light	49. 53. 37	6. 19. 23	4. 40
	St. Mary's Light	49. 54. 33	6. 17. 0	4. 40
	St. Martin's	49. 58. 3	6. 14. 39	4. 40
	The Seven Stones	50. 2. 15	6. 6. 0	
West Coast of England.	Cape Cornwall	50. 8. 0	5. 41. 0	4. 25
	St. Ives' Bay	50. 13. 10	5. 28. 0	4. 30
	St. Agnes, Beacon	50. 18. 27	5. 11. 56	
	Trevose Head	50. 32. 57	5. 0. 54	
	Padstow	50. 34. 30	4. 54. 30	5. 0
	Tintagel Head	50. 40. 0	4. 45. 0	
	Hartland Point	51. 1. 22	4. 30. 26	6. 0
	Mort Point	51. 11. 30	4. 12. 30	
	Lundy Isle	51. 9. 47	4. 38. 28	5. 15
	Flatholm Light	51. 22. 33	3. 6. 25	6. 40
	Bristol, Cathedral	51. 27. 6	2. 35. 29	6. 45
	Nash Point	51. 25. 0	3. 32. 30	
	Mumbles Lighthou.	51. 34. 0	3. 57. 20	
	Worms Head	51. 33. 56	4. 18. 56	
	Caldy Island	51. 37. 0	4. 40. 0	6. 0
	St. Gowan's Head	51. 36. 0	4. 57. 0	5. 30
	St. Ann's Lights	51. 40. 59	5. 9. 19	
	Small's Lighthouse	51. 43. 18	5. 38. 54	5. 50
	St. David's Head	51. 55. 0	5. 17. 0	6. 0
	Strumble Head	52. 1. 0	5. 7. 0	
	Dinas Point	52. 2. 0	4. 53. 0	
	Cardigan Harbour	52. 7. 0	4. 42. 0	7. 0
	Cardigan Isle, highest point	52. 7. 53	4. 40. 27	
	Aberistwith	52. 24. 30	3. 57. 30	7. 30
	Barmouth	52. 41. 0	3. 54. 30	8. 0
	Bardsey Island	52. 44. 0	4. 38. 30	8. 15
	Brachy Pool Head	52. 46. 30	4. 37. 0	
	Holy Head, Mount. Signal Staff	53. 18. 51	4. 39. 27	10. 0
	Skerries Light	53. 24. 0	4. 32. 30	9. 45
	Point Lipas Light	53. 24. 0	4. 11. 30	
	Great Ormes Head	53. 20. 0	3. 49. 30	10. 30
	Point of Air, Light	53. 21. 28	3. 18. 35	
	Liverpool, St. Paul's	53. 24. 40	2. 58. 55	11. 0
	Formby Point	53. 32. 34	3. 5. 2	10. 25
	Lancaster Steeple	54. 3. 8	2. 47. 41	11. 15
	Selker Rock	54. 16. 30	3. 27. 0	
	St. Bees Head, Light	54. 30. 55	3. 37. 24	11. 0
	Whitehaven, Windm	54. 32. 50	3. 34. 56	11. 15
	Carlisle	54. 35. 30	2. 54. 0	12. 0
I. of Man.	Air Point	54. 25. 30	4. 22. 30	10. 30
	Douglas	54. 9. 0	4. 28. 30	10. 30
	Castle Town	54. 3. 30	4. 39. 30	10. 30
	Calf of Man	54. 2. 0	4. 48. 30	10. 30
	Ross Head, Scotland	54. 47. 0	4. 6. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
North and West Coasts of Scotland.	Burrow Head	54. 41. 0N.	4. 24. 0W	
	Great Scar Island	54. 39. 30	4. 43. 0	
	Mull of Galloway	54. 37. 30	4. 49. 30	11. 0
	Port Patrick Light	54. 48. 0	5. 3. 0	
	Loch Ryan	55. 5. 30	4. 56. 30	
	Air Light	55. 25. 30	4. 26. 0	10. 30
	Irwin	55. 38. 0	4. 45. 0	
	Elsa Island	55. 15. 30	5. 6. 30	
	Cumray Island, Lt.	55. 43. 0	4. 57. 0	11. 0
	Greenock	55. 57. 0	4. 44. 0	11. 30
	Glasgow	55. 51. 32	4. 16. 0	
	Pladda Light	55. 30. 0	5. 4. 0	
	Mull of Cantire	55. 17. 0	5. 41. 0	9. 0
	Tonvore Head	55. 54. 0	6. 22. 0	
	Runs Point	55. 47. 0	6. 21. 0	
	Skerryvore Rocks	56. 16. 30	7. 2. 0	
	Dusker Rock	56. 34. 0	6. 57. 0	
	Coll Island, N. Pt.	56. 42. 0	6. 20. 30	
	Rum Island, S. Pt.	56. 55. 0	6. 11. 0	
	Helsker Island	56. 56. 0	6. 37. 0	
	Dunvegan Head	57. 30. 0	6. 40. 0	
	Rea Head	57. 50. 0	5. 40. 0	
	More Head	58. 5. 0	5. 16. 0	
	Stower Head	58. 14. 0	5. 14. 0	
	Cape Wrath	58. 36. 20	4. 57. 30	8. 15
	Rk. seen at low water	58. 45. 0	5. 21. 0	
	Rona Island	58. 55. 0	5. 52. 0	
	Barra Island	58. 54. 0	6. 3. 30	
	Farout Head	58. 37. 30	4. 45. 30	
	Dunnet Head	58. 42. 30	3. 29. 0	
	Duncansby Head	58. 40. 0	3. 8. 0	8. 30
Hebrides, or Lewis Islands.	Mingalay Island	56. 48. 0	7. 33. 0	
	South Uist Island	57. 5. 30	7. 10. 0	
	Canna Island	57. 8. 0	6. 38. 0	
	Renish Head	57. 41. 0	6. 53. 0	
	Glash Island Light	57. 50. 0	6. 33. 0	
	Aird Point	58. 15. 0	6. 1. 0	
	Butt of Lewis	58. 29. 0	6. 12. 0	
	Gallen Head	58. 10. 0	7. 1. 0	
	Flannen Isles	58. 13. 30	7. 30. 0	
	St. Kilda	57. 48. 30	8. 26. 0	
	Hyskar	57. 38. 0	7. 38. 0	
	Rockall	57. 39. 0	13. 31. 0	
Orkney Islands.	Pentland Skerries	58. 43. 0	3. 3. 0	10. 50
	Stroma, South end	58. 43. 0	3. 14. 0	
	S. Ronaldsha, S. Pt.	58 44. 30	3. 5. 0	
	Copinsha	58. 56. 0	2. 47. 30	
	Stronsa, South Pt.	59. 4. 30	2. 40. 0	
	N. Ronaldsha, N. Pt.	59. 23. 0	2. 33. 30	
	Papa Westra I., Mould Head	59. 21. 30	3. 2. 30	
	Papa Westra I., Noup Head	59. 18. 30	3. 13. 30	
	Pomona I., Marwick Head	59. 6. 30	3. 27. 30	10. 30
	Pomona I., Stromness	58. 57. 0	3. 25. 30	10. 30
	Hoy Head, on Hoy Wells	58. 55. 0	3. 31. 0	
	Blue Skerries	59. 3. 0	4. 14. 0	
	Fair Island	59. 29. 0	1. 45. 0	
	Sombro Head, S. Pt.	59. 51. 30	1. 15. 30	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Ferro Isles. Shetland Isles.	Rose or Hangcliff	60. 9. 0N.	0. 56. 30W	
	Lerwick	60. 9. 0	1. 5. 30	9. 45
	Rumble Island	60. 21. 0	0. 53. 0	
	Out Skerries	60. 30. 0	0. 46. 0	
	Lambaness	60. 48. 0	0. 58. 0	
	Rona's Hill	60. 33. 0	1. 34. 0	
	Ossa Skerries	60. 28. 0	1. 44. 0	
	Ve Skerries	60. 21. 0	1. 52. 0	
	Foul Island	60. 5. 30	2. 4. 0	
	Monk Rock	61. 23. 0	6. 52. 0	
	Fucloe Island	62. 21. 0	6. 18. 0	
	Mygines Island	62. 7. 30	7. 42. 0	
East Coast of Scotland.	Noss Head, Scotland	58. 29. 30	3. 8. 30	
	Clyth Ness	58. 20. 0	3. 16. 0	
	Old Head	58. 10. 0	3. 35. 0	
	Tarbat Ness	57. 54. 0	3. 46. 30	
	Cromartie	57. 42. 30	4. 0. 30	11. 45
	Inverness	57. 31. 30	4. 11. 30	
	Fort St. George	57. 37. 30	4. 4. 30	12. 0
	Burgh Head	57. 43. 0	3. 39. 0	
	Cousy Point	57. 44. 0	3. 17. 0	
	Cullen	57. 42. 0	2. 50. 0	
	Bamff	57. 40. 30	2. 31. 30	11. 30
	Kinnaird's Head	57. 42. 0	2. 0. 30	12. 0
	Ratrie Head	57. 38. 0	1. 49. 30	
	Peter Head	57. 32. 0	1. 46. 30	12. 0
	Buchan Ness	57. 30. 0	1. 46. 30	12. 0
	Newburgh	57. 20. 0	2. 2. 30	
	New Aberdeen Obs.	57. 9. 0	2. 9. 0	0. 45
	Girdle Ness	57. 8. 0	2. 6. 0	
	Stonehaven	56. 58. 0	2. 13. 30	1. 0
	Tod Head	56. 52. 30	2. 15. 30	0. 30
	Montrose Ness	56. 42. 0	2. 26. 0	1. 30
	Red Head	56. 37. 30	2. 27. 30	
	Arbroath	56. 34. 0	2. 35. 0	1. 40
	Button Ness Light	56. 28. 0	2. 45. 0	2. 0
	Dundee	56. 28. 0	2. 58. 0	2. 15
	Inch Cape Light, Bell Rock	56. 26. 0	2. 23. 0	3. 0
	St. Andrews	56. 21. 0	2. 47. 0	2. 15
	Fife Ness	56. 17. 0	2. 35. 0	4. 30
	Elly Ness	56. 12. 0	2. 49. 40	2. 0
	Edinburgh	55. 56. 42	3. 12. 15	2. 30
	Inch Keith	56. 3. 0	3. 10. 0	
	Fidra	56. 5. 30	2. 46. 30	
	North Berwick, Law Staff	56. 3. 8	2. 42. 11	1. 30
	The Bass	56. 5. 0	2. 38. 0	2. 45
	May Island Lights	56. 11. 22	2. 32. 47	1. 30
	Dunbar	56. 0. 0	2. 29. 30	2. 15
	St. Abb's Head	55. 55. 0	2. 8. 0	2. 30
	Eyemouth	55. 53. 0	2. 6. 0	2. 15
	Berwick	55. 46. 21	1. 59. 41	2. 15
England.	Bamburgh Castle, England	55. 37. 0	1. 42. 30	
	Holy Island, Flagstaff	55. 40. 0	1. 46. 38	2. 30
	Staples Light	55. 38. 30	1. 37. 30	2. 30
	Fern Island Light	55. 37. 11	1. 39. 51	
	Sunderland Point	55. 35. 0	1. 38. 0	3. 0
	Coquet Island	55. 20. 11	1. 31. 47	2. 45

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
East Coast of England.	Tinemouth Light ..	55. 1.21 N	1.24.31W	3. 0
	Hartle Pool Steeple	54.41.49	1.10.31	3.45
	River Tees, entrance	54.38. 0	1. 5. 0	3.30
	Stockton	54.33. 0	1.20. 0	4.30
	Whitby	54.29. 0	0.37. 0	3.45
	Robin Hood's Bay	54.26. 0	0.18. 0	3.45
	Scarborough	54.18. 0	0.24. 0	4.30
	Filey Brig	54.14. 0	0.15. 0	4.30
	Flamborough Head	54. 8. 0	0. 2.30	4.30
	Spurn Lights	53.57.13	0.12.12 E	5.15
	Lynn Old Tower ..	52.46.52	0.25. 4	6. 0
	Outer Dowsing	53.30. 0	0.55. 0	
	Haddock's Bank ..	53.33. 0	1.24. 0	
	Dudgeon Light	53.18. 0	0.55. 0	7.30
	Inner Dowsing	53.18. 0	0.34. 0	
	Cromer, Inner Bank	53. 9. 0	1.24. 0	6.45
	Lemon, Middle	53.10. 0	1.54. 0	7. 0
	Sherringham Shoals	53. 2.30	1.10. 0	
	Smith's Knowl	52.56. 0	2.17.30	12. 0
	Cromer Light	52.55.30	1.20. 0	
	Foulness	52.56.20	1.20.30	9. 0
	Hasborough Lights	52.49. 0	1.33. 0	6.30
	Winterton Ness Lts.	52.43.30	1.42. 0	8.15
	Yarmouth	52.36.40	1.43.35	8.45
	Leostoff Lights	52.29. 0	1.46. 0	
	Southwold	52.20. 0	1.39.30	9. 0
	Aldborough Knapps	52. 7.30	1.41.30	10.45
	Orfordness Light ..	52. 5. 0	1.34.14	11. 0
	Harwich, Langd. Ft.	51.56.18	1.19. 4	11.30

COAST OF IRELAND.

		° ′ ″	° ′ ″	h m
West Coast of Ireland.	Cape Clear	51.25. 0 N	9.29. 0W	4.30
	Fastnet Rock	51.22.30	9.36. 0	
	Crookhaven	51.30. 0	9.40. 0	3. 0
	Mizzen Head	51.29. 0	9.46. 0	3. 0
	Sheep's Head, .. Bantry Bay ..	51.33.30	9.51. 0	3.45
	Greelagh Rocks ..	51.31.30	10. 6. 0	
	Durse Isle, Tower..	51.35. 0	10.14. 0	3.30
	Bull Rock	51.38. 0	10.13. 0	
	Cow Rock	51.37.30	10.12. 0	
	Cod's Head, ... Kenmare Bay	51.43. 0	10. 4. 0	3.30
	Lamb's Head, do...	51.49. 0	10. 5. 0	3.30
	Hog Islands	51.49. 0	10.10. 0	
	Bolus Head	51.52. 0	10.15. 0	
	Skelling's Rock ..	51.51.30	10.29. 0	
	Lemon Rock	51.53. 0	10.23. 0	
	Bray Hd., Dingle Bay	51.59. 0	10.21. 0	3.30
	Dunmore Head, do.	52.13. 0	10.24. 0	3.30
	Foze Rock	52. 7. 0	10.36. 0	
	Ferritor's Island ..	52. 9. 0	10.31. 0	3.30
	Tiraght Rocks	52.10. 0	10.33. 0	
	Great Blaskett, .. West end	52.11. 0	10.29. 0	3.40
	Ennis Tuskar	52.14. 0	10.29. 0	
	Dunorling Head ..	52.19. 0	10.19. 0	
	Brandon Head	52.23. 0	10. 6. 0	
	Kerry Head, ... Shannon Mouth	52.30. 0	9.54. 0	4.30
	Loop Head, do.....	52.37. 0	9.54. 0	4.30
	Limerick	52.42. 0	8.41. 0	6.30
	Clare	52.51. 0	9. 2. 0	

	Names of Places.	Latitude.	Longitude.
		° ′ ″	° ′ ″
North Coast of Ireland.	Hag's Head	53. 0. 0 N	9.23. 0W
	Blk. Hd. Galway Bay	53.10.30	9.11. 0
	Galway	53.16.30	8.53. 0
	North Arran Island, West end	53. 9. 0	9.44. 0
	Skird Rocks	53.16.30	9.56. 0
	Sline Head	53.27. 0	10.12. 0
	Shark Island	53.38. 0	10.17. 0
	Ennis, Turk Island	53.45. 0	10. 7. 0
	Clare Island Light	53.52. 0	9.58. 0
	Achill Head	54. 1. 0	10.12. 0
	Black Rock	54. 7. 0	10.17. 0
	Urris Head, ... Broad Haven ..	54.21. 0	10. 2. 0
	3 Tuns Rocks off do.	54.25.30	9.48. 0
	Down Patrick Head	54.23. 0	9.22. 0
	Killala	54.16. 0	9.17. 0
	Sligo	54.21. 0	8.34. 0
	Ennis Murray Island	54.31. 0	8.45. 0
	Donnegal	54.43. 0	8.10. 0
	Tillen Head	54.43. 0	8.52. 0
	Douras Head	54.53. 0	8.40. 0
	Arranmore I., N. end	55. 2. 0	8.37. 0
	Bloody Foreland ..	55.11. 0	8.18. 0
	Tory I., N. W. point	55.18. 0	8.16. 0
	Horn Head	55.15. 0	8. 1. 0
	Melmore Head	55.17. 0	7.48.30
	Dunaff Head, ... Loch Swilly ..	55.18.30	7.33. 0
	Mullin Head	55.24. 0	7.24.30
	Ennistrahul Light..	55.27. 0	7.14. 0
	Inishone Head	55.14. 0	6.54.30
	Londonderry	54.59.28	7.14.49
	Giant's Causeway..	55.15.30	6.24. 0
	Racklin, I. W. point	55.19. 0	6.13.30
	Fair Head	55.15. 0	6. 3.30
	Tor Head	55.13.30	5.58.30
East Coast of Ireland.	Maid's Rocks	54.57. 0	5.39. 0
	Black Head	54.46. 0	5.39. 0
	Carrick fergus	54.43. 0	5.49.30
	Belfast	54.35. 0	5.57. 0
	Mew Island Light..	54.40.30	5.24. 0
	South Rock Light..	54.21. 0	5.24. 0
	Dundrum	54.13. 0	5.48.30
	Dundalk	54. 0. 0	6.20. 0
	Clougher Head	53.50. 0	6.10.30
	Drogheda Bar	53.44.30	6.12. 0
	St. Patrick's Island	53.35.30	6. 2.30
	Lambay Island .. Knockerb. Hill	53.30.12	6. 0.12
	Howth Head Light	53.22. 0	6. 3. 0
	Dublin Pier Lightho.	53.21.13	6. 5.13
	Dublin Observatory	53.23.13	6.20.30
	Wicklow Lights ..	52.58.22	6. 0.21
	Arklow	52.49. 0	6. 6.30
	Glascarrick	52.37.30	6.10.30
	Wexford Harbour..	52.22. 0	6.19. 0
S. Coast.	Carnsore Point....	52.11. 0	6.18. 0
	Tusker Rock	52.12. 0	6. 7.30
	Saltees Rocks	52. 6. 0	6.36. 0
	Hook Light	52. 5. 0	6.56.30
	Waterford	52.13. 0	7.10. 0

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
South Coast of Ireland.	Tramore	52. 7. 0 N	7. 11. 0 W	
	Dungarvan	52. 4. 0	7. 38. 30	4. 30
	Ram Head	51. 55. 0	7. 40. 0	
	Youghall	51. 56. 0	7. 48. 30	5. 0
	Dog's Nose	51. 48. 0	8 16. 0	
	Cork Quay at Cove	51. 50. 50	8. 16. 30	6. 30
	Kinsale Light	51. 35. 0	8. 29. 0	4. 30
	Seven Heads	51. 32. 30	8. 42. 0	
	Dundedy Head	51. 32. 0	8. 56. 0	4. 0
	Ross	51. 35. 0	8 59. 0	
	Stags off Toe Head	51. 27. 0	9. 10. 0	
	Baltimore	51. 27. 0	9. 20. 0	3. 45

COASTS OF LAPLAND AND NORWAY FROM NOZA ZEMBLA TO THE NAZE.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
White Sea.	Nova Zembla, N. pt.	78. 5. 0 N	76. 15. 0 E	
	Weigates Straits	70. 50. 0	57. 45. 0	
Coasts of Norway and Lapland.	Cape Candinose	68. 42. 0	44. 35. 0	
	Morshom I., S. point	66. 40. 0	43. 27. 0	
	Cape Bona Fortuna	66. 31. 0	42. 54. 0	
	Blue Point	65. 26. 0	39. 54. 0	
	Archangel	64. 34. 0	40. 43. 5	6. 0
	Cape Donega	65. 8. 0	36. 47. 0	
	Onega	63. 54. 0	37. 58. 0	
	Cross Island	66. 29. 0	40. 20. 0	4. 15
	Cape Orlogenose	67. 15. 0	41. 15. 30	
	Lambasche Point	67. 52. 0	40. 40. 0	
	Cape Sweetnose	68. 12. 0	39. 46. 0	12. 0
	Nagel Island	68. 25. 0	37. 35. 0	
	Kilduin, I., N. point	69. 10. 0	33. 50. 0	
	Wardhuys	70. 22. 36	31. 7. 0	4. 0
	North Cape	71. 10. 0	26. 0. 45	3. 0
	Altengaard	69. 55. 0	23. 4. 15	
	Werro Island	67. 42. 0	11. 25. 0	
	Drontheim	63. 25. 50	10. 23. 25	2. 15
	Christian Sound	63. 7. 0	7. 42. 0	
	Roudoe I., Lightho.	62. 24. 30	5. 35. 30	
	Askwold	61. 22. 0	5. 7. 30	
	Bergen Castle	60. 24. 0	5. 20. 0	1. 30
	Bommel I., S. end	59. 34. 0	5. 10. 0	
	Stavanger	58. 58. 30	5. 45. 0	
	Great Wylingsoe, Lt.	59. 4. 0	5. 21. 30	
	Jeddern Reef	58. 45. 0	5. 26. 0	
	Lister Island	58. 6. 0	6. 33. 30	
	The Naze	57. 57. 50	7. 3 15	

CATTEGAT AND SOUND.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Jutland.	Scaw Light	57. 43. 44 N	10. 37. 30 E	12. 0
	Fladstrand	57. 27. 3	10. 33. 30	
	Sebye	57. 20. 0	10. 33. 0	
	Aalburg	57. 2. 32	9. 56. 41	
	Grena	56. 24. 47	10. 53. 59	
	Aarhuys	56. 9. 35	10. 14. 5	
	Apenrade	55. 2. 57	9. 26. 38	
	Flensburg	54. 47. 18	9. 27. 40	
	Sleswick	54. 31. 27	9. 33. 57	
Norway.	The Naze	57. 57. 50 N	7. 3. 15 E	
	Christian Sand	58. 8. 4	8. 3. 0	
	Arendad	58. 27. 0	8. 51. 20	
	Frederickavern	58. 59. 0	10. 7. 30	
	Ferder Light	59. 3. 0	10. 36. 0	
	Agero Isle, centre	59. 2. 35	10. 57. 0	
	Christiana	59. 55. 0	10. 48. 0	
	Frederickstadt	59. 12. 0	11. 1. 30	
Sweden.	Stromstadt	58. 55. 30	11. 12. 0	
	Salo Isle, Lightho.	58. 21. 0	11. 15. 30	
	Paternosters	57. 55. 0	11. 27. 0	
	Marstrand Light	57. 53. 51	11. 36. 0	
	Gothenburgh	57. 42. 4	11. 47. 45	
	Wiuga Beacon	57. 38. 12	11. 38. 0	
	Tislarne	57. 30. 0	11. 44. 0	
	Niddengen Lights	57. 18. 21	11. 55. 0	
	Warberg Fort	57. 6. 18	12. 16. 0	
	Falkenburg	56. 53. 54	12. 30. 15	
	Halmstadt	56. 39. 45	12. 52. 0	
	Laholm	56. 32. 38	13. 1. 0	
	Wadero I., S. end	56. 26. 0	12. 35. 0	
	Engelholm	56. 14. 20	12. 52. 15	
	Koll Light	56. 18. 0	12. 27. 32	
	Helsinburg	56. 2. 55	12. 43. 15	
	Landskrone	55. 52. 27	12. 51. 1	
	Lunden Tower	55. 42. 46	13. 12. 42	
	Malmo	55. 36. 37	13. 1. 19	
	Falsterbo Light	55. 23. 4	12. 49. 45	
Zealand.	Kioge	55. 27. 0	12. 12. 0	
	Copenhagen	55. 41. 4	12. 35. 6	
	Elseneur	56. 2. 17	12. 38. 2	
	Cronenburg Light	56. 2. 30	12. 37. 25	
	Nakke Head Lights	56. 6. 30	12. 21. 30	
	Nykoping	55. 55. 0	11. 40. 0	
	Callundburg	55. 41. 0	11. 6. 0	
	Korsar Lights	55. 20. 0	11. 9. 0	
	Wordingburg	55. 1. 0	11. 57. 30	
Cattegat.	Huen I., Uraniberg	55. 54. 38	12. 42. 59	
	Amag I., Drago	55. 36. 0	12. 41. 30	
	Haselo Island	56. 12. 0	11. 40. 0	
	Anholt Light	56. 44. 20	11. 38. 51	12. 0
	Little Middle Ground	56. 57. 0	11. 59. 0	
	Lessoe Isle, E. end	57. 19. 0	11. 10. 40	
	Lessoe Isle, W. end	57. 15. 0	10. 52. 30	
	Trindelen Rock	57. 25. 30	11. 13. 30	

THE BALTIC.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Danish Isles.	Funen Odensee	55. 24. 30 N	10. 22. 0 E	
	Lanland Rudkop.	54. 56. 0	10. 44. 0	
	Areo, Kiop	54. 53. 30	10. 26. 0	
	Alsen Sonderborg	54. 54. 59	9. 47. 13	
	Laaland Naskou	54. 51. 0	11. 15. 0	
	Falster Nykoping	54. 47. 0	11. 54. 30	
	Moen, Stege	55. 0. 0	12. 19. 0	
	Fermeren, Borge	54. 27. 30	11. 17. 0	
	Hadersleben	55. 15. 15	9. 30. 49	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Sweden.	Tralleborg	55.22. 0N.	13.11. 0E.	
	Cimbrishamn	55.33.27	14.20.45	
	Ahus	55.55.30	14.16.20	
	Carlscroon	56. 6.57	15.33. 0	
	Torum Point	56. 5. 0	15.50.30	
	Calmar	56.40.30	16.26.15	
	Westerwyk	57.44.50	16.40.15	
	Soderkoping	58.29.30	16.20. 0	
	Nykoping	58.45.30	17. 3. 0	
	Trosa	58.53.30	17.33. 0	
	Landsort Light	58.43.56	17.52. 0	
	Stockholm	59.20.31	18. 3.30	
Germany.	Kiel	54.19.43	10. 8.18	
	Lubeck	53.51.18	10.40.52	
	Wismar	53.51.30	11.39. 0	
	Rostock	54. 3. 0	12.17. 0	
	Dars Head	54.28. 0	12.35.30	
	Gellen Light	54.28. 0	13.12.30	
	Stralsund	54.19. 0	13.32.15	
	Usedom	53.53. 0	14. 5. 0	
	Wollin	53.48. 0	14.44. 0	
	Stettin	53.23. 0	14.34. 0	
	Cammin	53.56. 0	14.55.30	
	Colberg	54. 7. 0	15.47. 0	
	Rugenwalde	54.22. 0	16.29.30	
Prussia.	Heel Light	54.37.30	18.47.30	
	Dantzic	54.20.48	18.38. 5	
	Pillau	54.33.39	19.52.30	
	Konigsberg	54.42.12	20.29.15	
	Bruster Ort Lights	54.52. 0	19.54.30	
	Memel	55.42.15	21. 8. 3	
	Libau	56.31.36	20.55.20	
	Windau	57.25. 0	21.26.30	
	Lyserort	57.35. 0	21.38. 0	
	Dompesness Lights	57.46. 0	22.30. 0	
Russia.	Runo Island, Light	57.48. 0	23. 6.30	
	Riga	56.57. 1	24. 7.45	
	Pernau	58.21. 1	24.19.30	
	Dago Simperness	59. 6. 0	22.32. 0	
	Dagerort Point	58.56. 1	22. 9.15	
	Osel, Palmer Ort	58.39. 0	22.28. 0	
	Osel, Hunds Ort	58.32. 0	21.50. 0	
	Osel, Swasve Ort. Lt.	57.56. 0	22. 0.30	
	Osel, Arensburg	58.15.19	22.27.45	
	Gatska Sando	58.26. 0	19.18. 0	
	Faro, N. E. end	57.56. 0	19.28.30	
	Gottland, N. E. end	57.51. 0	19. 6.30	
	Gottland, Wisby	57.39.15	18.26.30	
	Gottland, Hoberg	56.56. 0	18.11. 0	
	Oland, north end	57.22.20	17. 6.30	
	Do., Borgholms Slott	56.52. 0	16.37. 0	
	Ditto S. end Light	56.12.40	16.24.30	
	Eartholms	55.19. 0	15.15.30	
	Bornholm, N.W. end	55.18. 0	14.48.30	
	Bornholm Hasle	55.10. 0	14.47. 0	
	Bornholm, S. E. end	54.58. 0	15.14. 0	
	Bornholm, Svanike	55. 8. 0	15.16. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
	Rugen, north end	54.40. 0N.	13.30. 0E	
	Rugen Bergen	54.24.30	13.32. 0	
	Do. S. end, new Deep	54.15.30	13.52. 0	
	Wolgast	54. 3. 0	13.50. 0	
	Greifswald	54. 4.40	13.33.15	

GULFS OF BOTHNIA AND FINLAND.

		° ′ ″	° ′ ″	h m
South Coast, Gulf of Finland.	Odensholm Light	59.19.30N.	23.18.30E.	
	Great Roge Light	59.25. 0	24. 4.30	
	Surep Head Light	59.28.30	24.23.30	
	Nargen Island N. pt.	59.36. 0	24.33.30	
	Revel	59.26.33	24.35. 9	
	Koskar Light	59.40.30	25. 3.30	
	Stone Skar	59.46. 0	26.26. 0	
	Little Titters Island	59.47. 0	27. 0.30	
	Great Titters Island	59.50. 0	27.17.30	
	Lavenscar, N. end	59.59. 0	27.54.30	
	Sea Scar Light	59.58.30	28.28. 0	
	Narva	59.22.53	28.14.30	
	Dolgenos	59.53. 0	29. 6. 0	
	Tolbecon Light	60. 0. 0	29.39. 0	
	Cronstadt	59.59.26	29.49.30	
	Petersburg	59.56.23	30.18.45	
N. C. Gulf of Finland.	Hango Beacon	59.46.20	22.57.45	
	Helsingfors	60.10. 0	25. 0.15	
	Borgo	60.21. 0	25.45.30	
	Lovisa	60.25. 0	26.26. 0	
	Orrengrunds Beacon	60.15. 0	26.35. 5	
	Hogland Island Lts.	60. 3. 0	27. 7. 0	
	Aspo	60.14. 0	27.22. 0	
	Fredericksham	60.30. 0	27.25. 0	
	Wiburg	60.42.40	28.46. 5	
	Styrs Udden	60. 8. 0	29.10. 0	
Bothnia.	Uto Lighthouse	59.47.18	21.17.19	
	Abo	60.27.10	22.20.15	
	Wasa	63.13. 0	21.55. 0	
	Tornea	65.50.50	24.12.15	
	Gefle	60.39.45	17. 8.30	

Coasts of Denmark, Germany, Holland and Netherlands.—From the Scaw Light to Calais.

		° ′ ″	° ′ ″	h m
Denmark.	Scaw Light	57.43.30N	10.37.30 E	12. 0
	Robsnout	57.25. 0	9.45. 0	
	Oyster Head	57.10. 0	8.58. 0	
	Holmen	57. 8. 0	8.36.30	
	Tonningen	54.19.25	8.58.45	
	Point Horn	55.37. 0	8. 3. 0	
Germany.	Heligoland Lt: hou.	54.11.34	7.53.13	11. 0
	Riv. Elbe, Red buoy	53.59.30	8.21.30	12. 0
	Newark	53.55.30	8.31.30	
	Cuxhaven Lt. house	53.52.21	8.43. 1	1. 0
	Glukstadt	53.47.42	9.27. 2	
	Stade	53.36.32	9.28.34	
	Hamburg	53.32.51	9.58.37	6. 0
	Bremorlehe	53.32. 0	8.30. 0	
	Bremen	53. 4.38	8.48. 0	6. 0

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Holland.	Emden	53. 22. 3 N	7. 11. 1 E	12. 0
	Gottingen	51. 31. 50	9. 56. 30	
Netherlands.	Harlingen	53. 10. 32	5. 24. 47	
	Texel, South point	53. 2. 0	4. 33. 0	7. 45
	Alkmaer	52. 38. 2	4. 44. 45	
	Amsterdam	52. 22. 17	4. 53. 15	3. 0
	Haerlem	52. 22. 56	4. 38. 19	9. 0
	Leyden	52. 9. 30	4. 29. 13	
	The Hague	52. 4. 50	4. 18. 47	8. 15
	Holland's Hook	51. 56. 0	4. 0. 0	3. 0
	Rotterdam	51. 55. 22	4. 29. 11	3. 30
	Gocree Island	51. 46. 0	3. 53. 30	
	Schoweu I. Light	51. 39. 0	3. 37. 30	
	Walcheren I., W. pt.	51. 32. 0	3. 25. 30	
	Middleburg	51. 30. 6	3. 37. 30	
	Flushing	51. 26. 42	3. 34. 57	1. 0
	Antwerp	51. 13. 16	4. 24. 10	
	Sluys	51. 18. 35	3. 23. 9	
	Bruges	51. 12. 33	3. 13. 33	
	Ostend	51. 13. 57	2. 55. 8	0. 20
	Newport	51. 7. 54	2. 45. 15	
	Furnes	51. 4. 23	2. 39. 51	
	Dunkirk	51. 2. 9	2. 22. 37	11. 45
	Berg	50. 57. 43	2. 26. 26	
	Gravelines	50. 59. 10	2. 7. 50	11. 45
	Calais	50. 57. 32	1. 51. 16	11. 30

COASTS OF FRANCE, SPAIN AND PORTUGAL.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Northern Coast of France.	Calais	50. 57. 32 N	1. 51. 16 E	11. 30
	Cape Grizness	50. 52. 30	1. 34. 30	11. 0
	Ambleteuse	50. 48. 13	1. 36. 1	11. 0
	Boulogne	50. 43. 37	1. 36. 59	10. 30
	Etaples	50. 30. 44	1. 38. 31	10. 15
	Moutreul	50. 27. 42	1. 45. 47	
	Rue	50. 16. 30	1. 40. 0	
	Le Croty	50. 12. 52	1. 27. 24	
	Abbeville	50. 7. 4	1. 49. 58	10. 30
	St Valery-sur-Somme	50. 11. 21	1. 37. 51	10. 30
	Eu	50. 3. 0	1. 15. 20	
	St. Quintin	49. 50. 51	1. 22. 37	
	Dieppe Light	49. 55. 34	1. 4. 44	10. 30
	Ailly Light	49. 55. 17	1. 10. 17	
	St. Valery-en-Caux	49. 52. 12	0. 41. 25	10. 15
	Fecamp	49. 45. 24	0. 23. 3	10. 0
	Cape de Caux	49. 41. 0	0. 11. 0	
	Cape de la Heve	49. 30. 42	0. 3. 30	
	Havre de Grace	49. 29. 14	0. 6. 38	10. 30
	Harfleur	49. 30. 0	0. 11. 30	
	Honfleur	49. 25. 13	0. 14. 14	
	Paris, Observatory	48. 50. 14	2. 20. 15	
	Rouen	49. 26. 27	1. 5. 59	1. 0
	Caen	49. 11. 12	0. 21. 38 W	10. 0
	Bayeux	49. 16. 34	0. 41. 56	
	Carentan	49. 18. 0	1. 15. 30	
	St. Marcou Island	49. 29. 52	1. 8. 41	
	Cape Barfleur Light	49. 40. 21	1. 15. 15	7. 30
	Cherbourg	49. 38. 31	1. 37. 3	7. 30

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Northern Coast of France.	Pelee Island	49. 40. 22 N	1. 35. 0 W	
	Cape La Hogue	49. 43. 33	1. 55. 30	9. 0
English Islands.	Alderney Isle, N. end	49. 45. 47	2. 12. 30	6. 0
	Caskett Lights	49. 43. 30	2. 25. 10	6. 0
	Guernsey I., St. Pierre	49. 25. 33	2. 33. 0	6. 0
	Sark Island, W. end	49. 24. 32	2. 23. 45	
	Jersey Isle, Cape Grossness	49. 15. 32	2. 13. 47	6. 0
	Jersey I., St. Aubin	49. 12. 59	2. 10. 44	6. 0
	Jersey I., St. Clements	49. 8. 37	1. 59. 30	6. 0
Northern Coast of France.	Chausey Island	48. 52. 0	1. 50. 30	
	St. Germain	49. 13. 15	1. 35. 30	
	Coutances	49. 2. 54	1. 26. 33	6. 0
	Granville	48. 50. 16	1. 35. 57	7. 30
	Avranche	48. 41. 23	1. 21. 22	6. 0
	Mount St. Michael	48. 38. 14	1. 30. 24	
	Pontorson	48. 33. 18	1. 31. 32	
	Cancalle	48. 41. 0	1. 51. 30	7. 30
	St. Malo	48. 39. 3	2. 1. 11	6. 0
	La Conchee Tower	48. 41. 2	2. 3. 15	
	Dinant	48. 27. 6	2. 2. 5	
	Cape Frehel Light	48. 41. 10	2. 18. 36	6. 0
	St. Brieuc	48. 31. 2	2. 43. 55	
	Brehat Island	48. 50. 0	2. 56. 0	7. 30
	Treguier	48. 46. 54	3. 13. 34	
	Morlaix	48. 35. 0	3. 53. 30	5. 15
	St. Pol de Leon	48. 41. 0	4. 0. 0	5. 15
	Blanche Rock	49. 1. 25	3. 58. 0	
	Islede Bas	48. 45. 0	4. 2. 0	3. 45
	St. Anthony's Lights	48. 40. 0	4. 29. 0	
	Ushant Light	48. 28. 8	5. 3. 6	4. 30
Western Coast of France.	Brest	48. 23. 14	4. 28. 45	4. 30
	St. Matthew's Light	48. 19. 34	4. 45. 39	
	Point Ras	48. 1. 0	4. 47. 0	
	Saint's Rocks	48. 5. 0	5. 5. 0	
	Point L' Abbe	47. 49. 0	4. 12. 0	
	Quimper	47. 58. 29	4. 5. 45	
	Glenan Islands	47. 44. 30	4. 0. 20	
	Quimperlay	47. 52. 0	3. 34. 0	
	L' Orient	47. 45. 11	3. 21. 2	4. 30
	Hennebon	47. 48. 1	3. 17. 22	
	Port Louis	47. 42. 30	3. 21. 14	4. 30
	Gronais Isle	47. 38. 4	3. 26. 8	
	Quiberon, S. point	47. 26. 0	3. 4. 0	
	Belle Isle, N. end	47. 23. 0	3. 14. 0	3. 0
	Belle Isle, S. end	47. 17. 17	3. 4. 45	3. 0
	Houat Island	47. 23. 32	2. 56. 42	
	Hedie Island	47. 20. 46	2. 51. 16	
	Aurai	47. 40. 4	2. 49. 37	5. 45
	Vannes	47. 39. 26	2. 45. 4	5. 45
	Guizande	47. 19. 39	2. 26. 21	
	Croisic	47. 17. 43	2. 30. 15	
	Painbeuf	47. 17. 15	2. 1. 31	
	Nantes	47. 13. 6	1. 32. 44	4. 0
	Bourgneuf	47. 2. 28	1. 51. 24	
	Le Pillier	47. 2. 32	2. 21. 5	
	Noirmoutier I., S. pt.	47. 0. 5	2. 14. 7	
	Bouin Island	46. 58. 30	2. 0. 27	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Western Coast of France.	Isle de Dieu, West point	46. 42. 26 N	2. 19. 50 W	3. 0
	St. Gilles	46. 40. 0	1. 51. 0	
	Olonne Shoals	46. 30. 0	1. 47. 0	3. 30
	Roche Bonne	46. 15. 30	2. 21. 30	
	Isle of Rhé Lighthouse	46. 14. 49	1. 33. 25	
	Do. St. Martin	46. 12. 18	1. 21. 52	
	Rochelle	46. 9. 21	1. 9. 40	3. 45
	Rochefort	45. 56. 10	0. 57. 34	3. 0
	Oleron Island Tower	46. 3. 0	1. 25. 0	
	Aix Island	46. 1. 38	1. 10. 41	3. 0
	Cordovan Lighthouse	45. 35. 15	1. 10. 23	
	Bourdeaux	44. 50. 14	0. 33. 59	3. 0
	Cape Feret	44. 43. 0	1. 14. 0	
	Cape Breton	43. 45. 0	1. 26. 0	
	Bayonne	43. 29. 15	1. 28. 26	3. 30
Coasts of Spain.	St. Jean de Luz	43. 23. 0	1. 40. 0	
	Fontarabia	43. 21. 36	1. 47. 15	
	Port de Passages	43. 20. 10	1. 54. 45	
	St. Sebastian	43. 19. 30	1. 58. 30	
	Cape Machiaco	43. 28. 0	2. 49. 0	
	Bilboa	43. 14. 30	2. 44. 0	3. 15
	Santano	43. 26. 50	3. 19. 35	
	St. Andero	43. 28. 20	3. 40. 0	
	Cape Hoyhambre	43. 25. 10	4. 11. 0	
	Cape Prieto	43. 28. 30	4. 43. 0	
	Cape de Mar	43. 29. 40	4. 49. 50	
	Cape Lastres	43. 34. 0	5. 12. 50	
	Gijon	43. 35. 19	5. 35. 40	
	Cape Penas	43. 42. 0	5. 46. 0	
	Cape Busto	43. 36. 0	6. 23. 0	
	Cape Burol	43. 41. 0	7. 17. 0	
	Faro Point	43. 43. 0	7. 29. 0	
	Cape Varres	43. 47. 25	7. 34. 45	
	Point de la Estaca	43. 48. 0	7. 36. 0	
	Cape Ortegal	43. 46. 40	7. 49. 0	3. 0
	Cape Prior	43. 34. 15	8. 22. 0	
	Ferrol	43. 29. 0	8. 15. 0	3. 0
	Corunna	43. 23. 30	8. 18. 35	3. 0
	Cape St. Adrian	43. 21. 20	8. 47. 45	
	Cape Villano	43. 11. 20	9. 11. 15	
	Cape Turiana	43. 3. 45	9. 17. 30	
	Cape Finisterre	42. 54. 0	9. 16. 0	3. 0
	Cape Corobedo	42. 33. 30	9. 3. 35	
	Ous Island, N. point	42. 24. 0	8. 51. 0	
	Vigo	42. 13. 20	8. 33. 30	
	Cape Silleiro	42. 4. 0	8. 48. 0	
	River Minho, entrance	41. 52. 30	8. 47. 0	
	Viana	41. 42. 36	8. 43. 30	
	Oporto, the Bar	41. 8. 54	8. 37. 18	3. 15
	Aveiro	40. 38. 24	8. 37. 54	
	Cape Mondego	40. 11. 54	8. 54. 6	
	Coimbra	40. 12. 30	8. 24. 42	
	Figueira	40. 10. 0	8. 52. 0	
	Biorlings	39. 25. 0	9. 31. 20	
	Cape Carbœira	39. 21. 0	9. 25. 0	
	Lisbon Rock	38. 46. 0	9. 30. 36	
	Lisbon Observatory	38. 42. 24	9. 8. 30	2. 15
	Cape Espichel	38. 24. 54	9. 13. 24	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Coast of Portugal.	St. Ubes	38. 33. 0 N	8. 53. 30 W	
	Sines Castle	37. 57. 30	8. 52. 42	
	Cape St. Vincent	37. 2. 54	8. 59. 36	2. 15
	Lagos	37. 6. 0	8. 38. 3	2. 0
	Cape Carbonera	37. 7. 0	8. 20. 0	
	Faro, St. Antonio Ch.	36. 59. 24	7. 50. 48	
	Cape St. Maria	36. 55. 36	7. 49. 30	
	Point St. Antony	37. 9. 30	7. 19. 45	
Coast of Spain.	St. Lucar	36. 46. 0	6. 20. 0	
	Seville	36. 59. 0	5. 58. 0	
	Cadiz, Observatory	36. 32. 0	6. 17. 22	4. 0
	Cape Trafalgar	36. 10. 15	6. 0. 0	
	Tarifa Island	36. 0. 30	5. 35. 15	
	Gibraltar, Europa pt.	36. 6. 40	5. 21. 45	12. 0
	Algesiras	36. 8. 0	5. 26. 12	
	NORTH COAST OF THE MEDITERRANEAN.			
		° ′ ″	° ′ ″	h m
South and East Coasts of Spain.	Gibraltar, Europa pt.	36. 6. 40 N	5. 21. 45 W	
	Malaga	36. 43. 30	4. 25. 2	
	Modril	36. 45. 0	3. 33. 30	
	Almeira	36. 51. 0	2. 31. 0	
	Cape de Gatt	36. 44. 0	2. 12. 50	
	Cape Tinoso	37. 31. 0	1. 9. 0	
	Carthagena	37. 35. 50	1. 0. 21	
	Cape Palos	37. 37. 0	0. 41. 0	
	Plana Isle	38. 10. 0	0. 28. 20	
	Alicante	38. 20. 41	0. 28. 35	
	Cape St. Martin	38. 47. 30	0. 10. 45 E	
	Denia	38. 52. 0	0. 5. 15	
	Valencia	39. 28. 45	0. 23. 3 W	
	Cape Oropesa	40. 5. 33	0. 8. 25 E	
	River Ebro, entrance	40. 42. 0	0. 57. 0	
	Tortosa Cathedral	40. 48. 46	0. 33. 0	
	Tarragona	41. 8. 50	1. 15. 30	
	Barcelona, Mount Joy Tower	41. 24. 44	2. 9. 57	
	Mataro	41. 32. 23	2. 26. 48	
	Cape de Tosa	41. 43. 0	2. 55. 0	
	Palamos	41. 51. 10	3. 5. 0	
	Cape St. Sebastian	41. 53. 0	3. 9. 0	
	Bay of Roses	42. 16. 0	3. 7. 0	
	Cape Creux	42. 19. 35	3. 20. 50	
South Coast of France.	Callioure	42. 31. 31	3. 5. 2	
	Perpignan	42. 42. 3	2. 54. 9	
	Cape Leucate	42. 54. 0	3. 6. 0	
	Narbonne	43. 11. 22	3. 0. 22	
	Agde	43. 18. 40	3. 28. 10	
	Fort Brecon	43. 16. 0	3. 30. 0	
	Cette Lighthouse	43. 23. 37	3. 41. 5	
	Montpelier, Observy.	43. 36. 16	3. 52. 40	
	Aigues Mortes	43. 33. 58	4. 11. 22	
	Arles	43. 40. 31	4. 37. 47	
	Avignon	43. 57. 8	4. 48. 30	
	Aix	43. 31. 48	5. 26. 47	
	Marseilles, Observy.	43. 17. 49	5. 22. 15	
	La Ciotat	43. 10. 29	5. 37. 0	
	Cape Sicie	43. 2. 0	5. 58. 0	
	Toulon	43. 7. 9	5. 55. 41	
	Hieras	43. 7. 20	6. 7. 11	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
South Coast of France.	Porquerolles Citadel	42.59.48 N	6.12.15 E	
	Levent Island	43. 2. 0	6.30. 0	
	Cape Taillar	43. 7. 0	6.44. 0	
	Frejus	43.25.52	6.44. 9	
	St. Tropez	43.16.27	6.38.44	
	Cape Roux	43.22. 0	7. 2. 0	
	Cannes	43.33. 0	7. 9. 0	
	Antibes	43.34.43	7. 7.50	
	St. Marguerite Isle	43.31. 0	7. 3. 0	
	Nice	43.41.16	7.16.37	
	Villa Franche Light	43.40.20	7.19.30	
Genoa.	Cape Melle	43.57. 0	8. 8. 0	
	Savona	44.17. 0	8.30. 0	
	Genoa	44.25. 0	8.58. 0	
	Rappallo	44.21. 0	9.16. 0	
	Point Venere	44. 5. 0	9.45. 0	
	Spezia	44. 8. 0	9.44. 0	
	Pisa, Observatory	43.43.11	10.24. 0	
	Florence	43.46.41	11.15.45	
	Leghorn	43.33. 5	10.16.45	
West Coast of Italy.	Vado, Tower	43.25. 0	10.23. 0	
	Piombino	42.55.27	10.31. 2	
	Cape Troy	42.46. 0	10.41. 0	
	Cape Argental	42.23.25	11. 9.39	
	Castiglione Fort	42.45.58	10.52.15	
	Civita Vecchia	42. 5.24	11.44.15	
	Ostea	42.45. 0	12.17. 0	
	Rome, Roman Coll.	41.53.54	12.29.47	
	Cape Danso	41.26. 0	12.38. 0	
	Mount Cercello	41.12. 0	13. 1. 0	
	Gaeta	41.15. 0	13.38. 0	
	Naples	40.50.15	14.15.45	
	Salerno	40.44. 0	14.46. 0	
	Cape Licosa	40.15. 0	14.57. 0	
	Policastro	40. 6. 0	15.40. 0	
	St. Euphemia	38.55. 0	16.32. 0	
	Tropea	38.36. 0	16. 7. 0	
	Reggio	38. 7. 0	15.55. 0	
	Point Sacta	37.51. 0	15.58. 0	
Gulf of Venice.	Cape Spartivento	37.55.50	16. 3.35	
	Cape Stillo	38.23. 0	16.55. 0	
	Catanzaro	38.50. 0	16.55. 0	
	Cape Colonne	39. 4. 0	17.28. 0	
	Point Alice	39.24. 0	17.25. 0	
	Tarento	40.28. 0	17.30. 0	
	Gallipoli	40. 2. 0	18.10. 0	
	Cape St. Mary	39.47.30	18.23.20	
	Otranto	40. 9.20	18.29.15	
	Brindisi	40.39. 0	18. 8. 0	
	Cape Cavallo	40.43. 0	18.14. 0	
	Monopoli	40.55. 0	16.58. 5	
	Bari	41. 7. 0	17. 0. 0	
	Monfredonia	41.37. 0	16. 5. 0	
	Viesti	41.54. 0	16.15. 0	
	Tormoli	41.58. 0	15. 6. 0	
	Ortona	42.18. 0	14.27. 0	
	Fermo	43.10.18	13.41.41	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Gulf of Venice.	Loretto	43.27. 0N	13.35. 5 E	
	Ancona	43.37.54	13.27. 7	
	Fano	43.51. 0	12.59.53	
	Pesaro	43.55. 1	12.53.36	
	Rimini	44. 3.43	12.32.51	
	Ravenna	44.25. 5	12.10.51	
	Comachio	44.40.27	12.10. 2	
	Venice, St. Mark's	45.25.32	12.20.59	
	Trieste	45.38. 8	13.47. 8	
	Rovigno	45. 9. 0	13.47. 0	
	Pola	44.52.16	13.50. 4	
	Fiume	45.20.10	14.26.22	
	Segna	45.14. 0	14.58. 0	
	Zara	44. 9. 0	15.29. 0	
	Cape Sesto	43.34. 0	16. 7. 0	
Turkey in Europe.	Ragusa	42.39. 0	18. 6.15	
	Cattaro	42.27. 0	18.29. 0	
	Scutaria	41.53. 0	19.14. 0	
	Durazzo	41.19.30	19.27.25	
	Valona	40.28.20	19.25.45	
	Cape Linguetta	40.26. 0	19.15. 0	
	Butrinto	39.43. 0	20.16. 0	
	Cape St. Nicholas	39.24. 0	20.26. 0	
	Misolongi	38.24. 0	21.52. 0	
	Lepanto	38.16. 0	22. 1. 0	
	Corinth	37.53.24	23. 2.22	
	Castel-Tornese	37.53.40	21.10. 5	
	Coron	36.47.26	21.58.52	
	Cape Matapan	36.23.20	22.29.30	
	Cape St. Angeli	36.27. 0	23.12. 0	
	Athens	37.58. 1	23.46.14	
	Negropont	38.27. 0	23.44. 0	
	Cape Doro	38. 9.30	24.19.45	
	Cape St. George	39.25. 0	23.17. 0	
	Salonica	40.38. 7	22.56. 0	
	Cape Cassandra	39.56. 0	23.16. 0	
	Mount Athos	40. 7. 0	24.15. 0	
	Contessa	40.39. 0	23.58. 0	
	Lagos	40.58.42	25. 3.36	
	Cape Macri	40.30. 0	25.38. 0	
	Saros	40.36.37	26.42.17	
	Enos	40.41.58	25.58.44	
	Dardanelles, Old Cas.	40. 9. 8	26.19.30	
	Gallipoli	40.25.33	26.37.30	
	Rodosto	40.58.34	27.25.31	
	Heraclea	41. 1. 3	27.54.34	
	Constanple, St. Soph.	41. 1.27	28.55.16	

BLACK SEA, AND SEA OF ASOPH.

		° ′ ″	° ′ ″	h m
	Ismail	45.21. 0N	28.50.15 E	
	Akerman	46.12. 0	30.44. 0	
	Odessa	46.30.22	30.45.22	
	Kherson	46.38.29	32.32.15	
	Perekop	46. 8.57	33.42. 9	
	Koslof	45.11.54	33.22.48	
	Sevastapol	44.41. 0	33.20. 0	
	Kertch	45.21.19	36.21.21	
	Yenicale	45.22. 0	36.33. 0	

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LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water
	° ′ ″	° ′ ″	h m
Fanagoria	45.11. 0 N	36.34. 0 E	
Tagenrock	47.12.40	38.39. 0	
Trebizonde	41. 2.41	39.28. 0	
Cape Yassoun	41.11. 0	37.46. 0	
Sinope	42. 3.10	35. 8.45	
Amassero	41.46. 3	32.24.24	
Eregri	41.17.51	31.27.20	
SOUTH COAST OF THE MEDITERRANEAN.			
	° ′ ″	° ′ ″	h m
Turkey in Asia.			
Scutari	41. 0. 0 N	29. 0. 0 E	
Mondania	40.14. 0	29. 0. 0	
Marmara Isle	40.37. 4	27.30.50	
Troy	39.45. 0	26. 5. 0	
Bourgas, before Troy	40.14.30	26.27. 7	
Cape Baba	39.30.15	25.51.40	
Adramitta	39.32. 0	26.48. 0	
Smyrna, (centre of the town)	38.25.20	27. 6.30	
Cape Blanco	38.15. 0	26. 5. 0	
Scala Nova Island, (off the town)	37.50.30	27.15. 0	
Cape St. Mary	37.42. 0	26.48. 0	
Cape Crio	36.42. 0	27.14.30	
Marmorice	36.48. 0	28.11. 0	
Macri	36.36. 0	29. 7. 0	
Seven Capes, N. Cape	36.22.50	29. 8.10	
Kasteloriza Island	36. 8. 0	29.30. 0	
Cape Chelidonia	36.12. 0	30.26. 5	
Adalia, Pier Head	36.52.16	30.45. 3	
Cape Anamour	36. 0.50	32.51. 0	
Cape Cavaliere	36. 7.55	33.42.40	
Tarsus	37. 1. 0	34.52. 0	
Cape Karadash	36.32.40	35.21.26	
Alexandretto, or Scanderoon	36.35.27	36.15.15	
Cape Ziaret	35.37. 0	35.34. 0	
Syria or the Levant.			
Latikia	35.30.30	35.47.55	
Aleppo	36.11.25	37.10.15	
Tartosa	34.58. 0	35.54. 0	
Tripoli	34.26.25	35.51.28	
Beiroutte	33.50. 0	35.30. 0	
Cape Blanco	33.10. 0	35. 8. 0	
Acre	32.54.35	35. 6.20	
Mount Carmel	32.51.10	34.59.35	
Cæsari	32.32. 0	35. 0. 0	
Jaffa	32. 5.25	34.46. 8	
Gaza	31.30. 0	34.36. 0	
El-Arisch, Fort	31. 5.30	33.48.25	
Salehhich	30.48.28	31.59.45	
Damietta	31.25.43	31.49.30	
Cape Bourlos	31.36. 0	31.27. 0	
Rosetta	31.25. 0	30.28.20	
Aboukir, Tower	31.19.44	30.17.16	
Coast of Egypt.			
Cairo	30. 2.21	31.18.45	
Bequiere, or Nelson's Island	31.21. 0	30.39. 0	
Alexandria	31.13. 5	29.55.15	
Cape Deras	31.11. 0	28.15. 0	
Galleta Island	31. 6.20	27.20. 0	
Cape Rameda	31.22. 0	25.42. 0	
Soliman, Port	31.46.15	25. 7.30	
Cape Luco	31.48. 0	25. 2. 0	
Cape Trabuco	32. 0. 0	24. 7. 0	

Names of Places.	Latitude.	Longitude.	high water
	° ′ ″	° ′ ″	h m
Lybia.			
Cape Batraca	32.15. 0 N	23.40. 0 E	
Bomba Isle	32.22.28	23.16.57	
Cape Derne	32.46. 0	22.40. 0	
Cape Razat	33. 4. 0	21.47.51	
Cape Bengazi	32. 7.30	20. 1.35	
Cape Carcorella	31.39. 0	19.20. 0	
Cape Mezurat	32.25.25	15. 9.35	
Cape Trajora	32.59. 0	13.22. 0	
Tripoli	32.53.40	13.11.33	
Zerbi Isle, the town	33.54.10	10.53.25	
Cape Gergis	33.57. 0	11.30. 0	
Cape Paul	35.10. 0	10.58. 0	
Coast of Barbary.			
Cape Africa	35.30. 0	11. 6. 5	
Susa	35.49. 0	10.25. 0	
Cape Bon	37. 4.45	11. 4.15	
Tunis, Fondouc	36.47.59	10.11.15	
Cape Carthage	36.55. 0	10.28. 0	
Bizerta	37.17.20	9.50.35	
Cape Negro	37.12. 0	9. 7. 0	
Bona	36.48. 0	7.48.45	
Cape Fierro	37. 2. 0	7.20. 0	
Cape Bagaroni	37.11. 0	6.38. 0	
Cape Tedeles	36.57. 0	4.14. 3	
Cape Matifora	36.51.10	3.12.35	
Algiers, Lighthouse	36.48.36	3. 4.55	
Cape Tenis	36.34. 0	1.26. 0	
Cape Ferrat	35.54. 0	0.13. 0 W	
Oran, Castle	35.44.27	0.39.24	
Cape Falcon	35.47. 0	0.48. 0	
Cape Fegalo	35.31. 0	1.10. 0	
Zaffarine Islands	35.12. 0	2.24. 0	
Melilla	35.18.15	2.56.10	
Cape Tres Forcas	35.28. 0	2.57. 0	
Mostaza	35. 9. 0	4.32. 0	
Tetuan	35.36. 0	5.24. 0	
Ceuta, Fort	35.54.10	5.17.25	
Tangier, Fort	35.40. 0	5.49. 0	
Cape Spartel	35.48.30	5.55. 0	3. (
ISLANDS IN THE MEDITERRANEAN, GULF OF VENICE, AND ARCHIPELAGO.			
	° ′ ″	° ′ ″	h
Minorca I. Majorca Island.			
Alboran	35.57. 0 N	3. 0.40 W	
Fromenterra, East point	38.42. 0	1.36. 0 E	
Fromenterra, West point	38.37. 0	1.24. 0	
Yvica, N. E. point	39. 2. 0	1.37. 0	
Yvica, S. W. point	38.50. 0	1.13. 0	
Colambretes	39.55. 0	0.32. 0	
Cabrera, the middle	39. 7.30	3. 0.20	
Cape Pollenza, N. E. point	39.57. 0	3.14. 0	
Cape Salini, S. point	39.16. 0	3. 6. 0	
Cape Pedro, E. point	39.42. 0	3.29. 0	
Dragon Island	39.33. 0	2.20. 0	
Palma	39.34. 4	2.39.15	
Cape Bajoli	40. 2.45	3.52. 5	
Port Mahon, Cape Mola	39.51.10	4 18.17	
Isle of Ayre	39.46.30	4.21.10	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Sardinia.	Lagosarda, N. point	41. 18. 0 N	9. 12. 0 E	
	Asinara I. highest pt.	41. 5. 40	8. 17. 34	
	Porto Conte	40. 33. 30	8. 16. 0	
	Oristana, N. point	39. 52. 38	8. 20. 30	
	Oristana, S. point	39. 47. 40	8. 24. 0	
	Maldevento Isle	39. 58. 46	8. 22. 0	
	Rock Gallia	39. 53. 43	8. 19. 15	
	St. Peter's Isle	39. 6. 42	8. 14. 0	
	Toro Rock	38. 52. 0	8. 20. 0	
	Cape Malfetena	38. 53. 0	8. 51. 0	
	Cagliari	39. 13. 9	9. 5. 45	
	Cape Carbonera	39. 10. 0	9. 30. 0	
	Olaster	39. 58. 0	9. 40. 0	
	Cape Cavallo	40. 49. 0	9. 40. 0	
	Tavolara Tower	40. 54. 46	9. 43. 28	
	Caprera Island	41. 12. 46	9. 28. 20	
Corsica.	Cape Corse	43. 3. 0	9. 20. 0	
	Saint Fiorenzo	42. 41. 2	9. 17. 43	
	Calvi	42. 34. 7	8. 45. 16	
	Ajacio	41. 55. 1	8. 44. 4	
	Bonaficio	41. 23. 10	9. 9. 16	
	South point	41. 22. 0	9. 14. 0	
	Cape Signo	42. 32. 0	9. 32. 0	
	Bastia	42. 41. 36	9. 26. 45	
	Gorgona Island	43. 25. 46	9. 53. 10	
	Capraja, or Capraria Isle	43. 0. 18	9. 48. 12	
	Elba, Porto-Ferrajo	42. 49. 6	10. 19. 35	
	Pianoza Island	42. 35. 23	10. 5. 38	
	Formigues Island	42. 21. 30	10. 6. 30	
	Monte-Christo I.	42. 20. 26	10. 18. 10	
	Giglio I., S. point	42. 27. 0	10. 58. 0	
	Palmarora Island	40. 57. 0	12. 47. 0	
	Pozea Isle, S. point	40. 53. 0	12. 55. 0	
	Ischia Isle, S. point	40. 42. 0	13. 51. 0	
	Capri Island	40. 32. 0	14. 15. 0	
	Utisca I. Turk's peak	38. 44. 45	13. 11. 30	
Sicily.	Messina, Lt. house	38. 11. 30	15. 35. 30	
	Milazza, Lt. house	38. 15. 58	15. 13. 30	
	Cape Orlando	38. 7. 45	14. 43. 56	
	Cape Cefala	38. 4. 0	14. 5. 0	
	Cefala Cathedral	38. 0. 10	14. 3. 5	
	Palermo, Observaty.	38. 6. 44	13. 22. 0	
	Cape St. Vito	38. 11. 50	12. 46. 15	
	Tripano	38. 2. 0	12. 28. 0	
	Mazzara Citadel	37. 39. 50	12. 33. 30	
	Gargento	37. 14. 0	13. 38. 0	
	Cape Alicata, Castle	37. 3. 55	13. 57. 0	
	Terra-Nova Column	37. 2. 36	14. 15. 40	
	Cape Secha	36. 49. 0	14. 26. 0	
	Cape Passari Redoubt	36. 41. 45	15. 8. 50	
	Syracuse, Lt. house	37. 2. 58	15. 16. 10	
	Augusta, Lt. house	37. 12. 40	15. 12. 30	
	Catania Mole	37. 28. 20	15. 4. 30	
	Cape Moliue	37. 30. 0	15. 24. 0	
	Stromboli Island, St. Bartolo.	38. 48. 20	15. 12. 30	
	Panaria Island	38. 37. 40	15. 1. 20	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Gulf of Venice.	Lipari Isle, the Castle	38. 28. 35 N	14. 55. 40 E	
	Volcano Isle, Cape Guardiano	38. 21. 5	14. 58. 15	
	Salina Isle	38. 33. 35	14. 47. 30	
	Felicuri Isle	38. 34. 5	14. 29. 30	
	Alicuri I., the church	38. 33. 40	14. 13. 40	
	Maritimo Isle	38. 3. 29	12. 12. 0	
	Favognana Isle	38. 2. 0	12. 33. 0	
	Marsalla Shoal, outer end	37. 45. 0	12. 41. 0	
	Galita Isle, centre	37. 32. 30	8. 55. 0	
	Esquerque Isle	37. 47. 0	10. 39. 0	
	Keith's Reef	37. 51. 24	10. 59. 0	
	Pantellaria Isle	36. 51. 15	11. 3. 40	
	Linoza Isle	35. 51. 0	13. 0. 0	
	Lampidosa Isle	35. 31. 15	12. 30. 5	
	Sioglea Rock	36. 59. 0	12. 31. 0	
	Gozo Isle, N.W. point	36. 12. 0	14. 5. 0	
	Malta Island La Valette Observy	35. 53. 0	14. 30. 35	
Archipelago.	Fano Isle, West end	39. 50. 20	19. 19. 50	
	Pelagosa Isle	42. 29. 0	16. 24. 0	
	Pianosa Isle	42. 12. 0	16. 0. 0	
	Tremiti Isle	42. 7. 22	15. 23. 45	
	Lissa Isle, S. point	43. 3. 0	16. 25. 0	
	Pomo Isle	43. 14. 0	15. 35. 0	
	Paxu Isle, S. point	39. 12. 0	20. 10. 0	
	Corfu Isle, the town	39. 36. 0	19. 55. 0	
	Cefalonia, S. point	38. 1. 0	21. 3. 0	
	Cefalonia, N. point	38. 36. 0	20. 42. 0	
	Zante Isle, the town	37. 47. 17	20. 54. 42	
	Cerigo Isle, S. point	36. 6. 0	22. 51. 38	
	Cerigotto Isle	35. 51. 0	23. 14. 0	
	Christiana Isle	36. 15. 0	25. 3. 45	
	Milo Isle, the Port	36. 42. 30	24. 13. 32	
	St. George's Isle, Cape Rena	38. 43. 0	24. 28. 10	
	Paros, Mount St. Elias	37. 2. 46	25. 11. 25	
	Levata Isle, S. point	36. 59. 0	26. 16. 45	
	Scio Isle, the town	38. 24. 0	26. 0. 0	
	Ipsara Isle, S. point	38. 30. 0	25. 36. 30	
	Mytelene Isle, town	39. 6. 0	26. 21. 0	
	Mytelene Cape Sigri	39. 13. 0	25. 41. 0	
	Tenodos I. N.E. point	39. 51. 15	25. 53. 0	
	Lemnos Isle	39. 54. 0	24. 53. 0	
Candia.	Cape Crio	35. 15. 35	23. 30. 30	
	Cape Busa	35. 38. 0	23. 35. 0	
	Canea	35. 28. 45	24. 12. 45	
	Cape Sassosa	35. 26. 0	25. 12. 0	
	Candia town	35. 18. 45	25. 18. 15	
	Cape Sidera	35. 15. 0	26. 38. 0	
	Cape Solomon	35. 9. 15	26. 19. 25	
	Goza Isle, S. point	34. 35. 0	24. 20. 0	
	Goza Isle, S. Point	35. 30. 0	27. 2. 0	
	Scarpanto Isle	35. 40. 0	27. 10. 0	
	Rhodes Isle, Arab's Tower	36. 26. 15	28. 15. 0	
	Rhodes, South point	35. 52. 0	27. 50. 0	
	St. Catherine's Isle	35. 52. 0	27. 39. 45	
	Madona Isle, W. point	36. 31. 30	26. 52. 25	
	Cape St. Andrew (Cyprus)	35. 41. 40	34. 37. 25	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Cyprus.	Cape Cormachitti ..	35.23.50 N	32.57. 5 E	
	Salizano, or St Epiphanes	35. 6.20	32.16.30	
	Cape Gata	34.31.30	33. 3.20	
	Cape Grego	34.55. 0	33.52. 0	
	Larneca Castle	34.54.30	33.40.45	

THE COAST OF AFRICA FROM THE ENTRANCE OF THE STRAIT OF GIBRALTAR TO THE CAPE OF GOOD HOPE.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Morocco.	Cape Spartel	35.48.30 N	5.55. 0 W	3. 0
	Larash	35.11. 0	6.12. 0	
	New Salee	34. 5. 0	6.42.45	
	Mazagan	33.20. 0	8.25. 0	
	Cape Blanco	33.10. 0	8.40. 0	9.45
	Cape Cantin	32.33. 0	9.15. 0	10. 0
	Saffia	32.20. 0	9. 9. 0	
	Mogadore	31.25. 0	9.36. 0	4. 0
	Cape Geer	30.38. 0	9.51.45	
	Cleveland Shoal	30.45. 0	10.21. 0	
	Santa Cruz.....	30.30. 0	9.38. 0	
	Cape Nun	28.39. 0	11.15. 0	
	River Nun, entrance	28.17. 0	11.31. 0	
	Cape Blanca	27.54. 0	12.42. 0	
	Cape Bajador.....	26.12.30	14.26.45	
Fez.	Rio do Ouro, entrance	23.32. 0	15.50. 0	
	Cape das Barbas ..	22.15.30	16.40.35	
Azenhage.	Cape Blanco	20.46.55	17. 1.45	9.45
	Cape St. Ann.....	20.36. 0	16.45. 0	
	Cape Myric	19. 3.48	16.12. 5	
	Portendic	18. 7. 0	16. 7.30	
Hagi.	Senegal, Pt. Breberie	15.53. 0	16.31.30	10.30
Senegal.	St. Lewis Island ..	16. 3.30	16.28. 0	
	Cape Verd	14.43.45	17.30.30	
	Goree Island, Fort ..	14.39.34	17.26. 0	
	Cape Naze	14.34. 0	17.12.30	
Senegambia.	Riv.Gambia, Cape St. Mary	13. 8. 0	16.33. 0	10.15
	James Fort.....	12.56. 0	16.15. 0	
	Cape Roxo	12.12. 0	16.48. 0	
	Cape Verga	10. 5. 0	13.55. 0	
	Delos Isle, Factory	9.22. 0	13.32. 0	
	Leopards' Island ..	8.40.10	13 8. 0	
	Cape Sierra Leone	8.31. 0	13.18. 0	8.15
	Cape Shilling.....	8. 9. 0	12.52. 0	
	Banana Island	8. 5.30	13.15. 0	
	Tassa Point	7.41. 0	12.39. 0	
Grain Coast.	Cape Ann	7.17.30	12.22. 0	
	Cape Mount	6.44. 0	11.20. 0	
	Cape Mesurada	6.15. 0	10.36.30	
	Grand Bassa	5.52. 0	9.55. 0	
	River Sestos	5.34. 0	9.14. 0	
	Sangwin	5.12. 0	8.56. 0	
	Krou Settra	4.54. 0	8.32. 0	
	Grand Sisters.....	4.41. 0	8. 7. 0	
	Cape Palmas	4.23. 0	7.38. 0	
	Tabou Point	4.28. 0	7. 8. 0	
	St. Andrew's River..	5. 0. 0	6. 4. 0	
	Cape Lahou	5.10. 0	4.37. 0	
	Grand Bassam	5.17. 0	3.27. 0	
	Cape Appollonia ..	5. 5. 0	2.39. 0	
	Axim	4.57. 0	2.23. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Ivory Coast.	Cape 3 pts, mid. pt..	4.55. 0 N	2. 2. 0 W	
	Dixcove Fort.....	5. 0. 0	1.55. 0	
	Secondee	5. 5. 0	1.45. 0	
	St. Sebastian, Fort..	5. 7. 0	1.33. 0	
Gold Coast.	Elmina Castle	5. 1.38	1.15.12	
	Cape Coast Castle..	5. 3.45	1. 3. 0	3.30
	Anamaboe	5. 8.30	1. 1. 0	
	Kormantine Fort ..	5. 7.58	0.51. 0	
	Tantumquerry Pt...	5. 7. 0	0.45. 0	
	Baracoe Point	5.21.30	0.22. 0	
	Accarah	5.30.30	0.12. 0	
	Ningo	5.43. 0	0.28. 0 E	
	Adda Castle	5.48. 0	0.44. 0	
	Cape St. Paul's	5.44. 0	1. 7. 0	
	Quitta	6. 2. 0	1.17. 0	
	Little Popoe	6.12. 0	2. 2. 0	
Benin.	Whydah, British Factory	6.17.30	2.34.30	
	Lagos	6.20. 0	4.12. 0	
	Formosa River	5.43. 0	5.25. 0	
	Cape Formosa	4.25. 0	5.59. 0	
	New Calabar River	4.25. 0	7.42. 0	
	Cameroons River ..	3.45. 0	9.35. 0	
	Cape St. John	1.15. 0	9.15. 0	
Biafra.	Gabon River .... Cape Clara	0.25. 0	9.20. 0	
	Cape Lopez	0.59. 0 S	9.17. 0	
	Low Point	2. 0. 0	9.37. 0	
	River Seste.....	2.25. 0	10.24. 0	
	Cape Mayumba.....	3.36. 0	11.14. 0	
	Loango Bay	4.36. 0	12.20. 0	
Loango.	Cape Padaran .. Congo River ..	6.14. 0	12.40. 0	
	Ambriz Bay	7.56. 0	13.15. 0	
	Dande.....	8.38. 0	13.47. 0	
	Cape Ledo	9.48. 0	13.28. 0	
	Novo Redondo	11.29. 0	14. 5. 0	
	St. Phillip, ... Benguela Bay .	12.33.30	13.33. 0	
	Cape Negro	16. 1. 0	11.54. 0	
	Tigers Island, N. pt.	16.29.45	12. 3. 0	
	Cape Frio	18.37.30	12.25. 0	
	Village	21.54. 0	14.40. 0	
	Walwich Bay.....	22.54. 0	14.40. 0	
	Ilea Point	23.30. 0	14.48. 0	
	Bird Island.....	24.36. 0	14.50. 0	
Caffraria.	Angra Pequena,.. Pedestal Point.	26.36.50	15.16.30	
	Cape Voltas	28.42. 0	16.29. 0	
	St. Helen's Bay, Cape St. Martin	32.40. 0	17.53. 0	
	Saldanah Bay	33. 7. 0	17.58. 0	
	Dassen Island	33.24. 0	18. 3.30	
	Table Bay, Robin Is.	33.48. 0	18.23. 0	
	Cape of Good Hope	34.23.40	18.32.15	3. 0
	Cape Town.....	33.56.15	18.28.30	2.30
	False Cape	34.25. 0	18.52. 0	
	Simon's Bay Dock Yard	34. 9. 0	18.22.30	3.30

Islands, Rocks, and Shoals in the North and South Atlantic Oceans between the Hebrides of Scotland and the South Shetland Islands.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
N. Atlantic.	Lion's Bank	56.40. 0 N	17.45. 0 W	
	Rockall	57.39. 0	13.37. 0	
	Atkins Shoal	55.18. 0	11.15. 0	
	Chapel Rock	47.28. 0	7.30. 0	

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LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water
	° ′ ″	° ′ ″	h m
Devil's Rocks	46. 25. 0 N	13. 0. 0 W	
Sisk's Shoal	40. 43. 0	23. 37. 0	
Gough's Rocks	40. 25. 0	33. 0. 0	
Hammond's Rock..	36. 45. 0	23. 10. 0	
Steen Ground	32. 45. 0	21. 25. 0	
Josna Rock	31. 37. 0	23. 45. 0	
Bermuda Island, St. George's Town	32. 22. 0	64. 30. 0	7. 49
Bermuda Island, Wreck Hill	32. 15. 0	64. 47. 0	
Corvo, South point	39. 40. 45	31. 2. 45	
Flores, point Delgada	39. 33. 59	31. 8. 15	
Fayal, Horta	38. 32. 30	28. 43. 0	2. 20
Pico, the Peak	38. 38. 30	28. 33. 0	
St. George, S. E. pt.	38. 30. 45	27. 51. 0	
Graciosa, Santa Cruz	39. 5. 0	28. 0. 0	
Terceira, Angra ..	38. 39. 0	27. 14. 0	11. 45
St. Michael's, E. pt.	37. 48. 15	25. 13. 15	
St. Michael's, W. pt.	37. 54. 15	25. 57. 2	
Do. point Delgado	37. 45. 0	25. 41. 40	
Formigas, or Ants..	37. 17. 10	24. 53. 33	
St. Mary, S. E. point	36. 56. 47	25. 18. 30	
Do. Puntada Castello	36. 56. 10	25. 6. 0	
Porto Santo, Town	33. 3. 15	16. 17. 15	
Madeira, Funchall	32. 37. 0	16. 58. 0	0. 4
Do. Lorenzo point	32. 43. 0	16. 37. 0	
Do. Tristam point	32. 54. 0	17. 16. 0	
S. Desertos, S. point	32. 22. 0	16. 28. 0	
Salvages, Middle ..	30. 9. 0	16. 3. 0	
Piton	30. 2. 0	16. 17. 0	
Palma, the Town ..	28. 43. 0	17. 46. 0	
Palma, North point	28. 54. 0	17. 53. 0	
Palma, South point	28. 30. 0	17. 50. 0	
Ferro, Valverde ..	27. 48. 0	17. 55. 0	3. 0
Ferro, North end ..	27. 51. 0	17. 58. 0	3. 0
Gomero, the Port..	28. 5. 40	17. 7. 45	
Teneriffe, the Peak	28. 17. 0	16. 39. 45	3. 0
Do. Santa Cruz, Mole	28. 28. 30	16. 15. 45	
Do. Hidalgo point..	28. 40. 0	16. 21. 0	
Do. Ortova.....	28. 24. 0	16. 36. 0	3. 0
Do. Tena Point....	28. 19. 0	16. 56. 0	
Do. Port Christianos	28. 3. 0	16. 44. 0	
Canary, Palmas ..	28. 10. 0	15. 31. 0	
Canary, N. E. point	28. 13. 0	15. 26. 0	3. 0
Canary, S. W. point	27. 45. 0	15. 38. 0	
Forta Ventura, W. pt.	28. 4. 0	14. 31. 15	
Do. Point Gorda ..	28. 46. 0	13. 52. 30	
Lanzarote, E. point	29. 14. 0	13. 25. 46	0. 45
Lanzarote, S. point	28. 51. 0	13. 45. 0	
Do. Puerta de Naos	28. 58. 0	13. 34. 0	0. 45
Graciosa.....	29. 14. 0	13. 34. 0	
St. Claire	29. 17. 0	13. 33. 0	
Alegranza	29. 25. 30	13. 31. 0	
St. Antonio Sta. Cruz	17. 1. 40	25. 8. 15	
Do. South end	16. 54. 50	25. 22. 0	
St. Vincent, Town..	16. 53. 30	25. 3. 0	
St. Lucia, S. point	16. 44. 30	24. 48. 40	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Cape Verd Islands.	St. Nicholas, N. pt.	16. 41. 0 N	24. 24. 0 W	
	St. Nicholas, E. pt.	16. 34. 30	24. 3. 0	
	Salt Island, S. pt...	16. 34. 25	23. 0. 0	
	Bonavista, Eng. road	16. 9. 0	22. 57. 30	
	Bonavista, N. pt. ..	16. 13. 40	22. 59. 30	
	Mayo, South point	15. 4. 50	23. 8. 30	
	Mayo, the town....	15. 7. 30	23. 17. 0	
	St. Jago, Port Praya	14. 53. 30	23. 32. 30	11. 0
	Fogo, Middle.....	14. 56. 0	24. 20. 0	
	Brava, South point	14. 46. 0	24. 46. 0	
Islands in the South Atlantic Ocean.	St. Paul's Rocks ..	0. 55. 0	29. 30. 0	
	Fernando-Po	3. 28. 0	8. 40. 15 E	
	Princes Isle, ... Port St. Antonio	1. 41. 0	7. 26. 0	
	Princes I., the Port	1. 37. 0	8. 14. 0	
	St. Thomas's Isle Man of War Bay	0. 26. 0	6. 44. 0	
	St. Matthew's.....	1. 55. 0 S	9. 25. 0 W	
	Annabona, High Pk.	1. 28. 24	5. 30. 0 E	
	Annabona, N. end..	1. 23. 0	5. 34. 0	
	Ascension, Cross hill	7. 56. 30	14. 13. 30 W	
	St Helena Jamestown	15. 55. 0	5. 43. 30	2. 15
	Fernando - Noronha	3. 55. 15	32. 35. 20	4. 0
	Roccas	3. 53. 0	33. 31. 0	
	Abrolhos.....	17. 58. 0	38. 26. 0	
	Trinidad.....	20. 32. 30	29. 11. 0	
	Martin Vas Rocks, the largest	20. 28. 30	28. 41. 0	
	Tristan de Cunha..	37. 5. 36	12. 7. 0	
	Inaccessible Island	37. 19. 0	11. 50. 0	
	Nightingale Island	37. 29. 0	11. 48. 0	
	Diego Alvarez	38. 53. 0	10. 40. 0	
	Gough's Island	40. 18. 0	9. 42. 0	
	Lennon's Reef	37. 31. 0	4. 42. 0	
	Isle Grande	43. 0. 0	30. 0. 0	
	Falkland Isle.... Port Egmont..	51. 21. 30	60. 1. 0	
	Falkland Isle.. Cape Percival	51. 46. 30	61. 11. 0	
	Berkley Sound, entr.	51. 32. 0	57. 25. 0	
	Aurora Isles, N most.	52. 43. 0	48. 12. 0	
	Do. Southernmost..	53. 18. 0	48. 2. 0	
South Shetland. Sandwich Ld. S. Georgia.	Cape North	54. 4. 45	38. 15. 0	
	Cape George	54. 17. 0	36. 32. 30	
	Cape Disappointmt.	54. 58. 0	36. 15. 0	
	Cooper's Island	54. 57. 0	36. 4. 0	
	Clerk's I. or Rock	55. 5. 30	34. 42. 0	
	Candlemas Islands	57. 5. 30	27. 13. 0	
	Cape Montague....	58. 33. 0	26. 46. 0	
	Friesland Peak	59. 2. 0	26. 56. 0	
	Southern Thule....	59. 34. 0	27. 45. 0	
	Seal Islands	61. 0. 0	55. 34. 0	
	Clarence I N. point	61. 2. 0	54. 5. 0	
	Ridley's Island	61. 49. 0	58. 22. 0	
	Cape Sherriff	62. 26. 0	60. 54. 0	
	Start Point.....	62. 42. 0	61. 27. 0	
	Smith's Cape.....	62. 52. 0	63. 45. 0	

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LATITUDES AND LONGITUDES.

The Coast and adjacent Islands from the Cape of Good Hope to the Red Sea, and thence to Canton.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Eastern Coast of Africa.	Cape of Good Hope	34. 23. 40 S	18. 32. 15 E	3. 0
	False Cape	34. 25. 0	18. 52. 0	
	Cape Aghulas	34. 55. 30	20. 18. 0	
	Cape Infante	34. 35. 0	20. 54. 0	
	Cape Vaccas	34. 25. 0	22. 5. 0	
	Cape St. Blas	34. 10. 0	22. 18. 0	
	C. Delgadoor Seal C.	34. 6. 30	23. 48. 0	
	Algoa Bay, Ca. Recife	34. 1. 0	25. 40. 0	3. 20
	Point Padraon	33. 39. 0	26. 34. 0	
	Natal, first point	32. 22. 0	29. 25. 0	
	Natal, middle point	31. 8. 0	30. 45. 0	
	Natal, third point	30. 15. 0	31. 22. 0	
	Port Natal	29. 55. 0	31. 28. 0	
	Point St. Lucia	28. 36. 0	32. 48. 0	
	Cape Smoke	27. 13. 0	33. 15. 0	
	Delagoa Bay, N.E. pt. St. Mary's I.	26. 58. 0	33. 15. 0	5. 15
	Cape Corrientes	24. 2. 0	35 51. 0	
	Cape St. Sebastian	22. 5. 0	35. 58.	
	Bazaruto I., N. end	21. 30. 0	36. 2. 0	
	Sofala, Fort	20. 15. 15	34. 45. 0	
	Quilimane River	18. 10. 0	37. 30. 0	
	Angoxal., Mafamede	16. 21. 30	40. 25. 0	
	Mozambique, the I.	15. 1. 30	40. 47. 0	4. 15
	Capé Delgado	10. 6. 0	40 50. 0	
	Quiloa	8. 41. 0	39. 47. 0	3. 45
	Zanzibar Road	6. 6. 0	39. 33. 0	4. 30
	Mombas Harb. entr.	4. 4. 0	40. 2. 0	12. 0
	Patta	2. 10. 0	41. 18. 0	
	Juba	0. 12. 0	43. 2. 0	
	Brava	1. 8. 0 N	44. 10. 0	
	Magadoxa	2. 5. 0	45. 49. 0	
	Cape Bassas	5. 0. 0	49. 20. 0	
	Cape Orfui	10. 26. 0	51. 38. 0	
	Cape Guardafui	11. 50. 0	51. 32. 0	
	Mount Felix	12. 0. 0	50. 48. 0	
	Mette Island	11. 20. 0	48. 52. 0	
	Burnt Island	11. 22. 0	47. 50. 0	
	Barbora	10. 25. 0	45. 8. 0	
	Cape Rasbel	12. 4. 0	43. 51. 0	
	Socotra Isle, centre	12. 30. 0	54. 10. 0	
	Socotra Isle, E. pt.	12. 22. 0	54. 53. 0	9. 0
	Babelmandel Cape	12. 40. 0	43. 31. 0	12. 0
	Babelmandel Island	12. 36. 0	43. 29 0	
	Ras Rattah	14. 56. 0	40. 52. 0	
	Dhalac Isle, S. end	15. 32. 30	40. 15. 0	
	Massowah Bay	15. 34. 0	39. 37. 0	
	Port Mornington	18. 16. 0	38. 32. 0	
	Suakin	19. 5. 0	37. 33. 0	
	Salaka	20. 28. 0	37. 27. 0	
	Cape Calmez	21. 28. 0	37. 25. 0	
	Cape Nose	23. 58. 0	35. 42. 0	
	St. John's Isle	23. 38. 0	36. 10. 0	
	Reef of Breakers	24. 4. 0	36. 16. 0	
	Dedalus Shoal	24. 58. 0	35. 56. 0	
	Centurion Shoal	25. 20. 0	35. 48. 0	
	Ras-el-Aos Cape	23. 56. 0	35. 48. 0	
	Cosire	26. 8. 0	34. 15. 0	
	Suez	30. 0. 30	32. 28. 0	
	Tor Harbour	28. 19. 0	33. 28. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
The Red Sea.	Ras Mahomed Cape	27. 43. 0 N	34. 15. 0 E	
	Bareedy Harbour	24. 17. 0	37. 45. 0	
	Yambo	24. 10. 0	38. 21. 0	
	Juddah	21. 29. 0	39. 15. 0	
	Camfidia	19. 7. 0	40. 50. 0	
	Marabia Russ, W. pt.	19. 11. 0	40. 5. 0	
	Loheia	15. 44. 0	42. 44. 0	
	Cape Israel	15. 15. 0	42. 41. 0	
	Gebel Tor Island	15. 32. 0	42. 0. 0	
	Gebel Zebayr Isle	15. 3. 0	42. 18. 0	
	Gebel Zeghir Isle	14. 2. 0	42. 52. 0	
	Mocha	13. 20. 0	43. 20. 0	
Coast of Arabia.	Cape St. Anthony	12. 42. 0	44. 43. 0	
	Cape Aden	12. 43. 30	45. 14. 0	
	Cape Bogashua	14. 10. 0	49. 26. 0	
	Kisseen Point	15. 19. 0	51. 25. 0	
	Cape Fartash	15. 34. 0	51. 56. 0	
	Cape Morebat	17. 0. 0	54. 32. 0	
	Cape Pedro, or Chansely	18. 2. 0	56. 27. 0	
	Cape Isolette	19. 0. 0	57. 48. 0	
	Mazeira Isle, N. pt.	20. 45. 0	58. 57. 0	
	Cape Rosalgate	22. 22. 0	60. 0. 0	
	Muscat Cove	23. 38. 0	58. 41. 0	
	Cape Ras-Recan	26 11. 0	51. 16. 0	
Gulf of Persia.	Cape Musseldom	26. 21. 0	56. 38. 0	
	Cape Jasques	25. 38. 0	58. 10. 0	
	Gambaroon	27. 13. 0	56. 25. 0	
	Kishma Isle, N. end	26. 57. 0	56. 24. 0	
	Busheer	29. 0. 0	50. 56. 0	7. 30
	Karak Isle, Flagstaff	29. 15. 45	50. 27. 0	
	Bussora, the Factory	30. 29. 30	47. 40. 0	
Malabar Coast.	Churbar	25. 16. 0	60. 24. 0	
	Cape Arubah	25. 10. 0	64. 16. 0	
	Cape Monze	24. 50. 0	66. 23. 0	
	Point Gigat	22. 20. 0	69. 16. 0	
	Diu Head	20. 42. 0	71. 6. 0	
	Cambay	22. 20. 0	72. 39. 0	
	Surat River, Vaux's Tomb	21. 4. 30	72. 51. 30	
	Surat	21. 11. 0	73. 2. 34	4. 20
	Damaun	20. 22. 0	73. 2. 45	
	Omergon	20. 10. 30	72. 56. 30	
	St. John's Point	20. 3. 0	72. 49. 0	
	Basseen Fort	19. 19. 0	72. 55. 24	0. 30
	Bombay Lighthouse	18. 53. 45	72. 56. 0	12. 0
	Henery & Kenery Is.	18. 42. 20	72. 53. 0	
	Coullaba Island	18. 37. 20	72. 56. 30	
	Chaoul	18. 32. 30	73. 0. 0	
	Bancoot River, entr.	17. 57. 0	73. 9. 0	11. 0
	Severndroog	17. 47. 30	73. 9. 0	
	Dabul	17. 46. 0	73. 11. 0	
	Gheriah	16. 31. 0	73. 25. 0	
	Vingorla Rocks	15. 51. 0	73. 30. 0	
	Goa, Algoada Point	15. 29. 30	73. 33. 30	4. 30
	St. George's Island	15. 21. 0	73. 48. 0	
	Oyster Rocks	14. 48. 0	74. 8. 0	
	Carwar Head	14. 47. 0	74. 12. 30	
	Onore	14. 16. 0	74. 34. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Malabar Coast.	Fortified Island	14. 17. 0 N	74. 29. 0 E	
	Pigeon Island	14. 3. 30	74. 32. 0	
	St. Mary's Rocks ..	13. 21. 0	74. 49. 0	
	Barcelore	13. 45. 0	74. 50. 0	
	Permira Rocks	13. 11. 0	74. 52. 0	
	Mangalore	12. 50. 30	75. 7. 0	
	Mount Dilly	11. 59. 0	75. 31. 30	
	Cananore	11. 51. 11	75. 43. 44	
	Tellicherry Flagstaff	11. 44. 0	75. 49. 30	
	Sacrifice Rock	11. 30. 0	75. 50. 0	
	Calicut	11. 15. 0	76. 5. 30	
	Cranganore	10. 17. 0	76. 23. 0	
	Cochin	9. 57. 30	76. 29. 0	
	Quilon Point	8. 52. 0	76. 48. 0	
	Anjenga	8. 39. 30	77. 0. 0	
	Cape Comorin	8. 5. 0	77. 44. 0	
	Manapar Point	8. 22. 0	78. 16. 0	
	Trinchindor Pagoda	8. 30. 0	78. 13. 0	
	Point Calymere....	10. 18. 0	79. 58. 0	
Ceylon Island.	Point Pedro	9. 49. 30	80. 24. 0	
	Colombo	6. 57. 0	80. 0. 0	
	Point de Galle, Flagstaff	6. 1. 0	80. 20. 0	
	Dondra Head	5. 55. 30	80. 43. 0	
	Grand Bassas	6. 11. 0	81. 39. 0	
	Little Bassas	6. 24. 30	81. 55. 0	
	Elephant Point	6. 20. 0	81. 39. 15	
	Batacola Roads....	7. 44. 0	81. 52. 0	
	Venloos Bay .... / Trincomale, Flagstaff Point	7. 57. 0	81. 44. 0	
		8. 33. 30	81. 22. 0	
Coromandel Coast.	Negapatam Port ..	10. 45. 30	79. 55. 0	
	Tranquebar	11. 1. 30	79. 55. 0	
	Devicotta	11. 24. 0	79. 50. 0	
	Porto Novo	11. 31. 0	79. 48. 0	
	Cuddalore	11. 43. 23	79. 48. 12	
	Pondicherry	11. 56. 0	79. 54. 0	
	Sadras	12. 32. 0	80. 14. 0	
	Madras, Fort St. George	13. 4. 0	80. 22. 0	
	Pullicate	13. 25. 0	80. 26. 0	
	Armegon	13. 59. 0	80. 22. 0	
	Point Divy	15. 59. 0	81. 16. 0	
	Masulipatam	16. 11. 0	81. 12. 45	
	Point Gordewar ..	16. 48. 0	82. 24. 0	
	Coringa	16. 49. 0	82. 16. 0	
	Visagapatam	17. 42. 30	83. 26. 0	
	Bimliapatam	17. 53. 0	83. 36. 0	
	Chicacole	18. 18. 0	84. 0. 0	
	Ganjam Flagstaff ..	19. 22. 0	85. 10. 0	
	Jagernaut Pagoda..	19. 48. 21	85. 52. 0	
	Black Pagoda	19. 52. 15	86. 6. 0	
	False Point	20. 19. 0	86. 46. 0	
	Point Palmiras	20. 44. 0	87. 6. 0	8. 30
	Balasore	21. 30. 0	87. 1. 30	9. 45
	Ingerlee Pagoda ..	21. 44. 0	88. 1. 0	
	Kedgeree	21. 51. 0	88. 7. 0	11. 30
	Calcutta	22. 34. 40	88. 28. 15	3. 5
	Chandernagor	22. 51. 26	88. 29. 30	
	Mud Point	21. 56. 0	88. 15. 0	
	Sauger	21. 36. 0	88. 11. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Pegu.	Lighthouse Point ..	21. 28. 0 N	88. 25. 0 E	
	East Sea Reef, tail..	20. 57. 0	88. 20. 0	
	West Sea Reef, tail	20. 59. 0	88. 5. 0	
	West Brace	21. 12. 0	87. 45. 0	
	Islamabad	22. 20. 0	91. 45. 15	
	Aracan River	20. 12. 0	92. 42. 0	
	Cheduba I., N.W.pt.	18. 58. 0	93. 18. 0	
	Cape Negrais	16. 2. 0	94. 13. 0	
	Diamond Isle	15. 52. 0	94. 19. 0	
	Bragu Point	15. 44. 0	95. 22. 0	
	Martaban	16. 29. 0	97. 15. 0	
	Pegu	18. 0. 0	96. 52. 0	
	Tavay Point	13. 33. 0	98. 6. 0	9. 0
	Merguy	12. 12. 0	98. 24. 0	
	JunkselonMnt,S.end	7. 45. 0	98. 29. 0	
	Slipper Island	7. 20. 0	98. 49. 0	
	Queda Fort	6. 6. 0	100. 21. 0	10. 0
Malay.	Prince of Wales's Is. or Pulo Pinang, Fort Cornwallis	5. 24. 30	100. 21. 30	11. 0
	Parcelar Hill	2. 52. 0	101. 29. 0	
	Malacca Fort.....	2. 12. 0	102. 15. 0	10. 30
	Mount Formosa ..	1. 49. 0	102. 56. 0	
	Sincapore Isle, Town	1. 24. 0	103. 58. 0	
	Pulo Pisang	1. 28. 0	103. 16. 0	
	Point Romaina	1. 23. 30	104. 16. 0	
	Tringano River ..	5. 21. 0	103. 4. 0	
	Siam River, entrance	13. 29. 40	101. 15. 0	
	Siam	14. 20. 40	100. 50. 15	
	Camboja Point	8. 40. 0	104. 55. 0	
	Cape St. James ..	10 18. 0	107. 10. 0	
	Cape Avarello	12. 55. 0	109. 24. 30	
	Pulo Canton	15. 23. 0	109. 6. 0	
China.	Turon Cape	16. 8. 30	108. 17. 0	
	Tiger's Island	16. 54. 0	107. 20. 0	
	Tienpack, entrance	21. 24. 0	111. 20. 0	
	Hailin Isle, W. point	21. 34. 30	111. 54. 15	
	Mandarin's Cap Isle	21. 28. 0	112. 21. 30	
	Hawchen, or False St. John's Isle	21. 35. 15	112. 38. 0	
	Ditto, South point..	21. 33. 40	112. 50. 0	
	Macao	22. 11. 30	113. 31. 30	9. 30
	Grand Ladrone Isle	21. 57. 0	113. 43. 0	
	Linting	22. 24. 30	113. 48. 0	
	Grand Lema, Centre	22. 2. 30	114. 16. 0	
	Canton	23. 8. 9	113. 2. 45	

ISLANDS, ROCKS, AND SHOALS IN THE INDIAN OCEAN.

	° ′ ″	° ′ ″	h m
Telemaque Shoal ..	38. 11. 0 S	21. 58. 0 E	
Fortune Shoal	33. 8. 0	43. 5. 0	
Augusta Shoal	33. 44. 0	36. 16. 0	
Otter's Shoal	33. 56. 0	36. 0. 0	
Barker's Rock	37. 43. 0	32. 5. 0	
Dutch Bank	37. 20. 0	38. 52. 0	
PrinceEdw.I., N.end	46. 39. 30	38 2. 30	
Ditto, South end ..	46. 52. 30	37. 47. 0	
Desert Islands	48. 5. 0	48. 0. 0	
Necklegal	40. 40. 0	54. 0. 0	
Kergulen's Land, Christms. Harbour	48. 41. 15	69. 2. 15	10. 0

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Madagascar.	Kerguilen's Ld., Cape Digby ..	49.23.30 S	70.32. 0 E	
	Do. Cape George ..	49.54.30	70.12.15	
	Do. Port Paliser ..	49. 3.15	69.35. 0	
	St. Paul's sland ..	38.42. 0	77.18. 0	
	Amsterdam I. W. pt.	37.47.46	77.25.11	
	Cloates Island	22. 8. 0	112.30. 0	
	Tryal Rocks	19.30. 0	105.30. 0	
	Christmas Island ..	10.34. 0	105.33. 0	
	Cocos Isles, N.most.	11.50. 0	97. 4. 0	
	True Briton's Isle..	9.30. 0	89.14. 0	
	Le Meme's Reef ..	1.20. 0 N	94.20. 0	
	Cape St. Mary	25.40. 0 S	45.16. 0	
	St. Augustine Bay, Sandy Isle	23.39. 0	44. 0. 0	
	Cape St. Vincent ..	21.46. 0	43.50. 0	
	Cape St. Andrew's..	16. 2. 0	45.16. 0	
	Table Cape	15.43. 0	46. 6. 0	
	Bembatooka Bay ..	15.43. 0	46.28. 0	
	Majambo Bay	15.10. 0	47. 6. 0	
	Narreenda Bay	14.31. 0	47.45. 0	
	Dalrymple's Bay ..	13.31. 0	48. 9. 0	
	Passandava Bay ..	13.45. 0	48.23. 0	
	Cape St. Sebastian	12.28. 0	48.54. 0	
	Cape St. Ambrose..	12. 2. 0	49.24. 0	
	Antongil Bay, ent.	15.27.23	50.23.30	
	St. Mary's Island ..	17. 0. 0	50.25. 0	
	Foul point	17.40.14	49.53.15	
	Point Itapare.....	24.58.30	46.44. 0	
	Port Dauphin	25. 5. 0	46.35. 0	
Mozambique Passage.	Star Bank, N. end	25. 7. 0	44.16. 0	
	Bassas de India....	22.28. 0	40.37. 0	
	Europa Rocks	21.28. 0	40. 8. 0	
	Sussex Rocks.....	21.22. 0	42.42. 0	
	Bazurto I., N. end..	21.30. 0	36. 2. 0	
	English Bank	17.42. 0	40.15. 0	
	Juan de Novo, or St. Christopher's I.	17. 2. 0	43. 9. 0	
	Barren Islands	18.26. 0	44.15. 0	
	Coffin Island	17.30. 0	44. 4.30	
	Chesterfield Shoal..	16.20. 0	44. 8. 0	
Comoro's Isles.	Mayotta, Peak	12.54. 0	45.14. 0	
	Johanna Bay.....	12. 7.30	44.30. 0	
	Johanna Isle, centre	12.16. 0	44.30. 0	
	Mohilla Isle, centre	12.20. 0	43.50. 0	
	Comoro	11.32. 0	43.25. 0	
	John Martin's I. ..	10.19. 0	43.30. 0	
	Portuguese Shoals	12.30. 0	46.47. 0	
	Fire Brass Bank ..	13.16. 0	46.20. 0	
	Aldabra Islands....	9.17. 0	46.14. 0	
	Assumption Island	9.50. 0	47.16. 0	
	Cosmoledo Islands	9.45. 0	48.40. 0	
	Natal Island	8.26. 0	47.12. 0	
	St. Peter's Island ..	9.22. 0	51.45. 0	
	Juan de Novo	10.15. 0	52.20. 0	
	Astove Islands	10.20. 0	53.32. 0	
	St. Lawrence Island	9.35. 0	52.15. 0	
	Providence Island..	9.10. 0	53. 7. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Chagos.	Inverarity, or.... Alphonsina I...	7. 3.30 S	52.49. 0 E	
	Zanzibar Island ..	6. 6. 0	40.15. 0	
	Amirante I., S. point	6 20. 0	54.40. 0	
	Eagle Island	5.11. 0	54. 4. 0	
	Mahe Bank, N W. part	3.20. 0	54.40. 0	
	Do. ..... S. E. part	5.25. 0	57. 0. 0	
	Curreuse Island ..	4.10. 0	55.45. 0	
	African Islands	4.55. 0	54. 9. 0	
	Sychelle, or Mahe I.	4.35. 0	55.35. 0	5.30
	Praslin Island	4.19. 0	55.47. 0	
	Fortune Bank	7. 7. 0	57. 4. 0	
	Coitive Island	7.14. 0	56.32. 0	
	Sandy Island	15.52. 0	54.50. 0	
	Cardagas Bank, N. pt.	13.30. 0	60.30. 0	
	Do., South point ..	16.45.30	59.59.20	
	Gallegos Shoal	10.25. 0	56.38. 0	
	St. Brandon Shoals	16.38. 0	62.50. 0	
	Roderigo's Isle	19.40.40	63.11.45	0.45
	Mauritius, or Isle of Fr., Port Louis	20. 9.45	57.28.30	12. 0
	Bourbon, St. Dennis	20.51.43	55.30.15	
	South Roque piz ..	10.30. 0	64.30. 0	
	Speaker's Bank....	4.48. 0	72.30. 0	
	Peros Banhos I. centr.	5.23. 0	71.57. 0	
	Boddam's Island ..	5.22. 0	72.15. 0	
	Eagle Island	6.10. 0	71.21. 0	
	Diego Garcia.....	7.20. 0	72.28. 0	
Laccadive Islands.	Centurion Rocks ..	7.41.10	70.59. 0	
	Centurion Shoal ..	7.41. 0	72.52. 0	
	Candu Islands	5.53. 0	76.45. 0	
	Adu Islands	5.15. 0	76.25. 0	
	Gama Island	2.10. 0	76.10. 0	
	Grenville's Rock ..	0.10. 0	80.52. 0	
	Pulo Oura	0.40. 0	82. 6. 0	
	Bale of Cotton Rock	5.18. 0 N	88.20. 0	
	Maldives, S. E. Part	0.36. 0 S	73.25. 0	
	Do..... N. W. Part	7. 6. 0 N	73. 8. 0	
	Malique Island	8.16.30	73.13. 0	
	Seneville Island ..	10. 0. 0	72.36. 0	
	Kalpenny Island ..	10. 5. 0	74. 1. 0	
	Underoot Island ..	10.48. 0	74. 0. 0	
	Elicalpeni Bank ..	11.15. 0	74.20. 0	
	Courutee.....	10.34. 0	73. 0. 0	
	Pittu	10.48. 0	72.51. 0	
	Ameni.....	11. 6.30	73. 8. 0	
	Cardamun	11.14. 0	73.12.30	
	Kittan.....	11.29. 0	73.24. 0	
	Chittae	11.42. 0	73. 4. 0	
	Aucutta	10.51.30	72.31. 0	
	Peremulpar	11. 9. 0	72.28.30	
	Betra-par	11.35.30	72.34. 0	
	Cherbaniani Bank	12.22. 0	72.10. 0	
	North West pt. of Laccadives	13.30. 0	70.45. 0	
	Angrais Bank, mid.	16.30. 0	71.55. 0	
	Elizabeth Bank....	17. 5. 0	71.28. 0	
	Preparis Island	14.52. 0	93.41. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Andaman Isles.	Preparis Reef	14.45. 0 N	93.39. 0 E	
	Great Coco I., N.end	14. 8. 0	93.26.30	
	Little Coco Isle ..	13.58.30	93.18. 0	
	Gt. Andaman, N. end	13.34. 0	93. 9. 0	
	Ditto, South end	11.26. 0	92.54. 0	
	Do. Port Cornwallis	13.18. 0	93.10. 0	
	Lit. Andaman, S.end	10.26. 0	92.40. 0	
	The Brothers	10.55. 0	92.48. 0	
	Barren Island	12.17. 0	93.54. 0	
	Narcondam Island	13.24. 0	94.12. 0	
	Invisible Shoal ..	11. 8. 0	93.38. 0	
Nicobar Isles.	Car Nicobar	9.10. 0	92.56. 0	
	Batty Malve	8.46.30	92.57. 0	
	Telingchon, N. end	8.32. 0	93.43. 0	
	Nancoury	8. 0. 0	93.41. 0	
	Sombrero Channel	7.45. 0	93.35. 0	
	Miroe	7.29. 0	93.46. 0	
	Little Nicobar, N.end	7.27. 0	93.53. 0	
	Great Nicobar, S.end	6.45. 0	94. 0. 0	
	Tanasserim I., N.pt.	12.38. 0	97.32. 0	
	Tores Islands	11.50. 0	97. 1. 0	
	Domel Isle, N. end	11.23. 0	97.50. 0	
	Seyer Isles	8.36. 0	97.46. 0	

Islands, Rocks, and Shoals between the Indian and Pacific Oceans, from Sumatra to the Island of Formosa.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Sumatra.	Diamond Point	5.18. 0 N	97.48. 0 E	
	Tanjong Bon	1. 6. 0 S	104.20. 0	
	Lucepara Island ..	3.14. 0	106.10. 0	
	Hog's Point	5.54. 0	105.42. 0	
	Flat Point	6. 0. 0	104.40. 0	
	Pulo Pisang	5.10. 0	103.53. 0	
	Bencoolen, Fort Marlborough ..	3.48. 0	102. 0. 0	12. 0
	Indrapour Point ..	2.12. 0	100.40. 0	
	Padang Head	0.56. 0	99.58. 0	
	Priman	0.41. 0	99.52. 0	
	Natal	0.29. 0 N	98.58. 0	
	Tapanooly Bay	1.40. 0	98.40. 0	
	Baroos	1.56. 0	98.33. 0	
	Point Labon	3. 6. 0	96.48. 0	
	Cape Felix	3.47. 0	95.58. 0	
	Acheen Head.....	5.36. 0	95.19. 0	
	Ditto, Point Pedro..	5.42. 0	95.35. 0	
Is. near W. coast of Sumatra.	Pulo Way, East point	5.46. 0	95.27. 0	
	Ditto, West point ..	5.48. 0	95.18. 0	
	Pulo Rondo, Middle	6. 4.30	95.14. 0	
	Pulo Brasse, E. point	5.42. 0	95.13. 0	
	Ditto, North end ..	5.46. 0	95. 6. 0	
	Pulo Nancy, E. point	5.40. 0	95.17. 0	
	Cocos Island	3. 6. 0	95.12. 0	
	Hog Island, N. pt...	2.50. 0	95.30. 0	
	Pulo Banjack, S. pt.	2. 5. 0	96.48. 0	
	Pulo Nias, S. point	0.32. 0	97. 9. 0	
	Clap's Island	0. 5. 0	97.36. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Is. near W. co. of Sumatra.	Pulo Batoa, N. point	0.10. 0 N	98.45. 0 E	
	Pulo Minton, S. pt.	0.40. 0 S	98.10. 0	
	Se Booro, N. point	0.56. 0	98.38. 0	
	Ditto, S.E. point ..	1.47. 0	99.14. 0	
	Se Pora, N.W. point	1.54. 0	99.26. 0	
	Do., Point Marlboro'	2.25. 0	99.58. 0	
	North Poggy, N. pt.	2.32. 0	100. 0. 0	
	South Poggy, S. pt.	3.20. 0	100.35. 0	
	Trieste Island	4. 2. 0	101.22. 0	
	Enganno Isle, S. pt.	5.27. 0	102.17. 0	
Entrance to China Sea, Straits of Malacca & Sincapore.	Pulo Bouton, the Dome	6.33. 0 N	99.20. 0	
	Pulo Pera	5.42. 0	99. 1. 0	
	Prince of Wales' I. or Pulo Pinang, Fort Cornwallis	5.24.30	100.21.30	11. 0
	Pulo Dinding	4.16. 0	100.38. 0	
	Pulo Jarra	4. 0. 0	100.14. 0	
	Pulo Verela	3.47. 0	99.36. 0	
	Brothers, N.most ..	3.24. 0	99.54. 0	
	Long Arroe, N. end	2.54. 0	100.43. 0	
	Round Arroe	2.49. 0	100.49. 0	
	Malacca Fort.....	2.12. 0	102.15. 0	10.30
	Little Carrimon ..	1. 9.30	103.25. 0	
	Tree Island	1. 7.30	103.40. 0	
	Barn Island	1.13. 0	103.42. 0	
	Black Rock	1.12. 0	103.48. 0	
	St. John's, S. point..	1.17. 0	103.50. 0	
	Bintang Hill	1. 2.30	104.30. 0	
	Pedro Blanca	1.20.30	104.25.30	
	Sincapore Isle, Town	1.24. 0	103.58. 0	
	Pulo Panjang	1. 4. 0	104.54. 0	
	Pulo Tingy	2.16. 0	104. 7. 0	
	Pulo Auro	2.29.30	104.34.30	
	Pulo Timon, N. pt.	2.54. 0	104.15. 0	
	Pulo Varelle	3.16. 0	103.46. 0	
Anambas Is.	North Anambas ..	3.27. 0	106.15. 0	
	Gt. Anambas, W. pt.	3. 2. 0	105.46. 0	
	Pulo Domar	2.45. 0	105.27. 0	
	South Anambas....	2.18. 0	106.13. 0	
	Saddle Island	2.25. 0	105.45. 0	
Entrance to the China Sea.	The White Rock ..	2.15. 0	105.37. 0	
	North Natunas	4.50. 0	108. 4. 0	
	Gt. Natunas, S. end	3.40. 0	108.19. 0	
	S. Natunas, W. end	2.42. 0	108.40. 0	
	St. Pierre	2. 0. 0	108.54. 0	
	Victory's Island....	1.34. 0	106.23. 0	
	Saddle Island	1.17. 0	107. 4. 0	
	Camel's Hump	1.10. 0	106.57. 0	
	St. Julian's Island..	0.54. 0	106.47. 0	
	Timbelan's Isles ..	1. 0. 0	107.36. 0	
	St. Esprit I., E. end	0.35. 0	107.12. 0	
	St. Barbe	0. 9. 0	107.24. 0	
	Direction Island ..	0.15. 0	108.10. 0	
	Porto Bello	0.54. 0 S	106.40. 0	
	Caremeta Isle, Peak	1.37. 0	108.53. 0	
	Sourouton, W. point	1.42. 0	108.42. 0	
	Wellesley's Shoal ..	1.19. 0	108.35. 0	
	Ontario's Reef	2. 3. 0	108.40. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Entrance o the China Sea.	Montaran Islands..	2.31. 0S.	108.45. 0 E	
	Billiton I., N.W. pt.	2.36. 0	107.35. 0	
	Do. S. E. point	2.34. 0	108.12. 0	
	Do, S. W. point....	3.15. 0	107.30. 0	
	Shoal Water Island	3.20.30	107.13. 0	
	Vansittart's Shoal..	2.11.15	106.46. 0	
	War. Hastings' Shl.	2.21.30	106.57. 0	
	Gaspar Island	2.25.30	107. 6. 0	
	Tree Rock.....	2.27.30	106.59. 0	
	Middle I. S. W. pt.	2.55. 0	107. 3.45	
	Alceste Rock.....	2.46. 0	107. 2. 0	
Banca Island.	Munaooda point ..	1.27. 0	105.51. 0	
	Tanjong Goonting	1.43. 0	105.22. 0	
	Mount Monopin ..	2. 0. 0	105.14. 0	
	Mount Permisan ..	2.36.30	105.55. 0	
	Lalary point.....	2.47.30	105.54. 0	
	Entrance point....	3. 2. 0	106.54. 0	
Strait of Sunda.	Pulo Toty	0.58. 0	105.42. 0	
	The Seven Islands	1. 5.16	105.24. 4	
	Lingen Isle, E. pt.	0.21. 0	105. 4. 0	
	Dogger's Bank....	0.39. 0N	105.24. 0	
	Princes Island, Peak	6.35. 0 S	105.15. 0	
	Cracatoa Isd., Peak	6. 6. 0	105.30.15	
	Pulo Besse, or Tamarind Isle ..	5.57. 0	105.31. 0	
	Pulo Racket, S. pt.	5.53. 0	105.32. 0	
	Thwart the Way ..	5.56.30	105.51. 0	
	North Island.....	5.41. 0	105.49. 0	
	Three Sisters	5.43.30	105.49. 0	
	The Button	5.53.30	105.58. 0	
	The Cap.....	6. 0.30	105.56. 0	
	Pulo Babee, E. end	5.47. 0	106.19. 0	
Java Sea.	South Watcher ..	5.41.45	106.42.45	
	North Watcher....	5.12.30	106.32. 0	
	Two Brothers, or two Sisters....	5. 9.30	106. 5. 0	
	Jason's Rock	5.30. 0	106.20. 0	
	Pulo Racket.....	5.58. 0	108.33. 0	
	Fox's Reef	3.31. 0	110. 5. 0	
	Carimon Java	5.50. 0	110.34. 0	
	Lubee Island.....	5.45. 0	112.48. 0	
	Arrogant's Rocks..	5.12. 0	113. 0. 0	
	Great Salombo	5.33. 0	114.28. 0	
	Little Salombo	5.24. 0	114.28. 0	
	Arentes	5.10. 0	114.36. 0	
Java Island.	Java Head.....	6.48. 0	105.11. 0	
	Anjer Point	6. 4. 0	105.54. 0	
	St. Nicholas point	5.54. 0	106. 2. 0	
	Bantam point	5.52. 0	106. 2. 0	
	Bantam	6. 4. 0	106.12. 0	
	Batavia, Observaty.	6. 9. 0	106.51.45	
	Edam Island.....	5.57. 0	106.53. 0	
	Indermay point....	6.10. 0	108.30. 0	
	Cape Sandana	7.39. 0	114.36. 0	
	East point	8.39. 0	114.40. 0	
	Wesels Bay	8.10. 0	112.55. 0	
	Turtle Bay.....	7.45. 0	109.47. 0	
	Wine Coopers point	7.24. 0	106.30. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Eastern Straits to China.	Madura I., N. W. pt.	6.53. 0S.	112.45.30E.	
	Do. East point	6.53. 0	113.58.30	
	Bally Island, S. pt.	8.57. 0	115. 9. 0	
	Bally Strait, S. ent.	8.45. 0	114.40. 0	
	Banditti Isle, S.E. pt.	8.46. 0	115.31. 0	
	Lombock Isle, S. pt.	8.47. 0	116. 2. 0	
	Do. the Peak	8.21.30	116.26. 0	
	Lombock St., S. ent.	8.45. 0	115.36. 0	
	Allas Strait, S. ent.	8.50. 0	116.28. 0	
	Sumbawa I., W. pt.	9. 5. 0	116.38. 0	
	Do. S. E. point....	8.42. 0	119.41. 0	
	Gunongapee Peak	8.11. 0	119. 5. 0	
	Strait of Sapy	8.50. 0	119.35. 0	
	Bangalore Shoal ..	7.40. 0	121.15. 0	
	Strait of Mangeray	8.35. 0	120. 9. 0	
	Strait of Flores....	8.40. 0	123. 3. 3	
	Do. Flores Isle	8. 5. 0	123. 2. 0	
	Strait of Solor	8.18. 0	123. 6. 0	
	Ombay I., N.W. end	8. 9. 0	124.27. 0	
	Do. East point	8.17. 0	125.15. 0	
	Sandal Wd. I., W. Ca.	9.42. 0	119. 0. 0	
	Do. East point	10. 0. 0	120.35. 0	
	Savu Isle, Factory	10.37. 0	122. 0. 0	
	Do. Centre	10.30. 0	121.43. 0	
	New Isle, near Savu	10.40. 0	121. 3. 0	
	Rotto I., S. W. end	11. 2. 0	122.55.. 0	
Banda Sea.	Savul Shoal, W. end	11.33. 0	124.10. 0	
	Shoal	12.45. 0	124.28. 0	
	Coral Shoal	13.25. 0	124.10. 0	
	Shoal	13.32. 0	124.29. 0	
	Red Island.....	15.10. 0	124.20. 0	
	Semao Island, S. end	10.25. 0	123.12. 0	
	Strt. of Samoa, W. ent.	10.33. 0	123.20. 0	
	Timor I., S. W. pt.	10.23. 0	123.30. 0	
	Do. N. E. point ..	8.21. 0	127.15. 0	
	Do. Coupang.....	10.10. 0	123.36. 0	
	Do. Delhi	8.35. 0	125.40. 0	
	Pulo Bato	9.16. 0	124. 0. 0	
	Timorlaut I., S. pt.	8.15. 0	131.50. 0	
	Arroe Isle, S. point	7. 6. 0	135. 0. 0	
	Banda I., Anchorage	4.31. 0	130. 0. 0	
	Burning Island ..	6.35. 0	126.40. 0	
	Booro I., the Town	3.25. 0	127. 0. 0	
	Do. N. W. end....	3. 6, 0	125.57. 0	
	Do. South end	3.54. 0	126.53. 0	
	Amboyna, Fort Victoria.....	3.40. 0	128.15. 0	
	Great Xulla, S. end	1.51, 0	124.52. 0	
	Xulla Maugola,.. West end	1.43. 0	125.21. 0	
	Xulla Bessee, S. pt.	2.28. 0	125.58. 0	
	Do. N. W. point ..	1.58. 0	125.48. 0	
	Little Salwatty....	3.57. 0	131.17. 0	
	Ceram Laut	3.53. 0	130.59. 0	
Ceram Isle.	Lahoe, West end.	3.18. 0	128. 0. 0	
	Amahoy.....	3.21. 0	128.58. 0	
	Kessing, East point	3.55. 0	130.40. 0	
	Razaket pt., E. end	3.36. 0	130.51. 0	
	Warov Bay	3.25. 0	130.30. 0	
	Saway Bay	2.51. 0	129. 0. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Pitt's Passage.	Harakau	3.37. 0 S	128.29. 0 E	
	Separau	3.36. 0	128.43. 0	
	Manipa	3.17. 0	127.28. 0	
	Kelar	3.16. 0	127.33. 0	
	Bonoa	2.57. 0	127.54. 0	
	Oby Major, W. pt.	1.30. 0	127.15. 0	
	Gomona	1.56. 0	127.38. 0	
	Pulo Pisang	1.23. 0	128.53. 0	
	Mysole, W. point	1.54. 0	129.30. 0	
	Kanary	1.44. 0	129.14. 0	
	Pulo Popa, S. E. pt.	1.42. 0	129.52. 0	
	Salwatty, Pt. Pigon	0.58. 0	130.34. 0	
	Do., N. E. point	0.54. 0	130.56. 0	
	Battenta, Cape Mebo	0.56. 0	130.25. 0	
	Do. East end	0.47. 0	131.10. 0	
	Pigeon Island	0.37. 0	130.38. 0	
	Foul Island	0.37. 0	130.38. 0	
	Weyogee I., S.W. pt.	0.28. 0	130.23. 0	
	Do. point Pigot	0.21. 0	131.18. 0	
	Geby I., Harbour	0. 4. 0	129.20. 0	
	Youl Island	0.28. 0	131. 0. 0	
	Asia's Isles, South-Westernmost	1. 0. 0	131.17. 0	
	Gillolo Isle, Ossa Village	0.45. 0 N	128.22. 0	
Moluccas.	Do., North end	2.23. 0	128.15. 0	
	Do., South end	0.45. 0 S	128.22. 0	
	Moratay, N. Cape	2.44. 0 N	128.25. 0	
	Do., South end	1.45. 0	128.16. 0	
	Ternate Isle, Fort Orange	0.50. 0	127.32. 0	
	Tidore Island	0.43. 0	127.37. 0	
	Tyfore Island	0.58. 0	126.27. 0	
	Myo Island	1.12. 0	126.39. 0	
	Salibobo Isles, Southernmost	3.47. 0	126.45. 0	
	Glatton's Rock	3.50.30	125.35. 0	
	Haycock	2.56. 0	125.50. 0	
	Sanguy I., N. end.	3.46.10	125.17.10	
	Siao Island, Peak	2.43. 0	125.35. 0	
	Bijarre Island, Peak	2.15. 0	125.10. 0	
	Tagalonda	2.25. 0	125.20. 0	
Celebes.	Banka Island	1.52. 0	125. 0. 0	
	Monado Fort	1.27. 0	124.38. 0	
	Cape Coffin	1.42. 0	125. 0. 0	
	Strait of Limba	1.22.30	125.14. 0	
	Castican Bay	0.48. 0	124.45. 0	
	Goonongtalla River	0.30. 0	123. 0. 0	
	Cape Talabo	0.48. 0 S	123.57. 0	
	Cape Lessen	4.54. 0	121.28. 0	
	Cambynas I., Peak	5.21. 0	122. 1. 0	
	Bontheam	5.34. 0	120.32. 0	
	Macassar	5. 9. 0	119.39. 0	
	Mandhar point	3.35. 0	119. 9. 0	
	Cape William	2.34. 0	118.58. 0	
	Cape Timoel, N. W. point	0. 1. 0 N	119.26. 0	
	Donda point	0.48. 0	119.57. 0	
	Cape Rivers	1.15. 0	120.34. 0	
	Bouton I., N. point	4.21. 0 S	123. 5. 0	
	Do., South point	5.48. 0	122.44. 0	
	North Token Bessee	5.10. 0	123.40. 0	
	Salayer I., N. point	5.48. 0	120.46. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Straits of Macassar.	Salayer Strait, Mid. I.	5.40. 0 S	120.28. 0 E	
	Brill Shoal	6. 5. 0	118.51.15	
	Postillions, N.W. pt.	6.32. 0	118.48. 0	
	Rotterdam Island	5.13. 0	117.39. 0	
	Waller's Shoals	4.37. 0	117. 8. 0	
	Lit. Pulo Laut, S. end	4.48. 0	116. 0. 0	
	Morresses	4.25. 0	116. 3. 0	
	Brothers	4.26. 0	116.32. 0	
	Divalder	4.12. 0	116.21. 0	
	Great Pulo Laut, S. pt.	4. 6. 0	116.14. 0	
	Do. N. E. point	3.23. 0	116.41. 0	
	Maragalong Isles	3.41. 0	116.54. 0	
	South Watcher	0. 8. 0 N	119.26. 0	
	North Watcher	0.35. 0	119.37. 0	
	Triangles, two Northernmost	3. 1. 0 S	117.53. 0	
	North point	7. 3. 0 N	116.50. 0	
	Unasang point	5.17. 0	119.25. 0	
	Kaneoogan point	1. 5. 0	119.10. 0	
	Ragged point	2.10. 0 S	116.48. 0	
Borneo Island.	Shoal point	2.35. 0	116.47. 0	
	Salatan point	4.10. 0	114.42. 0	
	Flat point	3.30. 0	111.50. 0	
	Sambar point	2.51. 0	109.45. 0	
	Tanjong Factie	1. 6. 0	109.23. 0	
	Sambas Roads	1.12. 0 N	109.15. 0	
	Tanjong Apee	2.19. 0	109.25. 0	
	Tanjong Dato	3. 0. 0	110.13. 0	
	Borneo	4.55. 0	114.55. 0	
	Abai Harbour	6.24. 0	116.22. 0	
	Banguey Peak	7.19. 0	117. 6.30	
	Balambangaul. N.p.	7.16. 0	116.58. 0	
	Balabec Peak	7.59. 0	117. 3. 0	
	Palawan, S. point	8.10. 0	117. 3. 0	
	Do., North point	11.31. 0	119.25. 0	
	Do., Long point	9.38.30	118.22. 0	
	Do., Table Mountain	10.48.30	119.24. 0	
	Cagayan Sooloo	7. 0. 0	118.36. 0	
	Soolo Isle, Temontanges	5.57. 0	120.53. 0	
	Do. Tulyan	6. 1. 0	121.12. 0	
	Basilian Isle, E. pt.	6.30. 0	122.30. 0	
	Mindanao, Samboangan	6.54. 0	122. 2. 0	
	Do., Port St. Maria	7.33. 0	122. 0. 0	
	Do., Banajao point	9.40. 0	125.20. 0	
	Do., C. St. Augustin	6.13. 0	125.58. 0	
	Do., Mindanao	7.10. 0	124.30. 0	
	Cagaynes Isles	9.34. 0	121.23. 0	
Philippine Islands.	Surigao Isles, Surigao Town	9.47. 0	125.25. 0	
	Samar, Espiritu Santo	12.35. 0	125.17. 0	
	St. Bernardino	12.46. 0	124.15. 0	
	Mindoro, Calavite pt.	13.27. 0	120.20. 0	
	Do., South point	12.11. 0	121.14. 0	
	Goat Island	13.52. 0	120. 6. 0	
	Mirabello Shoal	14.40. 0	119.30. 0	
	Marsingola Shoal	15.13. 0	117.46. 0	
	Luconia, Albay Volcano	13.44.15	123.35. 0	
	Do., Manilla	14.36. 0	120.58. 0	
	Do., Subic	15. 5. 0	120. 0. 0	
	Do., Capones point	14.52.30	120. 3. 0	
	Do., Boliano point	16.27.30	120. 0. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Philippines.	Luconia, Ca. Bajador	18. 42. 0 N	120. 52. 15 E	
	Do., Cape Enganno	18. 39. 0	122. 21. 0	
	Do. Cape St. Ildefonso	15. 25. 5	121. 46. 30	
	Mauban	14. 8. 0	121. 44. 0	
	Manbulao	14. 18. 0	122. 43. 0	
	Camiguen I., Volcano	18. 54. 0	121. 43. 10	
	Bashee Isles, N most.	21. 8. 30	122. 9. 0	
	Do., Grafton Island	21. 4. 0	121. 0. 15	
	Bottel Tobago, Xima	21. 59. 0	121. 48. 0	
	Vele Rete Rock	21. 42. 0	121. 3. 30	
	Formosa I., S.E. end	21. 54. 0	121. 5. 0	
	Do., Tayoan	22. 35. 0	120. 32. 0	
	Do., N. E. end	25. 11. 0	121. 56. 0	

ISLANDS, ROCKS AND SHOALS, IN THE CHINA SEA.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
China Seas.	Pulo Panjang,	1. 4. 0 N	104. 54. 0 E	
	Pulo Tingy	2. 16. 0	104. 7. 0	
	Pulo Auro	2. 29. 30	104. 34. 30	
	Pulo Timon, N. pt.	2. 54. 0	104. 15. 0	
	Pulo Varelle	3. 16. 0	103. 46. 0	
	North Anambas	3. 27. 0	106. 15. 0	
	Great Anambas W. pt.	3. 2. 0	105. 46. 0	
	Pulo Domar	2. 45. 0	105. 27. 0	
	South Anambas	2. 18. 0	106. 13. 0	
	Saddle Island	2. 25. 0	105. 45. 0	
	The White Rock	2. 15. 0	105. 37. 0	
	North Natunas	4. 50. 0	108. 4. 0	
	Great Natunas, S. end	3. 40. 0	108. 19. 0	
	S. Natunas, W. end	2. 42. 0	108. 40. 0	
	St. Pierre	2. 0. 0	108. 54. 0	
	Saddle Island	1. 17. 0	107. 4. 0	
	Victory's Island	1. 34. 0	106. 23. 0	
	Camel's Hump	1. 10. 0	106. 57. 0	
	St. Julian's Island	0. 54. 0	106. 47. 0	
	Timbelan's Islands	1. 0. 0	107. 36. 0	
	St. Esprit Isles, E. end	0. 35. 0	107. 12. 0	
	St. Barbe	0. 9. 0	107. 24. 0	
	Direction Island	0. 15. 0	108. 10. 0	
	Pulo Brala	4. 47. 0	103. 37. 0	
	Great Ridang	5. 53. 0	102. 55. 0	
	Pulo Coron	9. 57. 0	100. 10. 0	
	Pulo Way	9. 55. 0	103. 45. 0	
	Pulo Ouby	8. 25. 0	104. 54. 0	
	Two Brothers	8. 30. 0	106. 14. 0	
	Pulo Condore, centre	8. 40. 0	106. 42. 0	
	Pulo Sapata	10. 1. 0	109. 2. 0	
	Pulo Sapata, E. pt.	10. 4. 30	109. 13. 15	
	Celcer de Mer	10. 32. 30	108. 53. 0	
	De Breto's Reef	10. 32. 0	107. 55. 0	
	Holland's Bank	10. 42. 0	108. 40. 0	
	Celcer de Terre	11. 13. 0	108. 51. 0	
	Luconia's Shoals, Hard Rocks	5. 21. 0	112. 38. 0	
	Do., two fathom Shoal	5. 5. 0	112. 24. 0	
	Do., dry sand	4. 57. 0	112. 30. 0	
	Sea Horse's Reef	5. 35. 0	112. 28. 0	
	Euphrates' Shoals	5. 38. 0	113. 24. 0	
China Sea.	Kirton's Shoal	5. 39. 0 N	113. 15. 0 E	
	Marino's Shoals	5. 54. 0	114. 18. 0	
	Louisa's Breakers	6. 21. 0	113. 18. 0	
	Barton's Shoal	6. 55. 0	116. 15. 0	
	Royal Charlotte's Rocks	6. 56. 0	113. 34. 0	
	Viper's Bank	7. 30. 0	115. 7. 0	
	Walpole's Rocks	7. 50. 0	114. 30. 0	
	Viper's Breakers	8. 0. 0	115. 25. 0	
	Prince of Wales Bank	8. 9. 0	110. 30. 0	
	Sea Horse's Breakers	8. 47. 0	116. 44. 0	
	Royal Captain Shoal	9. 4. 30	116. 41. 0	
	Gossard's Reef	8. 58. 0	110. 40. 0	
	Ganges Breakers	9. 22. 0	114. 12. 0	
	Marino's Rocks	9. 39. 0	114. 58. 0	
	Investigator, S. Shoal	8. 8. 0	114. 40. 0	
	Do., N.E. Shoal	9. 6. 0	116. 30. 0	
	Do., N.W. Shoal	9. 42. 0	113. 6. 0	
	West London Shoal	8. 54. 0	112. 0. 0	
	East London Shoal	8. 51. 0	112. 25. 0	
	Western Reef	10. 15. 0	113. 41. 0	
	South Island	10. 45. 0	114. 27. 0	
	North West Island	11. 9. 0	114. 18. 0	
	North Danger	11. 26. 0	114. 22. 0	
	Bombay's Shoal	9. 26. 0	116. 55. 0	
	Marino's Bank	10. 18. 0	115. 7. 0	
	Royal Charlotte's Sands	10. 47. 0	114. 29. 0	
	Marino's White Sand	10. 48. 0	115. 13. 0	
	Do., low black Island	11. 1. 0	115. 17. 0	
	Sea Horse's Bank	10. 52. 0	117. 53. 0	
	Falmouth's low I.	10. 58. 0	112. 12. 0	
	Falmouth's Bank	11. 25. 0	114. 15. 0	
	Sabutjungs low I.	11. 32. 0	113. 29. 0	
	Do., Bank	11. 34. 0	113. 51. 0	
	Gasper Shoals	11. 36. 0	113. 51. 0	
	Mirabello Shoal	14. 40. 0	119. 30. 0	
	Marsingola Shoal	15. 13. 0	119. 16. 0	
	Boliano Shoal	16. 28. 30	119. 42. 10	
	Scarboro' Shoal, N. E. end	15. 12. 40	117. 47. 0	
	Scarboro' Shoal cent.	15. 8. 30	117. 48. 0	
	Do., S. W. end	15. 4. 0	117. 47. 0	
	Macclesfield Shoal N. E. side	16. 2. 0	114. 42. 0	
	Do., S. W. side	15. 28. 0	114. 36. 0	
	Do., Bank	15. 51. 0	114. 18. 15	
	St. Esprit's Bank	19. 13. 0	112. 52. 0	
	Pedro Branco Isle	22. 19. 30	115. 8. 0	
	Pratas, N. E. side	20. 51. 0	116. 50. 0	
	Pratas, S. W. side	20. 38. 0	116. 40. 0	
	Pratas, centre	20. 47. 0	116. 38. 0	
Dangers on the Paracels.	North Shoal, W. end	17. 4. 30	111. 27. 0	
	North Shoal, E. end	17. 6. 10	111. 32. 38	
	Amphitrite, W. end	16. 59. 0	112. 12. 0	
	Amphitrite, E. end	16. 54. 0	112. 23. 0	
	Woody Island	16. 50. 0	112. 19. 0	
	Rocky Island	16. 52. 0	112. 20. 0	
	Junk's Bank	16. 55. 0	112. 20. 0	
	Lincoln Island	16. 41. 0	112. 42. 0	
	Pyramid Rock	16. 35. 15	112. 37. 30	
	Money's Island	16. 29. 0	111. 30. 0	
	Robert's Island	16. 32. 0	111. 34. 30	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
China Sea.	Pattle'sIsland	16.33.20 N	111.36. 0 E	
	Observation Bank..	16.36. 0	111.41. 0	
	Drummond's Island	16.29.10	111.43.47	
	GovernorDuncan'sI.	16.28.40	111.41. 0	
	Discovery Shoal, West end.	16.11. 0	111.32.30	
	Ditto, East end ..	16.16. 0	111.46.30	
	Vuladore's Shoal, West end.	16.17.30	111.58.30	
	Ditto, East end	16.19.30	112. 4.45	
	PassooKeah's Island	16. 6. 0	111.46. 0	
	Triton's Bank	15.46. 0	111.11. 0	
	Bombay's Shoal, South West end.	16. 0. 0	112.25. 0	
	Hainan Isle, N. pt.	20. 2. 0	110.45. 0	
	Ditto., South Point	18.12. 0	109.10. 0	
	The Coast and adjacent Islands, from Canton to Tartary, and thence to Cape North.			
		° ′ ″	° ′ ″	h m
Coast of China.	Canton	23. 8. 9 N	113. 2.45 E	
	Macao	22.11.30	113.31.30	5.50
	Grand Ladrone	21.57. 0	113.43. 0	
	Grand Lema, Centre	22. 2.30	114.16. 0	
	Pedro Branca Isle..	22.19.30	115. 8. 0	
	Tohaotcheou	23.35. 0	116.26. 0	
	Sinentcheou	24.[illegible]	118.40. 0	
	Ouentcheofou	28. 5. 0	120.35. 0	
	Cape Montague	29.14. 0	121.45. 0	
	Chusan, entrance ..	29.42. 0	121.54. 0	
	Ditto, Harbour	30.26. 0	121.41. 0	
	Ningpo	29.57.45	120.18.15	
	Yang-tse-kiang-ho	32. 5. 0	120.37. 0	
	Naskin	32. 4.40	118.47.15	
	Yellow River, ent.	34. 3. 0	120. 0. 0	
	Honigan Foo	33.34.40	118.49.45	
	Staunton's Island ..	36.47. 0	122.13. 0	
	Cape Gower	36.57. 0	122.19. 0	
	Kisan-sou Harbour	37.38. 0	121.23. 0	
	Toutchoofoo, strait of Miatau	37.50. 0	120.36. 0	
	Salou-poo-tien, ...	38.55. 0	118.43. 0	
	Pekin, Observatory	39.54.13	116.27.45	
	Cape Clonard	36. 5. 0	130. 0. 0	
	Sanpou	37.44. 0	129.13. 0	
	Kinghing	42.10. 0	131.24. 0	
	Ternai Bay.....	45.10.32	137. 1.15	
	Suffren Bay	47.51. 0	139.32.37	
	Cape Lesseps	49.30. 0	141.30. 0	
	Castries Bay	51.29. 0	140.56.19	
	Vanjuas Point	52. 7. 0	142.42. 0	
	Ocholsk	59.20.10	143.12.30	
	Yamsk	60.46. 0	154.30. 0	
	Bolcheretsk	52.54.30	156.56.15	
	Cape Lopatka	51. 0.15	156.42.45	
	St. Peter & St. Paul	53. 0.37	158.44.30	
	Nisjui Kamtchatska	56.16. 0	162. 0. 0	
	East Cape	66. 5.30	169.44. 0	
	North Cape	68.56. 0	179.11.30	
Tartary.	Formosa I., S.E. end.	21.54. 0	121. 5. 0	
	Ditto, Tayoan	22.35. 0	120.32. 0	
	Ditto, N. E. end ..	25.11. 0	121.56. 0	
	Vele Rete Rock	21.42. 0	121. 3.30	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Russia.	Bottel Tobago, Xima	21.59. 0 N	121.48. 0 E	
	Kumi Island	24.25. 0	123. 5. 0	
	Hoapinsu Island ..	25.44. 0	123.32. 0	
	Tiaou-su Island....	25.55. 0	123.47. 0	
	Taypingshau, N. East end....	24.30. 0	125. 6. 0	
	Parshongshan, S. West end....	23.41. 0	124. 9. 0	
	Lekeyo Isle, N. end	27.52. 0	128.45. 0	
	Ditto, Napakian Harbour	26. 0. 0	128.37. 0	
	Quelport Isle S.point	33.14. 0	126.35. 0	
	TsusI.straitsofCorea	34.24. 0	130. 0. 0	
	Dagelet Island	37.22.18	131.22. 0	
Islands of Japan.	Pinacles Islands ..	29.43. 0	132. 5. 0	
	Tanaosima, S. end	30.10. 0	132.24. 0	
	GottoIs.S.W.extrem.	32.34.50	128.44. 0	
	Ditto, south end ..	32.22. 0	130.10. 0	
	Asses Ears	32. 8. 0	129.46. 0	
	Kuisin I., South end	31.48. 0	132.55. 0	
	Ditto, Kokura	33.48. 0	132.18. 0	
	Ditto, Nangasaki ..	32.43.40	129.52. 7	7.53
	Niphon Isle, S.W. end	34.24. 0	132.10. 0	
	Ditto, Cape Noto ..	37.36. 0	137.54. 0	
	Ditto, Jootsi Sima..	37.51. 0	137.40. 0	
	Ditto, Cape Sangaar	40.30. 0	140.46. 0	
	Ditto, Cape Nambu	39.50. 0	142.30. 0	
	Ditto, Table Island	38.34. 0	142. 0. 0	
	Ditto, Cape Kennis	37.10. 0	141.30. 0	
	Ditto, White Point	35.21. 0	140.46. 0	
	Ditto, Jeddo	36.29. 0	140. 0. 0	
	Fatsisio Island	33.13. 0	140.12. 0	
Sachalin Islands.	Jesso I. CapeEuroen	42. 2. 0	143.18. 0	
	MariabergCanduPic	44.49. 0	146.40. 0	
	Pic de Langle, Perouse strait..	45.11. 0	141.13.13	
	Cape Crillon	45.56. 0	141.58.54	
	Monneron Island ..	46.20. 0	142. 5. 0	
	Bay de Langle	47.48.36	142.17.54	
	Bay D'Estaing	48.59.38	142.20.42	
	Mongee Peak	49.20. 0	143.14. 0	
	Martiniere Peak ..	50.12. 0	143.20. 0	
	Boutin Point	51. 1. 0	142.48. 0	
	Ere Kagean, N.E.pt.	54.13. 0	146.56. 0	
	Cape Patience	48.21. 0	147. 0. 0	
	Cape Amiva	46. 0. 0	144.22. 0	
	Staten I., S. W. end	44.26. 0	147.28. 0	
	Cape Vries, Vries straits	45.26. 0	149.43. 0	
	Company's Isle, Cape Schouton	46.18. 0	150.58. 0	
	Ditto, North end ..	46.28. 0	151.20. 0	
	Kurule Is., Marakan, N. end	47.10. 0	153. 6. 0	
	Ditto, S. E. end, Bousole Straits	46.46. 0	152.32. 0	
	Shoom Island	50.48. 0	156.37. 0	
	Bhering's I., N. pt.	55.36. 0	167.46. 0	
	Clerk's Island	63.15. 0	169.40. 0 W	
	St. Laurence's I...	63.47. 0	171.45. 0 E	
	Anderson's Island..	63. 4. 0	167.38. 0 W	

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LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water
Coast of New Holland and adjacent Islands.			
	° ′ ″	° ′ ″	h m
Van Diemen's Land.			
South West Cape..	43.32. 0 S	146. 6. 0 E	
Mew stone.....	43.41.15	146.28.30	
South Cape	43.37. 0	146.49. 0	
Pedra Blanca.... ..	43.50.30	147. 7. 0	
Tasman's Head ..	43.31. 0	147.27. 0	
Frederick HenryBay	42.58. 0	147.46. 0	
Cape Pillar	43.12. 0	148. 5. 0	
Oyster Bay	42.42. 0	148. 0. 0	
St. Patrick's Head..	41.42. 0	148.24. 0	
Largest Swan Island	40.43. 0	148. 8. 0	
Cape Portland	40.44. 0	147.56. 0	
Port Dalrymple ..	41. 3.30	147.11. 0	
Hunter's Isles	40.24. 0	144.41. 0	
King's Island, N. pt.	39.37. 0	143.54. 0	
New South Wales.			
Banks' Straits, ent.	40.38. 0	148.20. 0	
Furneaux Is., S.most	40.34. 0	148.10. 0	
Ditto, Northernmost	39.36. 0	148.10. 0	
Kent's Group	39.27. 0	147.15. 0	
Bass's Straits, ent.	39.10. 0	148.10. 0	
Ditto, West entrance	39.14. 0	143.40. 0	
Cape Albany Otway	38.51. 0	143.30. 0	
Western Port, ent.	38.30. 0	145. 8. 0	
Wilson'sPromontory	39.11.30	146.20. 0	
Ram Head	37.38. 0	149.41.30	
Cape Howe	37.30. 0	150. 7. 0	
Cape Dromedary ..	36.18. 0	150.11. 0	
Botany Bay	34. 0.30	151.14. 0	8. 0
Port Jackson .. / Castle Point ..	33.51.30	151.16.30	8.15
Broken Bay, ent...	33.34. 0	151.18. 0	
Port Stephens	32.47. 0	152.10. 0	
Cape Hawke	32.13.30	152.33. 0	
Smoaky Cape	30.55. 0	153. 4. 0	
Cape Byron	28.38. 0	153.37. 0	
Point Danger	28. 7. 0	153.32. 0	
Cape Morton.....	27. 0.30	153.26.20	
Sandy Cape	24.42. 0	153.16. 0	
Bastard Bay	24. 4. 0	151.42. 0	8. 0
Cape Capricorn	23.28. 0	151.15. 0	8. 0
Keppel Bay	23.29.30	150.58. 0	
Cape Townsend ..	22.13.30	150.29. 0	
Cape Palmerston ..	21.27.30	140.28. 0	
Cape Hillsborough	20.57. 0	149. 2. 0	
Cape Conway . ..	20.32. 0	148.54. 0	
Cape Gloucester, North Hill	19.59.30	148.26.30	
Cape Cleveland....	19. 5. 0	147. 5. 0	
Cape Sandwich	18.19. 0	146.29. 0	
Cape Grafton.....	16.53. 0	146.10. 0	
EndeavourRiver,ent.	15.25. 0	145.26. 0	9.30
Cape Flattery	14.57. 0	145.35. 0	
Cape York	10.39.30	142.33. 0	
New Year's Island	10.55. 0	133. 4. 0	
Van Diemen's Land	11.12. 0	129.54. 0	
Mornington Isle, CapeVanDiem .	16.32. 0	139.50. 0	
North West Cape ..	21.50.30	114.23. 0	
Dirk Hartog's Is., ent. toShark'sBay	25.20. 0	113. 5. 0	
Rottenest Island ..	31.58. 0	115.24.30	
Cape Le Grand	34. 1. 0	122. 4. 0	
Cape Leuwen	34.20. 0	115. 6. 0	
Pt. D'Entrecasteau	34.52. 0	116. 1. 0	

Names of Places.	Latitude.	Longitude.	high water
New Holland.			
	° ′ ″	° ′ ″	h m
King George's Sound, BaldHead	35. 6.15 S	118. 0.45 E	
Termination Island	34.30.20	121.58. 0	
Flinders I., S. W. pt.	33.45.30	134.24.15	
Port Lincoln	34.48.25	135.44.51	
Cape Spencer.....	35.18. 0	136.53. 0	
Cape Northumberld.	38. 2.30	140.37.30	
Twofold Bay	37. 0.10	150.10.25	
AdventureBayS.part	43.21. 0	147.32. 0	4.36
Islands, Rocks, and Shoals in the North Pacific Ocean, from Bhering's Straits to the Equator.			
	° ′ ″	° ′ ″	h m
Ladrones.			
Clerk's Island	63.15. 0 N	169.40. 0W	
Gore's Island.....	60.17. 0	172.30.45	
Bhering's Island, North point ..	55.36. 0	167.46. 0 E	
Copper Island, S. pt.	54.24. 0	169. 0. 0	
Aleootskia I., W. pt.	52.46. 0	170.42. 0	
Oonalaska	53.54.29	166.22.15W	
Rica de Plata	33.50. 0	160.39. 0 E	
Rica de Oro	29.54. 0	157. 3. 0	
Colunas	28.55. 0	158. 0. 0	
St. Juan	27.30. 0	142.48. 0	
Sulphur Isle	24.48. 0	141.20. 0	
North Island	25.14. 0	141.14. 0	
Grampus Islands ..	25.10. 0	146. 0. 0	
Lobos Islands	24.50. 0	146.58. 0	
I. deSebastian Lobes	25.24. 0	156.30. 0	
Jardines	21.35. 0	151.30. 0	
Urracas	20.25. 0	146.15. 0	
Assumption Island	19.45. 0	145.35. 0	
Tiuian Island	14.58. 0	145.51.15	
Guam, Umatac Bay	13.21.18	144.19.45	
Pelew Is.			
Johannes	6.55. 0	132.30. 0	
Lion's Island.....	5.16. 0	132.23. 0	
St. Andrew's Island	5.20. 0	132.16. 0	
Pulo Anna	4.38.30	132.23.30	
Pulo Mariere.....	4.19.30	132.28. 0	
Lord North's Island	3. 3. 0	131. 4.15	
Dangerous Shoal ..	2.47. 0	134. 5. 0	
St.David'sIs.,Centre	0.55. 0	134.21. 0	
New Philippines, or Carolines.			
Babiethoup, E.point	7.41. 0	134.55. 0	
Kyangle Island....	8. 8.30	134.50. 0	
Angour Isle, S. point	6.53.30	134.21. 0	
Matelotes, N. E. Id.	8.34.30	137.44.45	
Ditto, Largest Isle	8.17. 0	137.34. 0	
Yap Island.....	9.35. 0	138. 8. 0	
Philip Isles.....	8. 6. 0	140. 3. 0	
Thirteen Islands ..	7.18. 0	144.21. 0	
Haweis Island	7.30. 0	146.28. 0	
Strong's Island	5.12. 0	162.58. 0	
Palmyra Island....	5.49. 0	162.29. 0	
Brown's Range	11.30. 0	162.42. 0	
Piscadores	11.15. 0	167.20.20	
Muskitto Group ..	7.30. 0	168. 8. 0	
Chatham Island ..	9.20. 0	171.20. 0	
Mulgrave's Island..	5.54. 0	172.39. 0	
Pitt's Island	2.54. 0	174.30. 0	
St. Bartholomew ..	15.10. 0	163.48. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Sandwich Islands.	Wake's Island	19. 0. 0 N	166. 46. 0 E	
	Lamira, West point	20. 24. 0	166. 42. 0	
	Gasper Rico	15. 12. 0	171. 18. 0	
	Wake's Rocks	17. 48. 0	173. 45. 0	
	St. Pierre	11. 6. 0	179. 0. 0 W	
	Barbadoes	8. 54. 0	178. 21. 0	
	Necker Island	23. 34. 0	164. 31. 45	
	French Frigate Bank	23. 45. 0	165. 50. 0	
	Owhyhee Isle, N. pt.	20. 17. 0	155. 58. 45	
	Do., Karakakoa Bay	19. 28. 10	155. 56. 23	
	Ditto, South point..	18. 54. 30	155. 45. 0	
	Mowee, East point	20. 50. 30	156. 2. 30	
	Ditto, West point..	20. 53. 30	156. 38. 30	
	Tahoorowa	20. 38. 0	156. 36. 30	
	Ranai	20. 46. 30	156. 55. 30	
	Morotoi	21. 10. 0	157. 16. 45	
	Woahoo	21. 40. 30	158. 1. 30	
	Altoo, Ouimea Road	21. 57. 0	159. 39. 15	
	Oneeheow	21. 45. 0	160. 10. 0	
	Bird's Island	23. 8. 0	161. 45. 0	
Gallepagos Islands.	Christmas Islaud ..	1. 57. 45	157. 34. 45	
	Shelvoe's Island ..	22. 5. 0	112. 32. 0	
	Socoro Island	18. 40. 0	110. 17. 0	
	St. Berto	19. 18. 0	109. 53. 0	
	Rocka Partida	19. 4. 30	111. 6. 30	
	Passion Rock	16. 56. 0	109. 5. 0	
	Cliporton Rock ..	10. 27. 0	109. 18. 0	
	Cocos I. Chatham Bay	5. 27. 0	87. 45. 0	
	Culpepper's Island	1. 40. 0	91. 55. 0	
	Wenman's Island ..	1. 22. 30	91. 44. 0	
	Redondo Rock	0. 15. 0	91. 34. 0	
	Abington I., Cape Ibetson	0. 29. 0	90. 43. 40	
	Albemarle Isle, Cape Berkeley	0. 2. 0	91. 31. 30	
	Do. Christopher's pt.	0. 50. 0 S	91. 25. 0	
	James Isle, Harbour	0. 12. 0	90. 41. 30	
	Charles Isle, S. pt.	1. 30. 0	90. 33. 0	
	Chatham I., N.E. pt.	0. 45. 0	89. 9. 0	
	Do. Stephen's Bay..	0. 53. 0	89. 37. 0	

Islands, Rocks, and Shoals in the South Pacific Ocean, from New Guinea to Juan Fernandez.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Torres Straits. New Guinea.	Cape of Good Hope	0. 20. 0 S	132. 31. 0 E	
	Flat Point	0 46. 0	134. 25. 0	
	Cape Walsh	8. 26. 0	137. 28. 0	
	Cape Rodney	10. 3. 30	147. 48. 0	
	King William's Cape	6. 12. 0	147. 53. 0	
	Louisiade Cape....	11. 20. 42	128. 20. 55	
	Deliverance Island	9. 37. 0	140. 0. 0	
	Booby Island.....	10. 36. 30	141. 56. 0	
	Murray's Island ..	9. 51. 0	144. 2. 0	
	Jervis Island	9. 56. 30	142. 9. 0	
	York Is., Mt. Adolphus	10. 36. 30	142. 40. 0	
	Cape Deliverance ..	10. 59. 20	154. 26. 30	
	Cape Denys	8. 24. 0	151. 3. 52	
Solomon's Islands.	Stephen's Island ..	0. 16. 0 S	137. 48. 0 E	
	Durour's Island....	1. 17. 0	143. 30. 0	
	Matty's Island	1. 42. 0	143. 7. 0	
	Bondeuse	1. 30. 0	145. 2. 0	
	Admiralty Island ..	2. 11. 45	146. 12. 2	
	Sydney Shoal	3. 20. 0	146. 50. 0	
	Active's Reef, middle	3. 40. 30	146. 45. 0	
	Portland Isles, E. most	2. 36. 0	149. 39. 0	
	Matthias Island ..	1. 4. 0	148. 3. 0	
	Squally Island	1. 22. 0	149. 36. 0	
	New Ireland, Cape St. George	4. 51. 17	152. 48. 55	
	Do. Carteret's Harb.	4. 48. 0	152. 46. 0	
	Do. Port Praslin ..	4. 49. 27	153. 6. 45	
	New Hanover, W. end	2. 25. 0	149. 6. 0	
	Ditto, S.W. point ..	2. 31. 0	149. 50. 0	
	Sandwich Island ..	2. 59. 30	149. 45. 0	
	New Britain, Cape Palliser	4. 18. 0	152. 10. 0	
	Ditto, Cape Orford	5. 40. 0	152. 21. 0	
	Do. Port Montague	6. 12. 0	151. 2. 0	
	Do. Cape Ann	6. 27. 0	149. 33. 0	
	Anson's Island, N. pt.	5. 6. 0	154. 32. 0	
	Bonganville Strait..	7. 0. 0	155. 50. 0	
	Bridge Water Shoal	8. 54. 0	156. 49. 0	
	Cape Satisfaction ..	8. 6. 0	156. 30. 0	
	Cape Deception ..	8. 20. 30	157. 2. 29	
	Cape Nepeau	8. 51. 0	157. 32. 0	
	Cape Marsh	9. 7. 0	158. 26. 0	
	Cape Henslow	9. 58. 0	160. 7. 0	
	Cape Philip	10. 25. 0	160. 44. 0	
	Cape Sidney	10. 52. 0	161. 32. 0	
	Cape Surville	11. 0. 0	162. 18. 0	
	Bellona Island	11. 6. 0	159. 37. 0	
	Bellona Shoal	12. 5. 0	159. 48. 0	
	Port Praslin	7. 30. 0	157. 51. 0	
	Gower Island	8. 1. 0	159. 53. 0	
	Steward's Island ..	8. 24. 0	163. 0. 0	
	Lord Howe's Group	5. 24. 0	159. 37. 0	
	Shank's Island	0. 28. 0	163. 0. 0	
	Duff's Group, Disappointment I.	9. 57. 0	167. 0. 0	
	Egmont I. Cape Byron	10. 43. 0	166. 9. 0	
	Kennedy's Island ..	11. 17. 0	167. 58. 0	
	Cherry Island	11. 31. 0	169. 39. 0	
	Mitre Island	11. 46. 0	169. 57. 0	
	Pandora's Reef	12. 8. 0	172. 0. 0	
New Hebrides.	Sir Jos. Bankes' Is.	13. 27. 0	167. 24. 0	
	Cape Cumberland..	14. 39. 30	166. 47. 0	
	Bay, St. Philip and St. James	15. 10. 0	167. 5. 0	
	Cape Quiros	14. 56. 8	167. 20. 0	3. 0
	Leper's Island	15. 23. 30	167. 58. 15	
	Maskelyne's Island	16. 32. 0	167. 59. 0	
	Malicolo, Port Sandwich	16. 25. 20	167. 32. 6	
	Cape Lisburn	15. 40. 45	166. 57. 0	
	St. Bartholomew ..	15. 42. 0	167. 17. 30	
	Aurora Isle	15. 8. 0	167. 58. 6	
	Table Isle	15. 38. 0	167. 7. 0	
	Whitsuntide Isle ..	15. 44. 20	168. 20. 15	
	Ambrym Island ..	16. 9. 30	168. 12. 30	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
New Hebrides.	Paoom Island	16. 30. 0 S	168. 28. 45 E	
	Apec Island	16. 46. 15	168. 27. 30	
	Sheppard's Island..	16. 58. 0	168. 42. 0	
	Monument.....	17. 14. 15	168. 38. 15	
	Hinchinbroke Isle	17. 25. 0	168. 38. 0	
	Sandwich Island ..	17. 41. 0	168. 33. 0	
	Erromango, Traitor's Head	18. 46. 30	169. 18. 30	
	Tanna, Pt. Resolution	19. 32. 25	169. 41. 0	3. 0
	Erronam	19. 39. 0	170. 15. 0	
	Eratum	20. 10. 0	170. 4. 0	
	Walpole's Island ..	22. 39. 0	169. 16. 0	
New Caledonia.	Bampton Shoal, North end	18. 54. 0	158. 30. 0	
	Ditto, Centre.....	19. 9. 30	158. 23. 30	
	Bellona's Shoals, Centre.....	20. 55. 0	159. 47. 0	
	Booby Shoal	19. 0. 0	159. 3. 0	
	Balabea Island	20. 7. 0	164. 22. 0	6. 0
	Pudyona.....	20. 18. 0	164. 41. 0	6. 0
	Cape Colnet	20. 30. 0	164. 56. 15	
	Cape Coronation ..	22. 5. 0	167. 8. 0	
	Queen Charlotte's Foreland.....	22. 15. 0	167. 13. 0	
	Isle of Pines	22. 42. 0	167. 34. 0	
	Botany Island	22. 26. 40	167. 16. 45	10. 30
	Prince of Wales' Foreland.....	22. 25. 0	166. 52. 0	
	Loyalty Islands....	20. 54. 0	166. 30. 0	
New Zealand.	Ray's Island	25. 0. 0	166. 21. 0	
	Sir C. Middleton's I.	28. 12. 0	160. 32. 0	
	Middleton's Shoals	29. 18. 0	159. 28. 0	
	Lord Howe's Island	31. 30. 0	159. 0. 0	
	Norfolk Island	29. 1. 45	168. 10. 15	1. 0
	North Cape	34. 27. 0	173. 4. 0	
	Cape Brett	35. 10. 0	175. 0. 0	
	Cape Colville.....	36. 24. 45	175. 48. 50	
	Mercury Bay.....	36. 48. 0	176. 6. 20	
	Cape East	37. 44. 25	178. 58. 0	
	Tolaga Bay	38. 22. 0	178. 36. 0	6. 0
	Table Cape	39. 6. 40	178. 2. 20	
	Cape Kidnappers ..	39. 42. 45	177. 16. 0	
	Cape Turnagain ..	40. 32. 30	176. 49. 0	
	Banks's I., E. end	43. 43. 0	173. 3. 55	
	Cape Saunders	45. 37. 45	170. 16. 0	
	Molineaux Harbour	46. 8. 0	169. 41. 0	
	The Snares	48. 3. 0	166. 20. 0	
	Cape South	47. 16. 50	167. 20. 9	
	South-West Bay ..	46. 30. 0	167. 25. 0	
	Solander's Island ..	46. 28. 0	166. 33. 0	
	West Cape.....	45. 56. 15	166. 6. 15	
	Dusky Bay	45. 45. 36	166. 15. 54	10. 57
	Open Bay	43. 51. 0	168. 43. 0	
	Cape Foulweather	41. 58. 0	171. 30. 0	
	Cape Farewell	40. 40. 0	173 18. 0	
	Q. Charlotte's Sound	41. 6. 0	174. 40. 0	9. 0
	Cape Campbell	41. 34. 0	174. 56. 0	9. 30
	Cape Palliser	41. 24. 0	175. 41. 0	
	Cape Egmont	39. 23. 20	174. 12. 0	
	Gannet Island	38. 5. 0	175. 5. 0	
	Auckland's Group..	50. 30. 0	166. 25. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
	Bounty Isles	47. 35. 0 S	179. 6. 0 E	
	Chatham Isle, Cape Young ..	43. 48. 0	176. 58. 0 W	
	Macauley Island ..	30. 8. 0	179. 0. 0	
	Sunday Island	29. 12. 0	178. 13. 0	
	Vasques	25. 40. 0	174. 56. 0	
	Rotumah Island ..	12. 30. 0	177. 50. 0 E	
	Solitary Island	10. 40. 0	176. 0. 0 W	
	Duke of Clarence's I.	9. 11. 0	171. 30. 0	
	Duke of York's I.	8. 41. 0	173. 24. 45	
	Quiros Island	10. 40. 0	169. 54. 0	
	Jesus Island	6. 46. 0	166. 0. 0	
	St. Bernard's Island	10. 51. 0	167. 10. 0	
	Wallis' Island	13. 18. 0	177. 21. 45	
	Forlorn Hope	14. 16. 0	176. 56. 0	
Friendly Islands.	Booby Island.....	16. 0. 0	175. 50. 0	
	Keppel's Island....	15. 53. 0	174. 12. 0	
	Boscawen's Island	15. 50. 0	174. 8. 0	
	Navigator's Isles, Opoun, E. pt.	14. 9. 10	169. 1. 50	
	Do., Leone, S. point	14. 6. 0	169. 16. 22	
	Do., Tanfou, E. pt.	14. 5. 23	169. 18. 27	
	Do., Maouna, Massacre Cove	14. 20. 45	170. 16. 50	
	Do., Oyalava, E. pt.	14. 2. 40	171. 7. 15	
	Calinasse, N. point	13. 45. 0	171. 51. 33	
	Do., Pola, N.E. point	13. 27. 33	171. 56. 43	
	Amargura	18. 0. 0	174. 35. 0	
	Vavaoo, Port Refuge	18. 33. 54	173. 59. 45	
	Lati Island.....	18. 54. 0	174. 48. 0	
	Savage Island	19. 2. 15	169. 30. 30	
	Toofoa	19. 51. 0	175. 6. 0	
	Hapae, North point	19. 48. 0	174. 5. 0	
	Rotterdam Island ..	20. 15. 20	174. 45. 0	
	Amsterdam Island	21. 8. 36	175. 1. 50	8. 30
	Eoaa	21. 24. 0	174. 30. 0	
	Pylstart's Island ..	22. 23. 30	175. 49. 30	
	Palmerston's Island	18. 0. 30	163. 12. 0	
	Whylootack	18. 58. 0	159. 48. 0	
	Harvey's Island....	19. 17. 0	158. 56. 20	
	Wateoo Island	20. 1. 30	158. 14. 30	
	Mangeea Island ..	21. 56. 45	158. 3. 0	
	Scilly Island	16. 30. 0	155. 10. 0	
	Lord Howe's Island	16. 46. 30	154. 6. 40	
	Marua Island.....	16. 25. 40	152. 32. 40	
	Botabola Island....	16. 32. 30	151. 52. 0	
Society Islands.	Ulietea	16. 45. 35	151. 31. 0	11. 20
	Huaheine, Owharre Bay..	16. 42. 46	151. 9. 6	
	Sir Chas. Sanders' I.	17. 25. 0	150. 58. 0	
	Emao	17. 30. 0	150. 10. 0	
	Tetburoa	17. 1. 0	149. 36. 0	
	Otaheite, Pt. Venus	17. 29. 17	149. 35. 45	10. 38
	Ditto, Otooareite ..	17. 55. 0	149. 12. 0	
	Miatea Island	17. 52. 20	148. 6. 0	
	Prince of Wales' Isle, N. point..	14. 58. 0	147. 50. 0	
	Recreation Island..	15. 58. 0	148. 48. 0	
	Palliser's Island ..	17. 38. 15	146. 30. 15	
	Chain Island	17. 25. 30	145. 30. 0	
	Gloucester Island ..	20. 31. 0	145. 54. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Dangerous Archipelago.	Oheteroa	22.26.30 S	150.48.45W	
	Toolouai	23.25. 0	149.20.30	
	High Island	23.42. 0	148. 3. 0	
	Taoukaa Island	14.30.30	145. 9.30	
	Disappointment Is.	14. 7. 0	141.22. 0	
	Adventure Island	17.10. 0	144.30. 0	
	Furneaux Island	17.11. 0	143. 6.40	
	Resolution Island	17.23.30	141.45. 0	
	Bird Island	17.49. 0	142.43.24	
	Bow Island	18.17. 0	140.43. 0	
	PrinceW. Henry's I.	19. 0. 0	141.22. 0	
	Cumberland Island	19.18. 0	140.52. 0	
	Gloucester Island	19.11. 0	140.20. 0	
	Queen Charlotte's I.	19.18. 0	138.20. 0	
	Whitsunday Island	19.26. 0	138.12. 0	
	Lagoon Island	18.48. 0	138.33. 0	
	Osnaburg Island	22. 8. 0	140.37. 0	
	BlightLagoonIsland	21.43. 0	140.30. 0	
	Carysfoot Island	21. 0. 0	138.26. 0	
	Lord Hood's Island	21.42. 0	135.32. 0	
	Porpoise Shoal	22.11.38	135.35.36	
	Gambier's Island	23.12. 0	134.59. 0	
	Crescent	23.22. 0	134.30. 0	
	Pitcairn's Island	25. 4. 0	130.25. 0	
	St. Juan Baptista	25.57. 0	137.56. 0	
	Oparo Isle	27.36. 0	144.11.15	
Marquesas.	Robert's Island	8. 3. 0	140.30. 0	
	Nooaheevah	8.54.30	140. 5. 0	
	Rooahoogah	9. 0. 0	139.27. 0	
	Hood's Island	9.26. 0	138.52. 0	
	Rooapooh	9.30. 0	140. 0. 0	
	Ohevahoa	9.40.40	139. 1.40	
	St. Christiana, Resolution Bay	9.55.30	139. 8.40	2.30
	Onateaya	9.58. 0	138.51. 0	
	Magdalena	10.25.30	138.49. 0	
	Penrhyn's Island	9.12. 0	157.43. 0	
	Ducie's Island	24.24. 0	124.37. 0	
	Easter Island	27. 9.33	109.25.20	2. 0
	Felix	26.16.20	80. 3. 0	
	Ambrose	26.20. 0	79.51. 0	
	Masafuero	33.45. 0	80.42. 0	
	Juan Fernandez	33.40. 0	78.58.15	

WEST COAST OF AMERICA, FROM CAPE HORN TO ICY CAPE.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Terra del Fuego.	Cape Horn	55.58.30 S	67.21.14W	
	Diego Ramirez, Middle Isle	56.27. 0	68.39. 0	
	St. Ildefonso Isle	55.55. 0	69.18. 0	
	Christmas Sound	55.25. 0	69.50. 0	2.30
	Gilbert's Island	55.13. 0	70.56.45	
	Cape Desolation	54.55. 0	71 42. 0	
	Cape Noir	54.31.30	73.16.14	
	Cape Gloucester	54. 7. 0	73.55. 0	
	Cape Pilar	52.46. 0	74.54.14	
	Cape Victory	52.23. 0	74.56. 0	
	Madre de Dios, Cape Santiago	50.54. 0	75.30. 0	
Coast of Chili.	Cape Corzo	49.26. 0 S	75.46. 0W	
	Cape Tres Montes	46.59. 0	75.27. 0	
	Cape Taytan	45.51. 0	75.28. 0	
	Chiloe Castro	42.41. 0	74. 3.30	
	Chiloe Castro, Point Quilan	43.41. 0	74.19.30	
	Chiloe Castro, St. Carlos	41.53. 0	73.50. 0	
	Quidal Point	41. 5. 0	74. 5. 0	
	Valdivia Fort, St. Carlos	39.50. 7	73.34.15	11.30
	Mocha Island	38.22.30	73.59. 0	
	Santa Maria Island	37. 1. 0	73.36 0	
	Conception	36.49.10	73. 4.45	
	Santiago	33.30. 0	70.56. 0	
	Valparaiso	33. 0.30	71.38.15	
	Coquimbo	29.54.40	71.19.15	
	Choros Point	28.50. 0	71.30. 0	
	Copiapo	27.10. 0	71. 5.15	
	Blanca Island	24.57. 0	70.35. 0	
	Morro Moreno	23.19. 0	70.27. 0	
	Solitary Island	22.58. 0	70.15. 0	
	Isle de Iquiqua	20.14. 0	70.13. 0	
	Arica	18.26.40	70.16. 5	
	Ylo	17.36.15	71. 9.45	
Coast of Peru.	Port Caballos	15. 5. 0	75.31. 0	
	Pisco	13.45. 0	76.13. 0	
	Lima	12. 3. 0	76.56.45	
	Callao, the Castle	12. 3.38	77. 4.19	
	St. Martin's Island	11. 6. 0	77.31. 0	
	Truxillo	8. 9. 0	78.51. 0	
	Lobos de Mer	6.56. 0	80.49. 0	
	Lobos de Tierre	6.25. 0	80.45.30	
	Punta de Auxa	5.58. 0	81. 4. 0	
	Paita	5. 3. 0	80.59. 0	
	Cape Blanco	4.19. 0	81. 6.15	
	Picos Point	3.39. 0	80.32. 0	
Quito	Guayaquil	2.11.30	79.41.15	7. 0
	Point St. Helena	2.10. 0	80.47.15	
	Cape de Lorenzo	1. 4. 0	80.43. 0	
	Cape Passado	0.27. 0	80.19.15	
	Quito	0.13.17	78.21.30	
	Cape St. Francisco	0.40. 0 N	79.53. 0	
	Esmeraldas	0.54. 0	79.24. 0	
	Tumaco Island	1.46. 0	78.38.30	
	Cape Corrientes	5.33. 0	77.16. 0	
	Panama	8.58.50	79.27.15	3. 0
Mexico, or New Spain.	Point Mala	7.23. 0	79.51. 0	
	Cape Marietta	7.14. 0	80.37. 0	
	Malpelo Island	3.59. 0	80.11.30	
	Quibo Isle, S. E. Cape	7.21. 0	81 28. 0	
	Point Burcia	8. 4. 0	82.50.15	
	Cape Blanco	9.13. 0	85.28. 0	
	Point St. Catherine	10.24. 0	86.21. 0	
	Leon	12.21. 0	86.45. 0	
	Point Gatimala	13.54. 0	90.53. 0	
	Puerto Ventosa	16. 6. 0	95.22. 0	
	Agualco	16. 2. 0	96.52. 0	
	Acapulco	16.50.19	99.49.18	
	Cape Correntes	20.25.30	105.35. 6	
	St. Blas, Port	21.32.48	105.15.33	
	Tres Marias	21.28. 0	106.29. 0	
	St. Joseph	23. 3.13	109.40.33	

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LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water
	° ′ ″	° ′ ″	h m
Cape St. Lucar	22. 44. 0 N	109. 54. 0W	
Morro Hermoza ..	27. 46. 0	114. 41. 0	
Redonda Island....	29. 49. 0	115, 10. 0	
Bay, St. Francisco..	30. 23. 0	115. 36. 0	
Bay, Todos Santos	31. 56. 0	116. 22. 0	
Port Diego.....	32. 42. 30	116. 53. 15	
Point Conception ..	34. 32. 0	120. 6. 0	
Monterry	36. 35. 45	121. 51. 6	
Port St. Francisco..	37. 48. 30	122. 8. 0	11. 25
Cape Mendocino ..	40. 29. 0	124. 29. 15	
Port Trinidad	41. 3. 0	123. 54. 0	
Cape Orford	42. 52. 0	124. 25. 0	
Cape Gregory	43. 29. 0	124. 9. 0	
Cape Perpetua	44. 12. 0	123. 55. 0	
Cape Foulweather ..	44. 49. 0	123. 56. 0	
Cape Lookout	45. 32. 0	123. 49. 0	
Cape Disappointment	46. 19. 0	123. 54. 0	
Gray's Harbour....	47. 0. 0	123. 53. 0	
Point Grenville	47. 22. 0	124. 1. 30	
Cape Flattery.....	48. 23. 0	124. 22. 0	
Port St. Juan.....	48. 34. 0	124. 8. 0	
Nootka Sound	49. 35. 15	126. 36. 46	0. 20
Woody Point.....	50. 6. 0	127. 57. 0	
Cape Scott	50. 48. 0	128. 20. 0	
Scott's, or Sartine's Isles	50. 52. 0	129. 0. 0	
Point Chatham	50. 19. 30	125. 15. 0	
Point de Gonzalo ..	48. 28. 0	122. 53. 0	
Cape Caution	51. 12. 0	127. 51. 0	
Cape Swaine	52. 13. 0	128. 20. 0	
Calamity Harbour	53. 10. 0	129. 34. 0	
Cape Ibbetson	54. 4. 0	130. 30. 0	
Brown's Passage ..	54. 20. 0	130. 32. 0	
Cape de Chacon ..	54. 43. 0	131. 45. 0	
Cape de Muzon....	54. 42. 0	132. 30. 0	
Cape St. James, or Hector	51. 57. 0	131. 6. 0	
Cape Henry	52. 53. 0	132. 37. 0	
Point Buck	53. 10. 0	132. 40. 0	
Point Hunter.....	53. 19. 0	132. 47. 0	
Langara, or N. Id.	54. 20. 0	133. 13. 0	
Point Invisible	54. 12. 0	131. 30. 0	
Forrester's, or St. Carlos I., N. pt.	54. 53. 0	133. 21. 0	
Point Bucarelli	55. 12. 0	133. 25. 0	
Cape Addington ..	55. 27. 0	133. 37. 0	
Cape Pole	55. 58. 0	133. 33. 0	
Cape Decision	56. 2. 0	133. 52. 0	
Hazy Islands.....	55. 54. 0	134. 18. 0	
Cape Ommaney....	56. 10. 0	134. 23. 0	
Cape Edgecumbe ..	57. 2. 0	135. 46. 15	
Cape Cross.....	57. 55. 0	136. 17. 0	
Cross Sound, ent...	58. 12. 0	136. 24. 20	
Cape Spencer.....	58. 13. 0	136. 24. 0	
Cape Fairweather..	58. 51. 0	137. 55. 0	
Port des François..	58. 37. 0	137. 45. 0	
Bhering's Bay	59. 9. 0	138. 24. 0	
Admiralty Bay, Point Phipps..	59. 33. 0	139. 54. 0	
Point Riou.....	59. 54. 0	141. 30. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
P. William's Sound.	Mount St. Elisas ..	60. 17. 35 N	140. 50. 6W	
	Cape Suckling	60. 1. 0	143. 42. 0	
	Cape Hammond ..	59. 49. 0	144. 26. 0	
	Cape Hinchinbroke	60. 12. 30	146. 39. 20	
	Port Chalmers	60. 16. 0	147. 5. 0	
	Cape Puget	59. 55. 0	148. 19. 0	
	Middleton's, or Rose I	59. 32. 0	146. 22. 0	
	Chiswell's Is., S. pt.	59. 31. 0	149. 24. 0	
Cook's Inlet.	Cape Elizabeth	59. 9. 0	151. 27. 0	
	Port Chatham	59. 14. 0	151. 14. 0	
	Anchor Point.....	59. 39. 0	151. 39. 0	
	East Foreland	60. 43. 0	150. 58. 0	
	West Foreland	60. 42. 0	151. 16. 0	
	Point Campbell....	61. 8. 0	149. 38. 0	
	Point Harriott	60. 24. 0	151. 48. 0	
	Cape Douglas	58. 52. 0	152. 50. 0	
Kodiak.	Point Banks	58. 40. 0	152. 6. 0	
	St. Hermogene's I.	58. 10. 30	151. 30. 0	
	Cape Grenville	57. 35. 0	152. 0. 0	
	Cape Barnabas	57. 10. 0	152. 39. 0	
	Cape Trinity	56. 45. 0	153. 38. 0	
Bhering's Straits.	Trinity Islands	56. 34. 0	153. 36. 0	
	Tscherikow Islands	55. 49. 0	155. 8. 0	
	Schoomagen Isle, N. W. point ..	55. 15. 0	159. 48. 0	
	Halibut Isle, S.E. pt.	54. 23. 0	162. 27. 0	
	Oonalaska, Samganooda Harb.	53. 54. 29	166. 22. 15	
	Bristol River, ent.	58. 12. 0	157. 33. 0	
	Round Island.....	58. 29. 0	159. 53. 0	
	Cape Newnham....	58. 34. 0	161. 55. 0	12. 0
	Shoalness	60. 0. 0	161. 52. 0	
	Cape Stephens	63. 33. 30	162. 17. 0	
	Cape Denbigh	64. 17. 0	161. 53. 0	
	Cape Rodney	64. 34. 0	166. 37. 0	
	Cape Prince of Wales	65. 45. 30	168. 17. 30	
	Cape Mulgrave	67. 45. 30	165. 12. 0	
	Cape Lisburne	69. 5. 0	165. 22. 30	
	Icy Cape.....	70. 29. 0	161. 42. 30	

East Coast of America, from Cape Horn to Cape Florida.

		Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Terra del Fuego.	Cape Horn.....	55. 58. 30 S	67. 21. 14W	
	Staten I. Cape St. John	54. 47. 10	63. 42. 30	4. 0
	Le Maire's Straits, Cape Good Success	55. 0. 0	65. 19. 0	4. 30
	Cape Santa Iries ..	54. 8. 0	66. 57. 26	
	Cape St. Sebastian	53. 27. 0	67. 59. 0	
	Straits of Magellan Q. Catharine's	52. 41. 0	68. 25. 30	
	Do., Cape Virginis	52. 21. 0	68. 17. 25	12. 0
	Do., Cape Froward	53. 53. 0	71. 11. 0	
	Cape Fair Weather	51. 33. 0	69. 0. 0	
	Santa Cruz Harbour	50. 17. 30	68. 28. 0	
Patagonia.	Port St. Julian	49. 5. 30	67. 44. 15	4. 45
	Port Desire	47. 45. 0	66. 0. 0	
	Cape Blanco	47. 15. 30	65. 57. 15	
	St. George's Bay, Port Cordova..	45. 45. 0	67. 27. 15	
	Point St. Helena ..	44. 30. 0	65. 29. 15	
	Port St. Antonio ..	45. 2. 30	65. 48. 44	
	Cape Corrientes ..	38. 0. 0	57. 41. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Paraguay.	River Plate, Cape St. Antonio	36. 20. 0 S	56. 45. 0 W	
	Do., Buenos Ayres	34. 36. 40	58. 24. 30	
	Colonia del Sacramento	34. 26. 0	57. 58. 0	
	Maldonado Harb., Gorriti Isle	34. 56. 19	54. 40. 0	
Brazil.	Cape St. Maria	34. 40. 0	53. 54. 0	
	Rio Grande de San Pedro	32. 10. 0	52. 3. 0	
	Morros de St. Maria	28. 55. 0	48. 18. 0	
	St Catharine's I., N. pt.	27. 19. 10	47. 40. 0	
	Ditto, South point	27. 49. 0	47. 49. 0	
	Parangua Harbour	25. 32. 0	47. 45. 0	
	Santos Amiaz Isle	24. 4. 0	46. 5. 0	
	Armasao	23. 44. 30	45. 13. 0	
	Grand Island	23. 18. 0	44. 0. 0	
	Rio Janeiro, Rat Isle	22. 53. 0	43. 12. 0	2. 5
	Cape Frio	23. 0. 30	42. 7. 30	
	Cape St. Thomas	22. 0. 0	40. 55. 0	
	Espiritu Santo	20. 15. 0	39. 28. 0	
	Abrolhos Islands	17. 58. 0	38. 26. 0	
	Porto Seguro	16. 40. 0	39. 0. 0	
	Bahia, C. St. Antonio	12. 59. 0	38. 25. 0	
	Do., Fort St. Anthony	13. 5. 0	38. 28. 0	
	River St. Francisco	10. 57. 0	36. 14. 0	
	Cape St. Augustine	8. 23. 0	34. 56. 0	
	Pernambuco, Fort Picao	8. 3. 30	34. 54. 0	
	Olinde	8. 0. 0	34. 50. 0	
	Cape Ledo	6. 50. 0	35. 7. 0	
	Cape St. Roque	5. 10. 0	35. 40. 0	
	Seara	3. 50. 0	38. 28. 0	
	St. Anna	2. 18. 0	43. 43. 0	
	St. Louis de Maranham	2. 29. 0	44. 5. 0	
Guayana.	River Para, entrance	0. 20. 0	48. 20. 0	
	Para, Fort	1. 28. 0	48. 39. 45	
	River Amazon, ent.	1. 25. 0 N	50. 5. 0	6. 0
	Cape North, entrance	1. 51. 0	50. 15. 0	
	River Cassipour	3. 54. 0	51. 10. 0	5. 0
	Cape Orange	4. 8. 0	51. 20. 0	
	Riv. Oyapok, St Louis	3. 57. 0	51. 40. 0	
	Cayenne	4. 56. 15	52. 14. 45	3. 40
	River Moroni, Port	5. 44. 0	53. 55. 30	
	Surinam, Brams pt.	5. 52. 0	55. 15. 30	
	Paramaribo	5. 43. 35	55. 15. 0	
	River Berbice, ent.	6. 29. 0	37. 11. 0	
	Fort Nassau	5. 54. 0	57. 15. 0	
	R. Demorari, Corrobano point	6. 48. 0	58. 1. 37	
	River Essequebo, ent.	7. 0. 0	58. 11. 0	
	Cape Nassau	7. 34. 0	58. 54. 0	
	Cape Barma	8. 40. 0	60. 14. 0	
	River Oronoko, ent.	8. 46. 0	60. 18. 0	
Is. adj. to Columbia.	Testigos Islands	11. 23. 15	63. 10. 30	
	Blanca, North point	11. 55. 13	64. 32. 30	
	Margarita Isle, Galera point	11. 6. 30	64. 4. 30	
	Do., Cape Isla	11. 10. 0	63. 58. 12	
	Do., Cape Robledar	11. 2. 24	64. 28. 43	
	Tortuga, East point	10. 54. 45	65. 16. 30	
	Ditto, centre	10. 59. 0	65. 34. 13	
	Orchilla, East end	11. 49. 45	66. 9. 15	
	Roca, N. E. point	11. 58. 30	66. 42. 20	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Islands.	Aves, East point	11. 57. 30 N	67. 30. 30 W	
	Bonair, North point	12. 19. 15	68. 30. 0	
	Curaçoa, N. point	12. 24. 0	69. 16. 20	
	Ditto, Amsterdam Harbour	12. 6. 15	69. 0. 45	
	Oruba, N. W. point	12. 38. 0	70. 10. 0	
	Ditto, S. E. point	12. 25. 0	69. 59. 0	
Columbia.	Cape Three Points	10. 45. 15	62. 45. 50	
	Cumana	10. 27. 37	64. 9. 45	
	New Barcelona	10. 6. 52	64. 44. 30	
	Cape Coadera	10. 35. 54	66. 11. 30	
	Guayra	10. 36. 19	67. 6. 45	
	Caracas	10. 30. 50	67. 4. 45	
	Porto Cabello, Castle	10. 29. 30	68. 4. 45	
	Cape Roman	12. 11. 0	70. 8. 30	
	Maracaybo	10. 39. 0	71. 44. 0	
	Monks Islands	12. 30. 0	70. 58. 0	
	Cape de la Vela	12. 11. 0	72. 15. 35	
	Santa Martha	11. 19. 34	74. 8. 30	
	Carthagena	10. 25. 18	75. 29. 45	
	Gulf of Darien, ent.	8. 33. 0	77. 0. 0	
	Porto Bello	9. 34. 30	79. 43. 0	
	Blewfield's Riv., ent.	11. 58. 0	82. 55. 0	
	Great Corn Isle, N. end	12. 13. 0	82. 10. 0	
	Little Corn Isle	12. 18. 0	82. 6. 0	
	St. Andrew's Isle	12. 31. 0	80. 59. 0	
	Cape Graciosa Dios	14. 56. 30	82. 45. 0	
	Black River, ent.	15. 58. 0	84. 58. 0	
	Cape Cameron	16. 0. 0	85. 12. 30	
	Cape Delgado	15. 59. 0	86. 10. 0	
	Truxillo	15. 51. 0	86. 7. 0	
Bay of Honduras.	Swan Islands	17. 22. 0	83. 56. 0	
	Bonacio I., N. E. pt.	16. 31. 0	85. 47. 0	
	Rattan Isle, E. point	16. 26. 0	86. 20. 0	
	Utilo, East point	16. 3. 0	87. 2. 0	
	Glover's Reef, N. pt.	16. 49. 0	87. 36. 0	
	Ditto, South point	16. 28. 0	87. 52. 0	
	Northern Triangles, N. point	19. 1. 0	87. 43. 0	
	Ditto, South point	18. 29. 0	87. 42. 0	
	Cozumel Isle, S. pt	20. 1. 0	87. 2. 0	
	Punta Brava	21. 0. 0	86. 44. 0	
	Mugeres Isle, Centre	21. 15. 0	86. 39. 0	
	Cape Catouche	21. 31. 30	86. 57. 0	
	Point Palmar	20. 58. 0	90. 18. 0	
	Campeche	19. 50. 45	90. 30. 30	
	Vera Cruz	19. 11. 52	96. 8. 45	
	Mexico	19. 25. 45	99. 5. 15	
West Florida.	Triangle Isle, E. isle	21. 2. 0	92. 5. 0	
	Cape Roxa	21. 35. 0	97. 18. 0	
	River Bravo, ent.	25. 55. 0	97. 25. 0	
	St. Louis I., E. end	29. 10. 0	96. 5. 0	
	River Missisippi, ent.	28. 57. 0	89. 13. 0	
	New Orleans	29. 57. 45	90. 11. 0	
	Mobile Point	30. 10. 0	88. 0. 0	
	Pensacola	30. 24. 0	87. 11. 30	
	Cape St. Blas	29. 41. 0	86. 2. 0	
East Florida.	Bay of Apalache	30. 0. 0	84. 45. 0	
	Spiritu Santo Harb.	27. 38. 0	83. 20. 0	
	Carlos Bay	26. 29. 0	82. 33. 0	
	Point Larga	25. 38. 0	82. 3. 0	
	Dry Tortugas	24. 31. 0	83. 10. 0	
	Cape Sable	25. 2. 0	81. 15. 0	
	Cape Florida	25. 41. 30	80. 5. 0	7. 3

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LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water
WEST INDIA ISLANDS.			
	° ′ ″	° ′ ″	h m
Bermuda.			
Bermudas, St. George's Town	32. 22. 0 N	64. 30. 0 W	7. 49
Ditto, Wreck Hill	32. 15. 0	64. 47. 0	
Ditto, S.W. Reef ..	32. 9. 0	64. 57. 0	
Do., Northern Rock	32. 33. 30	64. 37. 0	
Little Bahama Bank.			
Matanilla Reef, N. end	27. 34. 0	79. 9. 0	
Memory Rock	26. 55. 0	79. 2. 0	
Great Bahama W. end	26. 43. 30	78. 56. 0	
Ditto, E. end.....	26. 28. 0	77. 50. 0	
Hole in the Rock ..	25. 25. 0	77. 7. 30	
North-East Point ..	26. 17. 0	76. 56. 0	
Abaco Isle, N.E. pt.	26. 29. 52	77. 3. 28	
Ditto, Rocky point	26. 17. 20	77. 5. 55	
Ditto, South point	25. 50. 20	77. 20. 5	
Elbow Key, S. point	26. 35. 0	76. 55. 0	
Seal Key.....	27. 1. 0	78. 16. 0	
Great Bahama Bank.			
Berry Is., Frozen Key	25. 35. 30	77. 42. 0	7. 30
Stirrup Key, NW. pt.	25. 49. 0	77. 55. 0	
Salt Key Bank, N. W. point ..	24. 0. 0	80. 20. 15	
Ditto, Salt Key	23. 41. 0	80. 13. 0	
Anguilla, S. E. point	23. 29. 0	79. 22. 0	
Great Isaac Rock ..	26. 2. 15	79. 8. 45	
Little Isaac Rock..	25. 57. 0	78. 50. 50	
Bemini Isles, W. side	25. 36. 0	79. 17. 0	
Ginger, or Dutch Key	22. 47. 0	77. 58. 0	
Lobos Key.....	22. 24. 50	77. 36. 30	
Diamond Point....	22. 10. 0	77. 12. 0	
Orange Key	24. 54. 0	79. 7. 0	
Beak's Key	25. 23. 0	79. 11. 0	
New Providence, Nassau Lt.house	25. 5. 18	77. 19. 0	7. 30
Ditto, West end ..	25. 0. 0	77. 37. 0	
Ditto, East end....	25. 1. 0	77. 13. 0	
Egg Island.....	25. 31. 5	76. 52. 45	
Harbour Isle, N. pt.	25. 30. 0	76. 37. 0	
Eluthera Isle, Powel's point..	24. 37. 0	76. 9. 0	
Exuma Isle, NW. pt.	23. 39. 0	75. 45. 0	
Yuma, or Long I., N. W. point ..	23. 32. 0	75. 37. 0	
Ditto, S. E. point ..	22. 52. 0	74. 50. 0	
Key Verde	22. 2. 0	75. 2. 0	
Lucayo Islands.			
Leeward Stocking I.	23. 52. 0	75. 50. 0	
Cat Island, N. point	24. 37. 0	75. 36. 0	
Ditto, South point	23. 57. 0	75. 17. 0	
Little Island	24. 26. 0	75. 50. 0	
Walling's I., N.E. pt.	24. 8. 0	74. 19. 0	
Ditto, S. W. point..	23. 56. 30	74. 30. 0	
Rum Island	23. 39. 0	74. 45. 0	
Atwood's Key, W. pt.	23. 9. 10	73. 47. 40	
Ditto, East point ..	23. 10. 0	73. 37. 0	
Crooked I., W. point	22. 48. 0	74. 17. 15	
Ditto, East point ..	22. 43. 0	73. 48. 0	
Acklin's Key, Castle Island ..	22. 7. 30	74. 17. 0	
Long Key, S. W. pt.	22. 28. 0	74. 18. 0	
Mira por vos Keys..	22. 8. 0	74. 33. 40	
Flat Keys, West end	22. 42. 30	73. 33. 0	

Names of Places.	Latitude.	Longitude.	high water
	° ′ ″	° ′ ″	h m
Passage Island.			
Mogane I., N.W. pt.	22. 30. 40 N	73. 8. 0 W	
Do., S. W. point ..	22. 21. 40	73. 11. 0	
Do., East Reef	22. 20. 0	72. 43. 30	
Hogsties, E. most Isle	21. 38. 50	73. 56. 4	
Little Heneaga, E. pt.	21. 27. 0	72. 56. 0	
Ditto, West point ..	21. 27. 0	73. 6. 0	
Gt. Heneaga, NE. pt.	21. 19. 0	73. 2. 0	
Ditto, N. W. point	21. 9. 0	73. 40. 30	
Ditto, S. W. point..	20. 54. 0	73. 38. 30	
Caycos Island.			
Great Caycos, S. pt.	21. 34. 0	71. 27. 0	
Shoal off Cape Comet	21. 47. 15	71. 20. 0	
Booby Rocks off North Caycos..	21. 57. 30	72. 4. 45	
Providence Caycos N. W. point ..	21. 50. 0	72. 21. 30	
Little Caycos, SW. pt.	21. 36. 15	72. 26. 0	
Sandy Key.....	21. 18. 40	72. 2. 40	
South Keys	21. 1. 0	71. 30. 15	
Cuba Island.			
Turks I., N. point, Grand Key....	21. 31. 0	71. 4. 0	
Ditto, Salt Key	21. 21. 0	71. 7. 0	
Ditto, Sand Key ..	21. 11. 0	71. 10. 30	
Do., Endymion's Rocks	21. 6. 0	71. 15. 0	
Square Handkerchief, N E. end	21. 23. 0	70. 24. 0	
Ditto, N. W. end ..	21. 23. 0	70. 32. 0	
Ditto, S. W. end ..	20. 53. 0	70. 55. 40	
Silver Keys, S.E. end	20. 13. 50	69. 27. 45	
Ditto, N. E. end ..	20. 31. 0	69. 26. 0	
Ditto, West End ..	20. 30. 0	69. 59. 0	
Cape Maize	20. 13. 40	74. 1. 15	
Point Mulas	21. 11. 30	75. 38. 0	
Cayo Romano	21. 53. 0	77. 36. 45	
Point Paridon	22. 28. 0	78. 4. 0	
Cruz del Padrac ..	23. 14. 0	80. 56. 30	
Point Ycacos	23. 9. 0	81. 10. 0	
Matanza Peak	23. 1. 39	81. 45. 2	
Havannah, Ft. Morro	23. 9. 27	88. 22. 53	
Honda Bay	22. 59. 0	83. 7. 0	
Cape Antonio	21. 54. 0	84. 56. 15	
Cape Corrientes ..	21. 44. 30	84. 28. 37	
Isle of Pines, SW. end	21. 32. 0	82. 59. 0	
Ditto, Hills	21. 35. 0	82. 37. 0	
Cape Cruz	19. 48. 0	77. 35. 0	
St. Jago de Cuba ..	19. 57. 20	76. 4. 30	
Cumberland Harb.	19. 53. 30	75. 10. 20	
Jamaica Island.			
Morant Keys, NE. Key	17. 26. 30	75. 54. 0	
Ditto, S. W. Key ..	17. 24. 0	75. 56. 0	
Morant Pt., Jamaica	17. 58. 0	76. 8. 0	
North-East Pt., do.	18. 13. 0	76. 16. 0	
Port Antonio	18. 15. 0	76. 23. 0	
Galina Point	18. 29. 0	76. 54. 0	
St. Ann's	18. 31. 0	77. 16. 0	
Martha Brae	18. 32. 0	77. 44. 0	
Montego Bay.....	18. 30. 0	77. 54. 0	
North Negril	18. 24. 0	78. 30. 0	
South Negril	18. 16. 0	78. 32. 0	
John's Point	18. 12. 0	78. 23. 0	
Savannah le Mer ..	18. 13. 0	78. 15. 0	
Portland Point	17. 43. 0	77. 2. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
	Port Royal, Jamaica	17.58. 0 N	76.52.30W	
	Kingston, ditto	18. 0.30	76.45. 0	
	Portland Rock	17.14. 0	77.10. 0	
Caymans.	Caymanbrack, W.pt.	19.39. 0	79.48. 0	
	Little Cayman	19.36. 0	80. 5. 0	
	Grand Cayman, S.W. point	19.12. 0	81.26. 0	
	Ditto, N.E. point ..	19.18. 0	81. 0. 0	
	Swan Islands.....	17.22. 0	83.56. 0	
	Pedro Shoals, Rattlesnake ..	17.24. 0	78.56. 0	
	Ditto, Keys	17. 1. 0	77.38. 0	
	Ditto, Sola Isle	17. 8. 0	77.20. 0	
	Formigas Shoal, N.E. point	18.35. 0	75.38. 0	
	Ditto, S.E. point ..	18.29. 0	75.40. 0	
	Ditto, S.W. point..	18.28. 0	75.48. 0	
	Navassa Island	18.22.19	75. 7.45	
St. Domingo, or Hispaniola.	C. St. Nicholas, Mole	19.49.20	73.29.33	
	Point St. Mark	19. 2.18	72.48.19	
	Gonave I., N.E. pt.	18.49.10	73. 0.52	
	Ditto, West point..	18.57. 0	73.17. 0	
	Port au prince, Fort Ilet.....	18.33.42	72.27.11	
	Petit Goave	18.27. 0	72.51. 0	
	The Caymites	18.40. 0	73.42. 0	
	Fort Jeremy	18.40. 0	74.13.22	
	Cape Donna Maria	18.37.20	74.26. 0	
	Cape Tiberon	18.19.25	74.34. 0	
	Point Abacou	18. 1.30	73.46. 0	
	Fort St. Louis	18.14.30	73.31.30	
	Altavella Rock	17.30. 0	71.20. 0	
	Cape Beata	17.43. 0	71.20. 0	
	St. Domingo, or Hayti	18.30. 0	69.49. 0	
	St. Catharine's Isle	18.19. 0	69. 1. 0	
	Cape Enganno	18.34.42	68.24.37	
	Cape Raphael	19. 2. 0	68.53. 0	
	Cape Samana	19.18. 0	68.59. 0	
	Cape Cabron	19.21. 0	69.13. 0	
	Old Cape Français	19.40.30	70. 1.15	
	Point Isabella	19.58.43	71.16.35	
	La Grange Point ..	19.54.35	71.48.51	
	Rock off Ditto	20. 0.30	71.40.25	
	Port Dauphin	19.38.30	71.53. 0	
	Cape Français, Town	19.46.20	72.17.55	
	Tortudas, E. point	20. 0.55	72.35.55	
	Ditto, West point..	20. 5.20	72.54.56	
Porto Rico.	La Mona Isle	18. 6. 0	67.50. 0	
	La Monica Isle	18. 9. 0	67.51. 0	
	Zachee Isle	18.23.48	67.34. 1	
	Porto Rico, Point Bruquin.....	18.31.18	67.12.18	
	Ditto, St. Juan	18.29.10	66.13.15	
	Ditto, Cape St. Juan	18.23. 0	65.32.15	
	Ditto, Point Carrelas	17.57. 0	65.56. 0	
	Ditto, Los Morillos	17.58.30	67.11. 0	
Virgin Is.	St. Thomas' I., Harb.	18.20.30	65. 3. 6	
	Tortola Bay	18.23.30	64.39. 0	
	St. John's, E. Cape	18.20.30	64.47. 9	
	Bird's Key.....	18.13. 0	64.55. 0	
	Virgin Gorda, E. Cape	18.31. 7	64.25.24	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Carribee Leeward Islands.	Anegada, N.W. pt.	18.46. 0 N	64.26. 0W	
	Ditto, S.E. point ..	18.44. 0	64.17. 0	
	Santa Cruz, the Port	17.44. 8	64.48.29	
	Sombrera	18.38. 0	63.25. 0	
	Anguilla, N.E. point	18.16. 0	63. 2.30	
	Ditto, S.W. point ..	18.11. 0	63.16. 0	
	St. Martin, NW. pt.	18. 4.26	63.14.27	
	St. Bartholomew ..	17.56.45	62.50.15	
	Saba, Ladder point	17.39.30	63.18.15	
	Aves, or Birds Is. ..	15.30.18	63.38. 2	
	St. Eustatius, Town	17.29.30	63. 4.30	
	St. Christ., Basseterre	17.19.30	62.49.15	
	Nevis, South point	17. 5.12	62.33.21	
	Barbuda	17.38. 0	61.50. 0	
	Antigua, St. John..	17. 9.30	61.54.15	
	Do., English Harbour	17. 3. 0	61.50. 0	
	Redondo	17. 1. 0	62.19. 0	
	Montserrat, NE. pt.	16.47.35	62.13.25	
	Guadaloupe, Ft. Louis	16.15. 0	61.35. 0	
	Do., Chateau point	16.13. 0	61.14. 0	
	Do., Old Fort point	15.56. 0	61.46. 0	
	Do., Basseterre....	15.59.30	61.48.15	
	Do, English Head	16.23. 0	61.51. 0	
	Deseada I., N.E. pt.	16.20. 0	61.50. 0	
	Saints I., NW. part of West Isle ..	15.51.25	61.41.25	
	Marigalante, S. pt.	15.51. 0	61.19. 0	
	Dominica, Prince Rupert's Bay..	15.35.30	61.33. 0	
	Ditto, Rosseau	15.18.23	61.28. 0	
	Ditto, Scot's Head	15.12. 0	61.26. 0	
Carribee Windward Islands.	Martinique, Ft. Royal	14.35.49	61. 5.45	
	Do., Port St. Pierre	14.44. 0	61.17. 0	
	Do., Moucaba point	14.54. 0	61.21. 0	
	Do., Cape Salines ..	14.23. 0	60.58. 0	
	Do., Diamond Rock	14.25. 0	61. 3. 0	
	St. Luci, Careenage	13.57. 0	61. 7. 0	
	Ditto, Point Piton..	13.42. 0	61.13. 0	
	Do., Moulacique pt.	13.35. 0	61. 2. 0	
	St. Vincent, Kingston	13.11. 0	61.16. 0	
	Barbadoes, N. point	13.19. 0	59.44. 0	
	Ditto, Bridge Town	13. 5.30	59.43.15	
	Ditto, South point..	13. 2. 0	59.36. 0	
	Granadillos, Beconia Isle	13. 1. 0	61.16. 0	
	Ditto, Curiacou Isle	12.30. 0	61.31. 0	
	Grenada, Fort Royal	12. 2.54	61.48. 0	
	Ditto, N. E. point..	12.13. 0	61.30.45	
	Ditto, Port Salines	11.58. 0	61.52. 0	
	Tobago, Man of War Bay	11.22. 0	60.32. 0	
	Ditto, S.W. end....	11. 8. 0	60.53. 0	
	Trinidad, Grand Boca	10.42. 0	61.52. 0	
	Do. Chagaramus Bay	10.41. 0	61.43. 0	
	Ditto, Spanish Town	10.39.15	61.34.15	
	Ditto, Icaque point	10. 4. 0	61.58. 0	
	Ditto, Point Galote	10. 9. 0	61. 0. 0	
	Ditto, Point Galera	10.50. 0	60.56. 0	

East Coast of America, from Cape Florida to Davis' Straits and Baffin's Bay.

		° ′ ″	° ′ ″	h m
E. Florida.	Cape Florida	25.41.30 N	80. 5. 0W	7.30
	Great Inlet.....	25. 0. 0	80.27. 0	
	Grenville's Inlet ..	26.47. 0	80. 1. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Georgia.	Hillsborough Inlet	27. 14. 0 N	80. 12. 0 W	
	Cape Canaveral....	28. 16. 0	80. 24. 0	
	Do. Outermost Shoals	28. 16. 0	80. 6. 0	
	St. Augustine	29. 48. 0	81. 18. 0	7.30
	St. John's River, ent.	30. 18. 0	81. 30. 0	
	Amelia I., N. end	30. 40. 0	81. 35. 0	
	St. Simon's Sound	31. 2. 0	81. 28. 0	
	Darien	31. 19. 0	81. 30. 0	
	St. Catherine's Sound	31. 40. 0	81. 9. 0	
S. Carolina.	Sunbury.....	31. 45. 0	81. 12. 0	
	Savannah Lt. house	32. 0. 45	80. 55. 45	11. 15
	Port Royal	32. 12. 0	80. 31. 0	
	Charleston	32. 50. 0	79. 50. 0	
	Ditto, Lighthouse..	32. 43. 30	79. 46. 0	7. 0
	Cape Roman	33. 3. 0	79. 11. 0	
	George Town Light	33. 14. 0	78. 56. 0	6. 40
	Brunswick	34. 3. 0	78. 13. 0	
	Cape Fear Light ..	33. 51. 15	78. 17. 0	
	Outermost Shoal ..	33. 36. 0	77. 54. 0	
N. Carolina.	Wilmington	34. 12. 0	78. 8. 0	11. 0
	New River Inlet ..	34. 23. 0	77. 40. 0	
	Beaufort's entrance	34. 40. 0	76. 47. 0	
	Cape Look-out	34. 34. 0	76. 38. 0	10. 30
	Do., Shoals, SE. part	34. 22. 0	76. 33. 0	
	Beaufort	34. 42. 0	76. 47. 0	
	Newbern	35. 5. 0	77. 15. 0	
	Occacoke Inlet	34. 3. 0	76. 2. 0	
	Cape Hatteras	35. 14. 30	75. 34. 27	9. 0
	Do., Shoals, SE. part	34. 54. 0	75. 22. 0	
Virginia.	Roanoke Inlet	35. 51. 0	75. 56. 0	
	Cape Henry, Light	36. 57. 0	75. 47. 0	7. 0
	Cape Charles.....	37. 12. 30	75. 45. 30	7. 0
	Williamsburg	37. 15. 50	76. 54. 15	
	Richmond	38. 6. 0	77. 8. 0	
Maryland.	Annapolis	39. 0. 0	76. 45. 0	
	Baltimore	39. 22. 0	76. 50. 0	
	Washington	38. 55. 0	76. 58. 45	
	False Cape	33. 27. 0	75. 6. 0	
Delaware.	Cape James, or Henlopen	38. 46. 0	75. 6. 30	9. 0
New Jersey.	Lewis Town	38. 47. 27	75. 9. 48	
	New-castle	39. 39. 0	75. 32. 0	
	Philadelphia	39. 56. 55	75. 11. 30	2. 0
	Cape May	38. 56. 46	74. 53. 6	8. 40
	Great Egg Harbour	39. 18. 0	74. 32. 0	
	Little Egg Harbour	39. 30. 0	74. 22. 0	
	Sandy Hook Lt. house	40. 25. 0	74. 13. 0	7. 30
	Perth Amboy.....	40. 30. 0	74. 33. 0	
	New York, Battery	40. 42. 6	73. 59. 0	8. 54
Connect.	Montuc Point	41. 1. 1	71. 58. 0	
	New Haven	41. 17. 7	72. 59. 10	
	Connecticut River	41. 16. 0	72. 25. 0	
	New London Light	41. 21. 8	72. 9. 30	
Rhode Island.	Block Island.....	41. 10. 0	71. 39. 0	7. 37
	Point Judith	41. 24. 0	71. 30. 0	
	Providence	41. 50. 40	71. 19. 45	
	Rhode Island, Light	41. 27. 0	71. 24. 0	7. 37
	Newport.....	41. 30. 0	71. 19. 0	
	Buzzard's Bay, ent.	41. 28. 0	70. 57. 0	
	New Bedford.....	41. 39. 0	70. 55. 0	7. 37
	Falmouth	41. 33. 0	70. 35. 0	
	Noman's Land	41. 15. 0	70. 46. 0	
	Martha's Vineyard, E. point	41. 21. 0	70. 24. 0	
	Squibnocket Head	41. 17. 0	70. 44. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″ °	° ′ ″	h m
Massachusets.	Gay Head	41. 21. 0 N	70. 48. 0 W	
	Nantucket Shoal, S. end	40. 53. 0	69. 36. 0	
	Nantucket I., Light	41. 23. 0	70. 1. 0	
	Do., Tom Never's Head	41. 14. 0	69. 57. 0	
	St. George's Bank, Middle	41. 45. 0	68. 34. 0	
	Sandy Point	41. 34. 0	69. 55. 0	
	Cape Cod Lighthouse	42. 3. 0	70. 6. 0	11. 30
	Plymouth	41. 59. 0	70. 45. 0	11. 30
	Boston, Town	42. 24. 0	71. 3. 0	11. 30
	Ditto, Lighthouse..	42. 21. 0	70. 53. 0	
	New Cambridge ..	42. 23. 0	71. 4. 0	
	Salem	42. 34. 0	70. 53. 0	11. 30
	Baker's I., Light..	42. 32. 0	70. 50. 0	
	Cape Ann, Thatcher's Light	42. 40. 0	70. 38. 0	11. 30
New Hampshire.	Ipswich	42. 43. 0	70. 55. 0	
	Newbury Port, Light	42. 48. 0	70. 51. 0	11. 15
	Isle of Shoals	42. 57. 0	70. 38. 0	
	Portsmouth, Town	43. 5. 0	70. 46. 0	11. 15
	Ditto, Lighthouse	43. 4. 0	70. 44. 0	11. 15
	Boon Island	43. 7. 0	70. 27. 0	
	York River	43. 7. 0	70. 37. 0	
	Cape Neddock Nubble	43. 11. 0	70. 35. 0	
	Cape Porpoise	43. 21. 0	70. 25. 0	
	Biddeford	43. 23. 0	70. 30. 0	
	Cashes Bank, Middle	43. 4. 0	69. 15. 0	
	Casco Bay, Cape Elizabeth	43. 33. 0	70. 12. 0	10. 45
	Ditto, Yarmouth ..	43. 46. 0	70. 12. 0	
	Do., Portland Light	43. 39. 0	70. 15. 0	10. 45
	Ditto, Casco	43. 43. 0	70. 13. 0	
	Brunswick.....	43. 52. 0	70. 0. 0	
	Kennebeck River, entrance.....	43. 43. 0	69. 47. 0	10. 45
	Seguin Island	43. 41. 0	69. 46. 0	
	Bantum Ledge	43. 42. 0	69. 38. 0	
	Townsend Bay, ent	43. 49. 0	69. 39. 0	
	Pennaquid Point ..	43. 48. 0	69. 30. 0	
	Manheigen Island..	43. 44. 0	69. 16. 0	
	Ball Rock	43. 48. 0	68. 50. 0	
	Metinicus Island ..	43. 53. 0	68. 51. 0	
	Penobscot	44. 24. 0	68. 45. 0	10. 45
	Holt Island	44. 0. 0	68. 30. 0	
	Long Island, Bluehill Bay	44. 6. 0	68. 17. 0	
Coast of Main.	Mount Desert Rock	43. 52. 0	68. 10. 0	
	Gouldsboro' Harb.	44. 25. 0	68. 1. 0	11. 0
	Pleasant Bay.....	44. 27. 0	67. 48. 0	
	Machios Bay, Crossl.	44. 40. 0	67. 24. 0	
	Western Seal Island	44. 37. 0	66. 54. 0	
	Manan Island, S. pt.	44. 43. 0	67. 0. 0	
	Wolf Islands	45. 3. 0	66. 50. 0	
	Campo Bello I., N. end	45. 2. 30	67. 1. 0	
	St. Croix River, ent	45. 7. 0	67. 8. 0	
	Macgone Island ..	45. 18. 0	66. 4. 0	
	Cape Spencer	45. 16. 0	65. 52. 0	
	Cape Chignecto....	45. 24. 0	64. 49. 0	
	Haute Island.....	45. 19. 0	64. 52. 0	
	Annapolis Royal ..	44. 45. 30	65. 46. 30	10. 0
	Briers Island	44. 19. 0	66. 25. 0	
	Cape St. Mary	44. 12. 0	66. 13. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Nova Scotia.	Cape Fourchin	43. 51. 30 N	66. 10. 30 W	
	Gannet Rock.....	43. 40. 40	66. 9. 45	
	Seal Isles, S. point	43. 25. 25	66. 0. 35	8. 45
	Cape Sable.....	43. 23. 45	65. 29. 45	8. 0
	Cape Negro Island	43. 33. 0	65. 18. 0	
	PortRoseway, Light	43. 39. 0	65. 13. 0	
	Port Mansfield	43. 50. 0	64. 52. 0	
	Gambier Harbour..	44. 0. 0	64. 41. 0	
	Liverpool	44. 5. 0	64. 40. 0	
	Port Jackson.....	44. 10. 0	64. 28. 0	
	Sambro Head, Light	44 30. 0	63. 33. 0	8. 0
	Halifax Harbour ..	44. 44. 0	63. 35. 45	7. 30
	PortStephens.....	45. 0. 0	61. 58. 0	
	Sandwich Harbour	45. 8. 0	61. 36. 0	9. 0
	Torbay	45. 12. 0	61. 16. 0	
	Port Howe.....	45. 14. 0	61. 3. 0	
	Cape CansoHarbour	45. 20. 7	60. 54. 45	8. 30
	Sable Island, E. pt.	44. 4. 0	60. 0. 0	
	Ditto, West point ..	44. 4. 0	60. 30. 0	
Cape Breton Island.	Cape Hinchinbroke	45. 34. 0	60. 36. 0	
	St. Esprit	45. 37. 0	60. 27. 0	
	Cape Portland	45. 48. 0	60. 3. 0	
	Louisbourg	45. 53. 40	59. 54. 45	7. 15
	Scatery Island	46. 1. 0	59. 38. 0	
	Flint Island	46. 9. 0	59. 43. 0	
	Spanish Bay	46. 13. 0	60. 8. 0	
	Port Dauphin	46. 21. 0	60. 30. 0	
	Cape North	47. 6. 0	60. 28. 0	
	Cheticum Harbour	46. 42. 0	60. 58. 0	
	Sea Wolf.....	46. 27. 0	61. 12. 0	
	Port Hood	46. 2. 0	61. 33. 0	
Prince Edward's Isle.	Cape North	47. 7. 0	63. 44. 0	
	West point.....	46. 37. 0	64. 10. 0	
	Cape Egmont	46. 28. 0	63. 50. 0	
	Hillsborough Bay..	46. 6. 0	62. 56. 0	
	Charlotte Town....	46. 14. 0	62. 56. 0	
	Port Joy	46. 11. 0	62. 57. 0	
	Cape Bear	46. 3. 0	62. 13. 0	
	George Town	46. 14. 0	62. 20. 0	
	East point	46. 27. 0	61. 46. 0	
	Richmond Bay	46. 38. 0	63. 27. 0	
New Brunswick.	Gut of Canso, N.ent.	45. 44. 0	61. 31. 0	
	Cape St. George ..	45. 52. 0	62. 0. 0	
	Pictou Island	45. 51. 0	62. 30. 0	
	Cape Tormentine ..	46. 9. 0	63. 36. 0	
	Richibucto Harbour	46. 44. 0	64. 36. 0	
	Escuminac Point ..	47. 3. 0	64. 33. 0	
	MiscouI.ChaleurBay	48. 4. 0	64. 14. 0	
	Cape Despair.....	48. 27. 0	63. 57. 0	
	Bonaventure Isle ..	48. 33. 0	63. 48. 0	
	Flat Point	48. 38. 0	63. 48. 0	
	Cape Gaspé	48. 47. 0	63. 50. 0	
	Magdalen River....	49. 13. 0	64. 43. 0	
	St. Ann's River	49. 8. 0	66. 8. 0	
	Cape Chat	49. 9. 0	66. 20. 0	
	Mount Camille	48. 37. 0	67. 20. 0	
	Bic Island	48. 30. 0	68. 26. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Gulf of St. Laurence.	Anticosta Isle, E.pt.	49. 9. 0 N	61. 52. 0 W	
	Ditto, South point..	49. 6. 0	62. 19. 0	
	Ditto, S. W. point	49. 22. 0	63. 30. 0	
	Do., Jupiter's Inlet	49. 26. 0	63. 31. 0	
	Ditto, West point..	49. 50. 0	64. 20. 0	3. 30
	Ditto, North point	49. 52. 0	64. 0. 0	
	MagdalenIs.,N.E.pt.	47. 41. 0	61. 5. 0	
	Amherst I., S.W. pt.	47. 15. 0	61. 48. 0	
	Entry Island	47. 17. 0	61. 25. 0	
	Deadman's Island	47. 17. 0	61. 58. 0	
	Biron Island	47. 52. 0	61. 12. 0	
	Bird's Islands	47. 55. 0	60. 46. 0	
	St. Paul's Island ..	47. 11. 30	60. 2. 0	
Newfoundland.	Cape Ray	47. 37. 0	59. 13. 0	
	Cape Anguille	47. 55. 0	59. 22. 0	
	Cape St. George....	48. 28. 0	59. 15. 0	
	South Head	49. 6. 0	58. 28. 0	
	Cape St. Gregory ..	49. 20. 0	58. 20. 0	
	Bon Bay.....	49. 36. 0	58. 5. 0	
	Ingornehoix	50. 37. 17	57. 15. 15	
	Point Riche	50. 40. 10	57. 23. 0	
	St. John's Bay	50. 50. 0	57. 18. 0	
	Point Ferrolle	51. 2. 0	57. 11. 0	
	Seal Islands	51. 20. 0	56. 50. 0	
	Cape Norman	51. 38. 23	56. 0. 0	
	Belle Isle	51. 57. 0	55. 30. 0	
	Cape Degrat	51. 40. 0	55. 30. 0	
	St. Lunaire Bay ..	51. 28. 57	55. 29. 45	
	Cape St. Anthony..	51. 20. 0	55. 36. 0	
	Hare Bay, entrance	51. 17. 0	55. 45. 0	
	Croque Harbour ..	51. 3. 0	55. 53. 0	6. 30
	Groais Isle, N. end	51. 0. 0	55. 42. 0	
	Green Island	50. 47. 0	55. 35. 0	
	Horse Islands	50. 21. 0	56. 51. 0	
	Cape Partridge	50. 16. 0	56. 12. 0	
	Cape St. John	50. 10. 0	55. 38. 0	
	Newbay Head	49. 57. 0	55. 26. 0	
	Twilingate Islands	50. 3. 0	54. 40. 0	
	Fago Island	50. 0. 0	53. 54. 0	
	Woodham Islands..	49. 55. 0	53. 30. 0	
	Cape Freels	49. 34. 0	53. 0. 0	
	Cape Bonavista	48. 42. 5	52. 56. 0	
	Point Grates	48. 22. 0	52. 32. 0	
	Cape St. Francis..	47. 57. 0	52. 30. 0	
	St. John's Fort ..	47. 33. 45	52. 39. 45	6. 0
	Bull Bay.....	47. 21. 0	52. 29. 0	
	Cape Broyle	47. 8. 0	52. 35. 0	
	Ranin Rocks.....	46. 57. 0	52. 42. 0	
	Cape Ballard	46. 49. 0	52. 56. 0	
	Cape Race	46. 40. 0	53. 3. 15	
	Cape Race Rocks ..	46. 30. 0	51. 30. 0	
	Trepasse Bay.....	46. 43. 0	53. 16. 0	
	Cape Pine	46. 44. 0	53. 30. 0	
	Cape St. Mary	46. 52. 0	54. 7. 0	
	Point Bream	46. 59. 0	54. 12. 0	
	Virgin Rocks.....	47. 9. 0	54. 5. 0	
	Red Island, S. point	47. 24. 0	54. 8. 0	
	Mortier Harbour ..	47. 10. 0	55. 3. 0	
	Mortier Rocks	47. 0. 0	54. 58. 0	

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LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Canada.	Chapeau Rouge....	46. 53. 0 N	55. 22. 0 W	
	Point May	46. 55. 0	56. 2. 0	
	St. Peter's Isle, Town	46. 46. 30	56. 10. 0	
	Langley Island ...	46. 52. 0	56. 21. 0	
	Great Miquelon....	47. 10. 0	56. 23. 0	
	Burnt Island	47. 16. 0	56. 0. 0	
	Fortune Head	47. 9. 0	55. 52. 0	
	Penguin Islands ..	47. 24. 0	57. 3. 0	
	Ramea Islands	47. 32. 0	57. 24. 0	
	Burgeos Islands ..	47. 35. 30	57. 36. 0	
	Connor Bay	47. 38. 0	57. 59. 0	
	Quebec	46. 47. 30	71. 9. 45	7. 30
	Coudras Isle, N.W. point	47. 15. 33	70. 18. 57	
	St. Paul's Bay	47. 16. 0	70. 24. 0	
	Bay of Rocks	48. 0. 0	69. 42. 0	
	Green Island, Light	48. 5. 0	69. 18. 0	
	Point Mille Vache	48. 45. 0	68. 38. 0	
	Manicougan Point	49. 12. 0	67. 42. 0	
	Cape Montpelles ..	49. 27. 0	66. 51. 0	
	Seven Islands Bay	50. 10. 0	66. 0. 0	
	Mingan Island ..	50. 16. 0	63. 46. 0	
	St. John's River ..	50. 20. 0	63. 57. 0	
Esquimaux.	Esquimaux Islands	50. 18. 0	63. 15. 0	
	St. Charles' Island	50. 19. 0	62. 56. 0	
	Hunting Island....	50. 21. 0	62. 46. 0	
	St. Genevieve Island	50. 22. 0	62. 42. 0	
	Mount Joli.....	50. 5. 0	61. 27. 0	
	Little Mecatina....	50. 28. 0	59. 30. 0	
	Great Mecatina....	50. 45. 0	59. 6. 0	
Labrador.	St. Augustin's Bay	51. 13. 0	58. 47. 0	
	Esquimaux Bay ..	51. 25. 0	57. 30. 0	
	Belle Isle	51. 57. 0	55. 30. 0	
	Cape Charles.....	52. 15. 0	55. 30. 0	
	Cape St. Michael ..	52. 45. 0	55. 40. 0	
	Wolf Island	53. 42. 0	55. 36. 0	
	Sandwich Bay, ent.	53. 48. 0	56. 42. 0	
	Byron's Bay, Cape Webuck	54. 55. 0	57. 40. 0	
	Davis' Inlet, ent.	55. 48. 0	60. 12. 0	
	Port Manvers.....	57. 1. 30	61. 49. 0	
	Cape Chidley.....	60. 14. 0	65. 20. 0	
Hudson's Straits.	Button's Island....	60. 35. 0	65. 19. 45	6. 50
	Cape Resolution ..	61. 29. 0	65. 10. 0	7. 0
	Saddleback Island	62. 7. 0	68. 13. 0	
	Upper Savage Island	62. 32. 30	70. 48. 0	
	North Bluff	62. 34. 0	70. 56. 0	
	Cape Charles.....	62. 46. 30	74. 15. 0	10. 0
	Cape Dorset	64. 50. 0	77. 12. 0	
	Cape Pembroke .	62. 57. 0	82. 36. 0	12. 0
	Cape Walsingham	62. 39. 0	77. 48. 0	12. 0
	Cape Digges	62. 41. 0	78. 50. 0	12. 0
	Salisbury Islands ..	63. 29. 0	76. 47. 0	11. 0
	Mansfield Isle, North point ..	62. 38. 30	80. 33. 0	
	Ditto, South point..	61. 35. 0	81. 0. 0	
	Cape Southampton	62. 10. 0	86. 3. 0	
	North Sleepers	61. 38. 0	79. 45. 0	
	West Sleepers	60. 8. 0	81. 36. 0	
	Portland Point	59. 0. 0	78. 30. 0	
	Baker's Dozen	58. 5. 0	79. 30. 0	
	Belchers, N. point	56. 20. 0	80. 15. 0	

	Names of Places.	Latitude.	Longitude.	high water
		° ′ ″	° ′ ″	h m
Hudson's Bay.	James Bay, Cape Henrietta	55. 10. 0 N	82. 30. 0 W	
	Ditto, Cape Jones..	54. 50. 0	78. 54. 0	
	Ditto, Bear Island..	54. 34. 0	81. 24. 0	12. 0
	Ditto, North Cubb	54. 20. 0	80. 48. 0	
	Ditto, the Twins ..	53. 12. 0	80. 35. 0	
	Ditto, Albany Fort	52. 14. 40	81. 59. 58	
	Ditto, Moose Fort	51. 15. 54	80. 56. 24	
	Do., East Main House	52. 15. 0	78. 44. 30	
	Ditto, Charlton I.	52. 3. 0	79. 55. 0	
	York Fort	57. 1. 48	92. 34. 45	9. 10
Davis's Strait.	Cape Churchill	58. 48. 0	93. 12. 0	7. 20
	Prince of Wales' Fort	58. 47. 32	94. 13. 55	7. 20
	Marble Island	62. 33. 0	91. 6. 0	
	Cape Dobbes	65. 0. 0	86. 42. 0	
	Cape Walsingham	66. 4. 0	60. 51. 0	
	Cape Aston	70. 10. 0	65. 25. 0	
	Lancaster Sound, Cape Byam Martin	73. 32. 0	77. 13. 0	
	Do., Cape Charlotte	74. 32. 0	79. 30. 0	
	Cape Clarence	76. 45. 0	77. 47. 0	
	Wostenholme Island	76. 24. 0	70. 22. 0	
Baffin's Bay.	Cape Dudley Digges	76. 5. 0	68. 54. 0	
	Waygat Island	70. 26. 17	54. 51. 49	
	Disco Island	69. 10. 0	54. 40. 0	
	Ditto, Leifle	69. 14. 30	54. 42. 0	
	Do., a Rock dry at low Water	69. 10. 0	54. 57. 0	

The Coasts of Greenland, Iceland and Spitzbergen, with the adjacent Islands.

		° ′ ″	° ′ ″	h m
Greenland.	Cape York.....	75. 56. 0 N	66. 39. 0 W	
	Muskitto Cove	64. 55. 13	52. 56. 45	10. 15
	Gotnan, River Bal	64. 9. 55	51. 49. 45	
	Bear Sound	62. 47. 0	50. 45. 0	
	Cape Farewell	59. 45. 0	47. 50. 0	
	Bontokoe Island ..	73. 15. 0	7. 5. 0	
	Gael Hawke's Bay	75. 0. 0	6. 51. 0	
	John Mayen's Island	71. 8. 20	7. 25. 48	
	Cape Discord.....	60. 27. 0	43. 20. 0	
	Cape Reikaness....	63. 55. 0	22. 47. 30	
	Bessested	64. 6. 0	21. 53. 45	
	Mount Snœssell ..	64. 52. 20	23. 54. 0	
	Patrixford	65. 35. 45	24. 9. 38	
	Straumness	65. 39. 40	24. 29. 15	
	North Cape	66. 34. 0	22. 10. 0	
	Hola	65. 44. 0	19. 43. 45	
Iceland.	Grim's Island.....	66. 57. 0	19. 12. 0	
	Rikefiord	66. 30. 0	17. 35. 0	
	Longnose	66. 25. 0	16. 19. 0	
	Wreeland Isle	63. 55. 0	18. 19. 0	
	Portland Isle	63. 22. 0	18. 53. 45	
	Cape Hecla	63. 22. 0	19. 54. 0	
	Westman's Island..	63. 20. 30	20. 27. 45	
Spitzbergen.	South Cape.....	76. 32. 0	13. 45. 0 E	
	Fair Foreland	78. 53. 0	8. 45. 0	
	Amsterdam Island Hackluyt's Head	79. 46. 0	9. 49. 0	1. 30
	Smerenburg Harb.	79. 44. 0	9. 50. 45	
	Verleegen Hook ..	80. 7. 0	16. 50. 0	
	Hope Island	76. 30. 0	20. 28. 0	
	Bear, or Cherry Is.	74. 30. 0	19. 5. 0	

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A concise Alphabetical Reference to the principal Coasts and Islands contained in the preceding Table of Latitudes and Longitudes; very useful in finding out particular places.

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FORM OF A TRANSIT TABLE.

SINCE the method of determining the latitude by the meridional altitudes of the fixed stars and planets is now become generally prevalent in most sea-going ships, and since it is essentially necessary, and conducive to the accuracy of the result, to be duly apprized of the mean times of transit; the navigator should, therefore, have a small book made, containing all the stars that will transit, or pass over the meridian of his ship during night:—this book might be called a Transit Table (or any other appropriate epithet), and should be kept in the binnacle, or some other convenient place, where all concerned could have easy and constant access to it: the book should be ruled, and the columns filled agreeably to the following form:—

Names, or characters of the Stars.	Declination.	Days of the Month.—suppose January 1824.—								
		1	2	3	4	5	6	7	8	9
		Mean Time of Transit.								
	° ′ ″	h m s	h m s	h m s	h m s	h m s	h m s	h m s	h m s	h m s
β Cassiopeiæ ..	58.10.47 N	5.15.13	5.10.48	5. 6.23	5. 1.59	4.57.34	4.53.11	4.48.52	4.44.29	4.40. 7
Algenib.....	14.12.21 N	5.19.14	5.14.49	5.10.24	5. 6. 0	5. 1.35	4.57.12	4.52.53	4.48.30	4.44. 8
β Hydri	78.15. 7 S	5.30.32	5.26. 7	5.21.42	5.17.18	5.12.53	5. 8.30	5. 4.11	4.59.48	4.55.26
α Phœnicis....	43.15.12 S	5.32.35	5.28.10	5.23.45	5.19.21	5.14.56	5.10.33	5. 6.14	5. 1.51	4.57.29
δ Andromedæ .	29.53. 0 N	5.45. 8	5.40.43	5.36.18	5.31.54	5.27.29	5.23. 6	5.18.47	5.14.24	5.10. 2
Schedir	55.34.15 N	5.45.32	5.41. 7	5.36.42	5.32.18	5.27.53	5.23.30	5.19.11	5.14.48	5.10.26
Deneb Kaitos	18.57.17 S	5.50. 6	5.45.41	5.41.16	5.36.52	5.32.27	5.28. 4	5.23.45	5.19.22	5.15. 0
γ Cassiopeiæ ..	59.45.43 N	6. 1.14	5.56.49	5.52.24	5.48. 0	5.43.35	5.39.12	5.34.53	5.30.30	5.26. 8
Alruccabah..	88.22.12 N	6.12.54	6. 8.29	6. 4. 4	5.59.40	5.55.15	5.50.52	5.46.33	5.42.10	5.37.48
Mirach	34.41.14 N	6.15. 8	6.10.43	6. 6.18	6. 1.54	5.57.29	5.53. 6	5.48.47	5.44.24	5.40. 2
δ Cassiopeiæ ..	59.19. 2 N	6.29.17	6.24.52	6.20.27	6.16. 3	6.11.38	6. 7.15	6. 2.56	5.58.33	5.54.11
Achernar ...	58.15.24 S	6.45.56	6.41.31	6.37. 6	6.32.42	6.28.17	6.23.54	6.19.35	6.15.12	6.10.50
ε Cassiopeiæ ..	62.47.59 N	6.56.19	6.51.54	6.47.29	6.43. 5	6.38.40	6.34.17	6.29.58	6.25.35	6.21.13
Baten Kaitos	11.12.18 S	6.57.53	6.53.28	6.49. 3	6.44.39	6.40.14	6.35.51	6.31.32	6.27. 9	6.22.47
And so on to the Star α *Lupi*, which passes the Meridian on the 1st of the given Month, at 19h. 42m. 41s.										
Saturn.....	14.46. 0 N	8.16. 0	8.12. 0	8. 7. 0	8. 3. 0	7.58. 0	7.54. 0	7.49. 0	7.45. 0	7.40. 0
Jupiter	23.17. 0 N	11.38. 0	11.33. 0	11.28. 0	11.23. 0	11.18. 0	11.13. 0	11. 8. 0	11. 3. 0	10.58. 0
Mars	0.51. 0 N	17.31. 0	17.28. 0	17.25. 0	17.22. 0	17.19. 0	17.16. 0	17.12. 0	17. 9. 0	17. 6. 0

By extending the above Transit Table to the star α *Lupi* it will be seen that 137 fixed stars, exclusive of the three planets, will pass the meridian on the 1st night of the given month; by all of which the latitude may be very accurately determined, provided the night be sufficiently clear for observing their meridional altitudes.

Note.—The mean times of transit in the first column are to be computed by the following rule; viz:

From the right ascension of the star (increased by 24 hours if necessary), subtract that of the mean sun at noon of the given day, and the remainder will be the approximate time of transit; to which if the longitude, in time, be applied by addition in west, or subtraction in east, and the sum, or difference will be the Greenwich time.

With the Greenwich time, thus found, enter Table XLVI., and find the corresponding minutes and seconds; which being added to the approximate time of transit if the Greenwich time precedes the noon of the given day, or subtracted therefrom if it be past that noon, the sum, or difference, will be the correct mean time of transit.

The transits in the 1st column, being thus carefully determined, may be reduced to several subsequent nights by continually subtracting therefrom the daily increase or variation of the mean sun's right ascension.

Remark.—All the stars whose declinations are greater than the latitude, and of the same name, will never set, or go below the horizon, in that latitude: those are called circumpolar stars, and will always pass the meridian below the Pole in 12 hours, diminished by half the daily variation of the mean sun's right ascension, after the times of transit found as above. (See Problem VIII., page 348.)

The least altitude of a circumpolar star indicates its being on the meridian below the Pole, which altitude will be expressed by the difference between the star's polar distance and the latitude of the place of observation.

The Author has invented a *Universal Stellarium*, which answers the purpose of a general Transit Table; it shows the correct mean times that the fixed stars will transit, or come to the meridian, in all parts of the world, without the trouble of calculation.

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MISCELLANEOUS NUMBERS, WITH THEIR CORRESPONDING LOGARITHMS, WHICH MAY BE FOUND USEFUL ON VARIOUS OCCASIONS.

	d. h. m. s.				
'ropical year = . . .	365. 5. 48. 48	equal to 31556928″	Log. = 7.499095	Arith.Comp.	= 2.500905
idereal year = . . .	365. 6. 9. 11½	= 31558151½	do. = 7.499112	do.	. 2.500888
unar year = . . .	354. 8. 48. 36	= 30617316	do. = 7.485967	do.	. 2.514033
ynodical Lunation =	29. 12. 44. 3	= 2551443	do. = 6.406786	do.	. 3.593214
sriodical Lunation =	27. 7. 43. 5	= 2360585	do. = 6.373020	do.	. 3.626980
evolutions of the Earth in a solar year		= 365.24222	do. = 2.562581	do.	. 7.437419
evolutions of the Earth in a sidereal year		= 366.25642	do. = 2.563785	do.	. 7.436215
mean solar day =	24h. 3m. 56s.5554	= 86636s.5554	do. = 4.937701	do.	. 5.062299
sidereal day =	23. 56. 4.0906	= 86164s.0906	do. = 4.935326	do.	. 5.064674
natural day =	24 hours	= 86400	do. = 4.936514	do.	. 5.063486
ne half ditto, or . .	12 hours	= 43200	do. = 4.635484	do.	. 5.364516
ne fourth ditto, or . .	6 hours	= 21600	do. = 4.334655	do.	. 5.665345
ne eighth ditto, or . .	3 hours	= 10800	do. = 4.033424	do.	. 5.966576
ne twenty-fourth ditto, or 1 hour		= 3600	do. = 3.556303	do.	. 6.443697
rc equal to the radius, in deg. min. &c.		= 57°.17′.44″.48‴.	Log. sine = 9.925039	do.	. 0.074961
rc equal to the radius, in deg. and dec.		= 57°.2957795	Logarithm = 1.758123	do.	. 8.241877
rc equal to the radius, in min. and dec.		= 3437′.74677	do. = 3.536274	do.	. 6.463726
rc equal to the radius, in sec. and dec.		= 206264″.8062	do. = 5.314425	do.	. 4.685575
rcum. of a circle to diam. unity, or 1 =		3.14159265	do. = 0.497150	do.	. 9.502850
rea of a circle to radius unity, or 1 =		3.14159265	do. = 0.497150	do.	. 9.502850
rface of a sphere to diam. unity, or 1 =		3.14159265	do. = 0.497150	do.	. 9.502850
rea of a circle to diameter unity, or 1 =		0. 7853982	do. = 9.895090	do.	. 0.104910
ngth of the arc of a circle of 1 deg. =		0. 0174533	do. = 8.241878	do.	. 1.758122
lid content of a sphere to diam.unity,or1 =		0. 5235988	do. = 9.718999	do.	. 0.281001
lid content of a sphere to rad. unity, or 1 =		4. 1887902	do. = 0.622089	do.	. 9.377911
rth's circumference, in English miles =		24873	do. = 4.395728	do.	. 5.604272
rth's diameter in ditto = ...		7917.5	do. = 3.898588	do.	. 6.101412
rth's semidiameter in ditto = . . .		3958.75	do. = 3.597558	do.	. 6.402442
rth's diameter in English feet = . .		41804400	do. = 7.621222	do.	. 2.378778
rth's semidiameter in ditto = . .		20902200	do. = 7.320192	do.	. 2.679808
rth's diameter in nautical feet = . .		48138400	do. = 7.682492	do.	. 2.317508
rth's semidiameter in ditto = . . .		24069200	do. = 7.381462	do.	. 2.618538
mber of feet in a nautical mile = . .		6080	do. = 3.783904	do.	. 6.216096
mber of feet in an English mile = . .		5280	do. = 3.722634	do.	. 6.277366
mber of inches in an English mile = .		63360	do. = 4.801815	do.	. 5.198185

Table showing the true time at which the hour and minute hands of a well-regulated watch, or clock, should be in conjunction, and, also, in opposition, in every revolution.

Number of Conjunctions.	Time of Conjunction.				Number of Oppositions.	Time of Opposition.			
	Hours.	Minutes.	Seconds.	Decimals.		Hours.	Minutes.	Seconds.	Decimals.
1	1	5	27	273	1	1	38	10	909
2	2	10	54	545	2	2	43	38	182
3	3	16	21	818	3	3	49	5	455
4	4	21	49	091	4	4	54	32	727
5	5	27	16	364	5	6	0	0	000
6	6	32	43	636	6	7	5	27	273
7	7	38	10	909	7	8	10	54	545
8	8	43	38	182	8	9	16	21	818
9	9	49	5	455	9	10	21	49	091
10	10	54	32	727	10	11	27	16	364
11	12	0	0	0	11	12	32	43	636

Note.—The above Table was computed in the following manner, viz:—While the hour hand goes once und the dial-plate, the minute hand goes round it twelve times; hence the minute hand gains 11 com- ete rounds, over the hour hand, in every 12 hours: Therefore, as 11 hours, are to 12 hours; so is the xt less hour to the true time of conjunction.—And, as 11 hours, are to 12 hours; so is the next less ur and its half, to the true time of the hands being in opposition.—Thus:—

To find the time that the hour and minute hands of a well-regulated watch, or clock, will be in con- nction, and also in opposition, between the hours of 1 and 2 o'clock.

As 11 hours : 12 hours :: 1 hour : $1^h.5^m.27^s.273$, which, therefore, is the true time of the hands ing in conjunction.

And:

As 11 hours : 12 hours :: 1½ hour : $1^h.38^m.10^s.909$, which, therefore, is the true time of the hands ing in opposition: and so on for the other conjunctions and oppositions.

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CAPTAIN WILLIAM FITZWILLIAM OWEN'S

TABLE OF LATITUDES AND LONGITUDES.

The following Table is an accurate copy of the several series of Latitudes and Longitudes established, astronomically and chronometrically, by William Fitzwilliam Owen, Esq., Captain of his Majesty's ship Eden (late of the Leven), during his extensive survey of the coasts of Africa, Arabia, Madagascar, Brazil, &c. &c., between the years 1820 and 1826, inclusive: of which series Captain Owen has kindly allowed the publication in this work; and from that officer's general experience as a navigator, a practical astronomer, and an hydrographer, it is presumed that every degree of confidence may be placed in the positions of the places contained in this Table; particularly in such positions as have been determined under his own immediate observation, which have the Leven, or the Leven and Barraconta in the column of authorities.

Remark.—The Table in question has been *corrected* agreeably to the "Errata for the Tables of Latitudes and Longitudes compiled by Captain W. F. W. Owen, R.N."; which "Errata" the author of this Work had the honour of receiving from the Hydrographical Office, at the Admiralty, in the year 1829.

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No. 1. COAST OF PORTUGAL.

Names of Places.	Points.	Lat. North.	Long. West.	In Time	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Caminha	.....	41.52.7	8.44.5	0.34.58				Major Franzini—
Vianna	Castle of San Thiago	41.42.6	8.43.2	0.34.53				Portuguese Engineers
Espozende	.....	41.31.4	8.40.0	0.34.40				do.
Villa do Conde	.....	41.21.3	8.35.6	0.34.22				do.
Porto	St. J. of Foz, Castle of	41.08.9	8.37.0	0.34.28				do.
Ornellas	Peak of Carragozo	40.50.0	8.21.3	0.33.24				do.
Aveiro	New Bar	40.38.6	8.42.8	0.34.51				do.
———	City	40.38.4	8.37.6	0.34.30				do.
Caramulo	Mount. Sig. Trigon.	40.32.3	8.12.3	0.32.49				do.
Bussaco	Mount. Sig. Trigon.	40.22.0	8.21.0	0.33.24				do.
Estrella	Mount. Sig. Trigon.	40.19.5	7.38.4	0.30.34				do.
Coimbra	University Observa.	40.12.5	8.24.4	0.33.38				do.
Mondego	Cape	40.11.9	8.53.8	0.35.35				do.
Nazareth	Church	39.36.6	9.04.7	0.36.19				do.
Burlings, Gt. Farilhão	Centre	39.29.3	9.33.0	0.38.12				do.
——— Island	Look-out H., Turret	39.25.0	9.30.7	0.38.01				do.
Carvoeiro	Cape Light House	39.21.8	9.24.6	0.37.38				do.
Monte Junto	Mount. Sig. Trigon.	39.10.1	9.03.1	0.36.12				do.
Ericeira	.....	38.57.4	9.24.8	0.37.39				do.
Mafra	Church	38.55.9	9.20.0	0.37.20				do.
Roca	Cape Light House	38.46.5	9.30.1	0.38.00				do.
Lisbon	Observatory	38.42.7	9.08.2	0.36.33	22.7			do,
———	Arsenal	38.42.3	9.08.9	0.36.36				Leven in 1819 & 1822
Espichel	Cape Light House	38.24.9	9.13.1	0.36.52				Franzini
Sines	Castle	37.57.5	8.52.4	0.35.30				do.
Monchique	Mountain, Notch in	37.20.0	8.35.4	0.34.22				do.
St. Vincent	Cape Convent	37.02.9	8.59.3	0.35.57				do.
Piety	Point	37.06.2	8.39.4	0.34.38				do.
St. Mary	Cape	36.55.6	7.49.2	0.31.17				do.
Faro	St. Antonio of the hill	36.59.4	7.50.5	0.31.22				do.
Monte Figo	.....	37.09.7	7.42.2	0.30.49				do.
Cadiz	.....	36.32.0	6.17.3	0.25.09				

No. 2. ISLANDS IN THE ATLANTIC OCEAN.

Azores or Western Is.		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Formigas	Large Rock	37.16.8	25.54.3	1.43.37				These Longitudes
St. Mary	Town	36.58.0	25.12.6	1.40.50				are taken from Mr.
———	S. E. Point	36.56.8	25.06.0	1.40.24				Purdy's, which have
———	S. W. Point	36.57.5	25.14.3	1.40.57				been proved by His
*St. Michael	West Point	37.54.2	25.55.5	1.43.42	25.0			Majesty's Ship Leven
*———	Ponte Delgado, City	37.45.2	25.41.5	1.42.46				in 1820.
———	East Point	37.48.2	25.10.3	1.40.41				
*Terceira	Angra, Mte. do Brazil	38.38.6	27.12.8	1.48.51				
St. George	S. E. Point	38.29.4	27.50.7	1.51.23				
Pico	Peak Summit	38.26.2	28.28.2	1.53.53				
Fayal	SE. Pt. Look-out Hill	38.30.2	28.41.9	1.54.48				
Flores	North Point	39.33.5	31.08.5	2.04.34	18.5			
Corvo	South Point	39.41.2	31.03.0	2.04.12				
Madeira Islands.								
*Madeira	Funchall Loo Rock.	32.37.7	16.55.5	1.07.42	21.0			Leven in 1820.
———	Pte. del Parge, W. Pt.	32.49.0	17.15.9	1.09.03				do.
———	East Point	32.43.9	16.38.2	1.06.33				do.
———	Brazen-head, SE. ext	32.37.3	16.51.7	1.07.27				do.
*Porto Santo	Governor's House	33.02.9	16.18.8	1.05.15	23.5	12.3	0.9	do.
Desertas	North I., No. Extr.	32.36.5	16.33.0	1.06.12				do.
———	South I., So. Extr.	32.28.5	16.31.3	1.06.05				do.
Salvages	Piton, Eastern Rock	30.03.5	16.02.5	1.04.10				do.
*———	Large Islot	30.07.9	15.54.6	1.03.38				do.
Canary Islands.								
*Teneriffe	San Cruz, Mole Head	28.27.9	16.15.0	1.05.00	20.0			do.

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No. 2. ISLANDS IN THE ATLANTIC OCEAN.

Names of Places.	Points.	Lat. North.	Long. West.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Teneriffe	Peak	28.16.4	16.39.0	1.06.36				Leven in 1820.
———	Orotava, N.W. Point	28.25.0	16.34.0	1.06.16				Other authorities.
———	Oratova Port	28.25.2	16.30.5	1.06.02				M. Malvesy.
Allegranza	East Point	29.25.5	13.31.2	0.54.05				Leven in 1822.
Lancerota	East Rock	28.48.0	13.17.7	0.53.11				do.
Palma	North Point	28.52.5	17.56.5	1.11.46				Other Authorities.
———	East Town	28.43.0	17.45.0	1.11.00				do.
———	West Town	28.38.0	17.57.0	1.11.48				do.
Gomera Island	Port	28.05.7	17.07.0	1.08.28				do.
Fuerta Ventura	S. W. Point	28.04.0	14.28.8	0.57.55				Leven in 1822.
Canaria Island	N. E. Point Islot	28.13.0	15.24.0	1.01.36				Other Authorities.
———	West Point	28.01.3	15.50.0	1.03.20				do.
———	South Point	27.45.0	15.37.5	1.02.30	20.0			do.
Ferro	Town	27.47.3	17.56.0	1.11.44				do.
———	West Point	27.44.0	18.09.0	1.12.36				do.
Cape de Verd Islands.								
St. Antonio	North Point	17.12.0	25.05.0	1.40.20				Leven, 1820 to 1822.
———	East Point	17.05.5	24.59.5	1.39.58				do.
———	West Point	17.03.5	25.23.0	1.41.32				do.
*———	Tarafal Bay, Station	16.56.8	25.21.7	1.41.27	14.0			do.
———	South Point	16.55.0	25.18.8	1.41.15				do.
*St. Vincent	P. Grande Custom H.	16.53.6	25.00.1	1.40.00				do.
St. Lucia	North Point	16.48.9	24.47.5	1.39.10				do.
———	East Point	16.45.7	24.41.7	1.38.47				do.
Branca	Centre	16.40.0	24.41.0	1.38.44				do.
*Raza	Station	16.38.0	24.36.8	1.38.27				do.
St. Nicholas	North Point	16.42.0	24.20.6	1.37.23	14.0			do.
———	West Point	16.38.0	24.26.7	1.37.47				do.
———	Monte Gordo	16.37.8	24.20.5	1.37.22				do.
———	East Point	16.34.5	24.01.6	1.36.06				do.
———	South Point	16.28.5	24.19.7	1.37.19				do.
*Sal	Lion's H. Mordeira B	16.41.5	23.00.3	1.32.01	14.2			do.
———	North Point	16.51.3	22.55.5	1.31.42				do.
———	S. E. Point	16.34.5	22.56.7	1.31.47				do.
*Bonavista	Eng. Road, anchor.	16.07.0	22.54.7	1.31.39				do.
———	N. W. Point	16.13.3	22.56.4	1.31.46				do.
———	N. E. Point	16.11.0	22.43.2	1.30.53				do.
*———	Martinez' House	16.10.4	22.54.6	1.31.38				do.
———	South Point	15.57.0	22.49.4	1.31.18				do.
Leton Rocks	A wash Rock	15.48.0	23.09.4	1.32.37				do.
*Mayo	Eng. Road, anchor.	15.07.5	23.13.7	1.32.55				do.
———	North Point	15.19.0	23.11.5	1.32.46				do.
———	South Point	15.06.7	23.09.2	1.32.37				do.
St. Jago	North Point	15.19.5	23.46.9	1.35.08				do.
———	East Point	15.00.5	23.25.7	1.33.43				do.
———	S. W. Point	14.58.5	23.43.7	1.34.55				do.
*———	Porto Praya, Quail I.	14.53.9	23.31.2	1.34.05	15.0			do.
Fogo	North Point	15.01.2	24.21.7	1.37.27				do.
———	Peak	.....	24.20.4	1.37.22				do.
———	Luz Town anchorage	14.53.0	24.30.7	1.38.03				do.
Brava	Road	14.48.0	24.44.2	1.38.57				do.
Islands in the Gulf of Guinea.								
			East.					
Fernando Po	Cape Bullen, N. Extr.	3.47.25	8.39.4	0.34.38		4.15	6 to 8	Eden in 1827.
———	Pt. William Flag Sta.	3.45.6	8.45.0	0.35.00	22.30			do.
———	Ca. Horatio, N.E. Ex.	3.46.15	8.54.4	0.35.37				do.
———	Cape Vidal, E. Extr.	3.39.3	8.56.3	0.35.45				do.
———	Cape Barrow, S. Rock	3.11.5	8.40.0	0.34.40	24.00			do.
———	Cape Eden, S.W. Ext.	3.15.5	8.25.1	0.33.40				do.
———	Cape Badgley, W. Ex.	3.19.7	8.24.7	0.33.38				do.
———	Charles' Folly, N.W. Extreme	3.26.8	8.27.7	0.33.50	24.00			do.

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No. 2. ISLANDS IN THE ATLANTIC OCEAN.

Names of Places.	Points.	Lat. North.	Long. East.	In Time	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Fernando Po	Goat Island Centre	3.31.0	8.32.8	0.34.11	23.0	4.00	7	Eden in 1827.
———	Adelaide Islands ..	.....	8.33.8	.....				Esk in 1827 (Capt. Purchas).
Prince's Island	Fort St. Antonio ..	1.27.0	.....	.....				Admiralty Chart.
———	The Brothers	1.23.0	7.19.8	.....				Esk.
St. Thomas's Island	Man-of-War Bay..	0.27.0	6.44.7	0.26.59	23.0			Capt. Sabine in 1822.
———	Cabrita Island	0.27.0	6.39.8	.....				Esk.
———	.....	0.25.0	6.45.0	0.27. 0				Pheasant (Cap. Kelly)
———	Anna de Chaves anchorage....	0.20.5	6.46.0	0.27. 4				do.
———	Rolle Island	.....	6.36.5	0.26.26				N. Star, 1827 (Capt. Arabin).
		South.						
Annabona	East Point.....	.....	5.42.8	.....				Esk in 1827.
Prince's Island	Fort St. Antonio ..	1.27.0	.....	.....				Barracouta in 1826.
St. Thomas's Island	M.ofwarBay, ManH	0.27.0	6.44.7	0.26.59	23.0			Capt. Sabine in 1822
———	Roadstead	0.27.0	6.49.0	0.27.17				do.
Is. and Dangers in the Atlantic Ocean.		North.	West.					
Pennado de Sn. Pedro	.....	0.55.0	29.15.0	1.57.00	6.0			1802. Common auth.
		South.						
Fernando Noronha	Pyramid	3.55.3	32.16.5	2.09.06	0.0	4.00	6	Sir T. Brisbane, 1821.
Roccas	.....	3.52.5	33.07.0	2.12.28	0.0	4.00	6	Deduced from above.
Ascension Island ..	NW. Bay anchorage	7.54.0	14.26.0	0.57.46	13.0			Leven in 1826.
St. Helena	James Town.....	15.54.8	5.44.8	0.22.59	17.5			do.
Martin Vas.....	Largest Rock ...	20.29.4	28.54.3	1.55.37				Leven in 1822.
Trinidad	South Point	20.31.0	29.21.7	1.57.27	5.0			do.
Tristan d'Acunha ..	Waterfall	37.06.1	12.16.0	0.49.04	9.3		8	1813.—By Captain Heywood's meridian distances, applied to the Leven's Longitude of Rio Janeiro, from which Capt H. measured them
Inaccessible Island	Centre	37.17.0	12.33.0	0.50.12				
Nightingale Island	.....	37.26.0	12.21.0	0.49.24				
Gough's Island	.....	40.19.5	9.58.2	0.39.53				
C. Circumcision Is.	.....							

No. 3. COAST OF BRAZIL.

		° ′	° ′	h. m. s	In Deg. & 10ths	h. m.			
Monte Video	Cathedral	.....	56.20.6	3.45.22				Givry's Memoir.	
*Santa Cruz d' Anhatorinim	Flag Staff	27.25.6	48.41.5	3.14.46				Roussin's Mem. 1815	
*St. Catherine I...	North Point	27.22.6	48.28.3	3.13.53	7.5	2.30	6	do.	do.
Arvoredo Island ..	North Point	27.15.7	48.31.4	3.14.05				do.	Chart in.
Bombas	Point	27.08.5	48.36.9	3.14.27				do.	do.
Itapacoroya Point	Hill	26.47.2	48.45.4	3.15.01				do.	do.
Tamboretes Isles ..	Southern one.....	26.21.0	48.40.4	3.14.41				do.	do.
Garcia Isles	N.E. Island	26.06.5	48.37.6	3.14.30				do.	do.
Itacolomi	South Rock	25.50.2	48.34.6	3.14.18				do.	do.
Coral Island	.....	25.45.7	48.31.9	3.14.07				do.	do.
Dangerous Rock ..	.....	25.41.3	44.58.0	2.59.52				Roussin's Memoir.	
Paranagua Bay ..	I. do. Mel. South pt.	25.33.0	48.27.4	3.13.49				do.	Chart.
———	I. das Palmas.....	25.29.5	48.25.9	3.13.44				do.	do.
Figueira Rock	.....	25.22.0	48.11.4	3.12.46				do.	do.
Cananea Bay	I. do. bom Abrigo ..	25.07.0	47.59.4	3.11.58				do.	do.
*Cardos Mount ..	Summit	24.58.7	48.13.1	3.12.52				Roussin's Memoir	
*Cananea	Bar	25.03.0	48.01.4	3.12.06	7.0			do.	do.
Jurea.....	Point	24.33.0	47.19.9	3.09.20				do.	Chart.
*Queimada, Burnt I.	Largest	24.29.0	46.47.0	3.07.08	6.0			do.	Memoir.
———	Inner ditto	24.21.5	46.56.4	3.07.46				do.	Chart.
Gaurau Point	P. off it	24.24.0	47.08.4	3.08.34				do.	do.
Conception Village	Rock 7 m. E. by S. of it	24.12.9	46.47.0	3.07.08	6.0			do.	Memoir.
Santos	Lage or Rock	24.18.0	46.18.9	3.05.16				do.	Chart.
*——	Islot, Centre	24.04.4	46.13.2	3.04.53				do.	Memoir.
Alcatrazes	Barren R. Large. Islot	24.06.2	45.47.0	3.03.08				do.	do.

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No. 3. COAST OF BRAZIL.

Names of Places.	Points.	Lat. South.	Long. West.	In Time.	Variation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Porto Santo	Ilha Moela	24.02.0	46.23.4	3.05.34				Roussin's Chart.
* ———	Taypu Point	24.01.3	46.30.3	3.06.01				do. do.
St. Sebastian Island	S. E. Point	23.56.0	45.18.9	3.01.16				do. do.
* ———	Villa Nova Fort....	23.47.2	45.27.5	3.01.50	3.2	2.30		do. Memoir.
Monton de Trigo, S.	Summit	23.50.7	45.53.1	3.02.32				do. do.
Busios Islands	Eastern Id.....	23.44.2	45.07.4	3.00.30				do. Chart.
*Joatinga Point ..	Islot.....	23.18.8	44.35.5	2.58.22				do. Memoir.
Georgi Greco	Island	23.15.0	44.20.4	2.57.22				do. Chart.
Ilha Grande	Point Castelhanos..	23.12.0	44.17.4	2.57.10				do. do.
Marambaya	Laage Rock off do.	23.08.0	43.58.6	2.55.52				do. do.
Guaratiba Point ..	Islot off	23.05.0	43.42.4	2.54.50				do. Chart, 1819.
Rio Janeiro	Raza I. Light House	23.03.5	43.15.0	2.53.00	3.0			Leven in 1822.
———	GabiaMountSummit	22.59.0	43.23.0	2.53.32				do.
———	Sugar Loaf.....	22.56.1	43.14.9	2.53.00	2.0			do.
———	Vilganhon Isl. W. pt.	22.54.6	43.15.2	2.53.01	2.6	2.40	4	do.
Marécas Islands ..	Southern.....	23.01.0	43.01.0	2.52.04				Roussin's Chart.
Frio	Cape SE. Ex. or Rock	23.01.3	42.03.7	2.48.15	3.0			do. do.
Negro	Cape Extreme	22.58.0	42.46.1	2.51.04				do. do.
Ancoras Islands ..	Eastern Isl.	22.46.5	41.52.6	2.47.30				do. do.
St. Jean.....	Mount, Summit....	22.32.4	42.06.8	2.48.27				Roussin's Memoir.
St. Ann Isles	Largest	22.25.0	41.46.9	2.47.07				do. do.
St. Paul.....	Mount, Summit....	13.21.8	.....	.....				do. do.
Bahia, or StSalvador	St. Antonio Lt. House	13.00.8	38.31.8	2.34.07	2.0	4.15	7	do. do.
———	Sea Fort	12.58.3	38.31.1	2.34.04	2.0			do. do.
St. Augustine	Cape, Extreme	8.20.4	.....	.....	4.9			do. do.
Pernambuco.....	Picao Fort	8.03.6	34.50.5	2.19.22	4.8	7.15	6	do. do.
———	Olinda Town	8.06.0	.....	.....				do. do.
Ledo	Cape	6.53.0	34.43.2	2.18.53				Sir T. Brisbane, 1821
Roque	Cape	.....	.....	.....	East.			
Maranham	Consul's House	2.31.7 North.	44.18.5	2.57.14	2.0			Capt. Sabine in 1822.
Trinidad, W. Indies	Port Sp., Protest. Ch.	10.38.9	61.33.2	4.06.13	4.0			do. do.
Jamaica	Pt. Royal, Ft. Charles	17.56.1	76.53.0	5.07.32	4.9			do. do. *Note.*—This Longitude of Jamaica differs materially from Spanish Authorities, which place it in 76° 42′.
The limits of the Soundings of the Abrolhos.	N. Extreme	South. 17.50.0						From Baron Roussin's Memoir.
	S. Extreme.....	18.30.0						
	East Limit	.....	34.50.0	2.19.20				

No. 4. WESTERN COAST OF AFRICA.

		North. ° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Noon	Cape	28.41.0	11.15.3	0.45.01				Leven in 1820-21.
False Bojador	Cape	26.25.2	14.12.5	0.56.50				do.
Bojador.....	Cape	26.07.1	14.31.5	0.58.06				do.
Seven Capes.....	Cape, Centre one ..	24.41.2	15.00.5	1.00.02				do.
Angra dos Cabollos	.....	24.08.2	15.36.3	1.02.25				do.
Ouro River	Herne Island	23.51.7	15.44.8	1.02.59				do.
———	Peninsula forming the Mouth, S. Point	23.36.3	15.58.0	1.03.52				do.
Cintra	Bay of, North Point	23.07.0	16.09.2	1.04.37				do.
———	South Point	22.56.6	16.14.1	1.04.56				do.
Barbas	Cape, Extreme	22.19.5	16.39.2	1.06.39				do.
Pedra de Agall....	.....	22.12.4	16.47.8	1.07.11				do.
Corvoeiro	Cape	21.13.3	17.04.5	1.08.18				do.
*Blanco	Cape	20.50.0	17.06.6	1.08.26				do.
Mirik.....	Cape	19.25.0	16.34.0	1.06.16				Admiralty Chart.
Portandik	Anchorage	18.18.0	16.02.2	1.04. 8	18.8	7.30	11½	Esk, in 1826.
———	Near do., Two Palms	18.18.9	.....	.....				Roussin's Memoir.

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No. 4. WESTERN COAST OF AFRICA.

Names of Places.	Points.	Lat. North.	Long. West.	In Time.	Variation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Senegal River	Island St. Louis....	16.00.8	16.32.0	1.06.08				Roussin's Memoir.
———	Entrance, North Pt.	15.55.3	16.32.7	1.06.11				do. do.
Verd	Cape Extreme	14.44.5	17.32.0	1.10.08				do. do.
Goree	Town	14.39.8	17.25.1	1.09.40				Leven in 1821.
Portudal	Village.....	14.27.3	17.03.2	1.08.13				Leven in 1824.
Joal	Town	14.11.0	16.49.5	1.07.18				Leven in 1821.
Gambia River....	Bathurst T.Flag Staff	13.28.0	16.35.3	1.06.21	17.9	8.10	5.11	Do.1826, Lieut.Owen
———	Bird I. Flag Staff ..	13.39.2	16.40.5	1.06.42				do.
———	.....	13.40.0	16.44.2	.....				Esk.
———	St. Mary, Cape	13.30.2	16.41.4	1.06.46				Do.1826, Lieut.Owen
———	.....	13.29.0	16.45.2	.....				Esk.
———	James Fort	13.19.7	16.22.2	1.05.29				Do.1826, Lieut.Owen
———	Tankrowell	13.25.0	16.03.8	1.04.15				do.
———	Elephant I., W. pt. ..	13.26.5	15.20.6	1.01.22				do.
———	Yamamarroo Town	13.42.0	14.58.5	0.59.54				do.
———	M'Carthy's I., Ft. Geo.	13.33.0	14.45.5	0.59.02				do.
———	Pisaneeà	13.32.9	14.34.3	0.58.17				do.
San Pedro River ..	Entrance	13.10.0	16.45.5	1.07.02				do.
Souta —— River ..	Bird Island	12.43.5	16.45.0	1.07.00				Admiralty Chart.
Cassamas, or Casamanza River	Entrance	12.35.5	16.43.0	1.06.52				do.
Roxo	Cape	12.22.9	16.51.4	1.07.26				Leven in 1821.
Roussin's	Roxo Cape	12.20.5	16.45.8	1.07.03				Roussin's M., C. Roxo
Bissao	Portuguese Fort....	11.51.0	15.37.1	1.02.28	18.0	6.30	14	Leven in 1826.
Bijooga Islands ..	Papakawa Island ..	11.36.5	15.54.2	1.03.37				do.
———	Arcass Island Centre	11.41.2	15.39.0	1.02.36				do.
———	Rio Grande Bolola T	11.35.0	15.02.3	1.00.09				do.
———	Bulama I. Beav. Est.	11.34.7	15.30.4	1.02.02		4.30	15	do.
———	Bosses samé, or Tombelly N. Pt.	11.29.0	15.30.0	1.02.00				do.
———	S. W. Point	11.19.4	15.32.2	1.02.09				do.
———	Galina I, West Point	11.27.7	15.46.5	1.03.06				do.
———	N. E. Hog. I, E. Pt.	11.20.0	15.40.7	1.02.43				do.
———	Kanyabac I, S.W. Pt.	11.10.2	15.48.2	1.03.13	17.4			do.
———	Orango I., Cape Cameleon, S.E. Pt.	11.03.2	15.55.2	1.03.41				do.
———	West Point	11.06.0	16.15.0	1.05.00				do.
Rio Grande Shoals.	S.Break.off Orango I.	10.56.3	15.57.5	1.03.50				do.
———	West Breakers	11.31.5	16.52.0	1.07.28				Roussin's Chart.
———	South Breakers	10.42.3	16.18.2	1.05.13				do.
Pullam Island	Southern.....	10.51.7	15.45.1	1.03.00	18.8			Leven in 1826.
Alcatraz Island ..	Centre.....	10.37.2	15.26.5	1.01.46				do.
A Bank.....	Rocky, Centre	10.30.0	15.10.0	1.00.40	17.0			do.
Nunez River	Entrance, Sandy I. .	10.36.0	14.42.3	0.58.49	18.5			Adm. Chart uncert.
———	Debucka Town	10.57.0	14.21.8	0.57.27				Lieut. Austin.
Verga	Cape	10.18.9	14.23.5	0.57.34				Roussin's Memoir.
Pongas River	Entrance.....	10.07.0	13.58.5	0.55.54				Adm. Chart uncert.
Sangaree	Highest Peak.....	9.53.0	13.22.0	0.53.28				Leven in 1826.
*Isles de Los	Crawford I. Estab..	9.27.4	13.48.5	0.55.14	18.0	6.35	13	17ft. Equinoxes, Lev.
———	Tamara I. North Pt.	9.31.0	13.40.5	0.54.42				do. [1826
———	West Point.....	9.28.0	13.51.8	0.55.27				do.
———	South Point	9.26.5	13.51.0	0.55.24				Eden in 1827.
Matacong Island..	Centre.....	9.14.0	13.25.5	0.53.42				17ft. Equinoxes, Lev.
Parrot Island	Do.	8.55.2	13.17.5	0.53.10				do. [1826.
*Sierra Leone	Cape Extreme	8.30.0	13.18.0	0.53.12	18.8		11½	do.
*———	King Tom's Point ..	8.30.1	13.14.5	0.52.58				do.
———	Victualling Office ..	8.30.1	13.45.5	0.52.58	18.8	7.30	11½	Eden.
———	Cape	8.29.0	13.19.2	0.00.00				
*———	Free Town Citadel..	8.29.7	13.14.3	0.52.57				17ft. Equinoxes, Lev.
———	False Cape, Extreme	8.25.8	13.17.8	0.53.11				do. [1826.
Shilling.....	Cape	8.09.5	13.10.2	0.52.41	20.2			do.
*Banana Islands ..	Highest Peak.....	8.05.8	13.16.2	0.53.05	19.3			do.

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No. 4. WESTERN COAST OF AFRICA.

Names of Places.	Points.	Lat. North.	Long. West.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
*Banana Islands ..	West Point.....	8.05.0	13.15.2	0.53.01				17ft. Equinoxes, Lev.
Plantain Islands ..	Gillmorris	7.55.2	13.00.2	0.52.01				do. [1826.
——— ..	Bengal Rocks, West.	7.54.6	13.02.8	0.52.11				do.
Tasso.....	Point, Extreme	7.55.5	13.02.2	0.52.09				do.
*Turtle Islands ..	North Island, Centre	7.40.8	13.04.3	0.52.17	17.7	6.00	11	do.
St. Ann	Cape, Extreme	7.34.0	12.57.0	0.51.48				do.
———	Ditto	7.36.0	12.59.2	.....				Esk in 1827
———	Shoals from N.Extre.	7.56.0	.....	.....				Not yet sufficiently examined, nor true limits ascertained.
———	South Extreme	7.31.5	.....	.....				
———	West Limit.....	7.48.0	13.29.0	0.53.56				do.
*Sherboro' River..	York Island, Huts..	7.32.0	12.26.7	0.49.47		8.0	8	do.
*——— ..	Sea Bar, South Point	7.22.8	12.31.5	0.50.06				do.
*Boom Kittam River	Forks of	7.14.4	12.08.6	0.48.34				do.
Galinas River	Entrance	7.03.0	11.46.0	0.47. 4				Eden, 1827.
Mount	Cape	6.44.2	11.25.0	0.45.40				Admiralty Chart.
St. Paul's River ..	Entrance	6.22.0	10.36.5	.....				do.
Mesurado	Cape, Extreme	6.19.0	10.45.0	.....				do.
———	Cape, Extreme	6.18.0	10.51.2	.....				Esk.
Sinnoo Hill	E. Summit	5. 4.0	9.05.7	0.36.23				Eden.
Krov Rock	Centre.....	4.59.0	8.53.0	0.35.32				do.
Palmas	Cape Town.....	4.19.6	7.44.8	0.30.59				do.
———	Cape	4.23.0	7.46.2	.....				Esk.
———	Table Hill	4.25.5	7.45.8	0.31.03				Eden.
Lahou Cape	Town	5.12.0	4.36.0	.....				Admiralty Chart.
Axim (not the Fort)	I. near it.....	4.47.7	2.17.5	0.09.10				Eden.
Three Points	Centre Cape	4.44.0	2.04.3	0.08.17				do.
———	Ditto	4.45.0	2.04.2	.....				Esk.
Elmina Castle	Flag Staff	5.05.0	1.22.5	0.05.30				Eden.
Cape Coast Castle .	Flag Staff	5.06.0	1.13.0	0.04.52				do.
——— ———	Ditto	5.06.0	1.18.2	.....				Esk.
Moree	Ditto	5.07.5	1.09.0	0.04.36				Eden.
Anamaboo	Ditto	5.10.2	1.07.2	0.04.29				do.
Cormantine Fort..	Ditto	5.10.5	1.05.6	0.04.22				do.
Tantemquery	Ditto	5.13.5	0.46.8	0.03.07				do.
——— Point..	Extreme	5.12.5	.....	.....				do.
Devil's Hill	Summit	5.18.6	0.39.0	0.02.36				do.
Barrakoo	Point	5.29.0	0.24.0	0.01.36				do.
Accra	British Flag Staff ..	5.32.0	0.13.5	0.00.54				do.
———	Ditto	5.32.0	0.18.2	.....				Esk.
Ningo	Fort.....	5.45.0	0.01.8	.....				do.
			East.					
Volta River	Entrance.....	5.47.3	0.42.3	0.02.49				Pheasant.
St. Paul's	Cape	5.46.8	0.52.3	0.03.29	20.8			Eden.
———	Ditto	5.43.0	0.46.8	.....				Esk.
Quitta Fort	Flag Staff	5.54.6	0.54.3	0.03.37				Pheasant.
———	Anchorage	.....	1.00.0	4.00.00				
———	Ditto	5.55.0	0.55.8	.....				Esk.
Padiana.....	Town	5.57.7	0.57.3	0.03.49				Pheasant.
Little Popo	Anchorage	6.15.5	1.36.0	0.06.24				
Grand Popo	Ditto	6.19.0	1.46.0	0.07.04				
———	.....	6.16.0	1.43.8	.....				Esk.
Aguia	.....	6.16.0	1.35.8	.....				do.
Whyda, or Ajuda..	.....	6.19.5	2.05.0	0.08.20				
——— ..	.....	6.19.0	1.59.8	.....				Esk.
Appee	.....	6.22.0	2.22.0	0.09.28				
Porto Nova	Hill	6.25.0	2.34.0	0.10.16				
———	Ditto	6.20.0	2.30.8	....				Esk.
———	Anchorage	6.21.0	2.34.0	0.10.16				
Badagry	Mount.....	6.26.0	2.43.5	0.10.54				
———	Point	6.26.0	2.54.0	0.11.36				
———	.....	6.22.0	2.47.8	.....				Esk.

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No. 4. WESTERN COAST OF AFRICA.

Names of Places.	Points.	Lat. North.	Long. East.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Lagos River	Mouth	6.26.0	3.22.0	0.13.28	21.1			
Termination of the Sandy Beach		6.20.0	4.27.0	0.17.48				
Benin River	North Point	5.46.1	5.03.5	0.20.14	19.0	4.15	8	Barracouta.
———	Ditto	5.43.0	4.59.8	.....				Esk.
Rio dos Esclavos	N. W. Point	5.34.2	5.12.0	0.20.48				Barracouta.
———	Ditto	5.34.0	5.05.8	.....				Esk.
Rio Forca, or Warrée	S. W. Point	5.20.5	5.19.4	0.21.18				Barracouta.
Ramos River	Entrance	5.05.5	5.23.3	0.21.33				Barracouta in 1826.
Formosa	Cape	4.14.7	6.10.1	0.24.40				There is no distinct C.
———	Ditto	4.28.0	5.50.0	0.23.20				Barracouta.
———	.....	4.21.0	6.05.0	0.24.20				Pheasant.
———	.....	4.20.0	5.40.8	.....				Esk.
———	First River	4.21.0	5.53.8	.....				do.
———	Second River	4.19.0	5.59.8	.....				do.
———	Third River	4.19.0	6.09.8	.....				do.
Rio Sombrero	.....	4.22.0	6.49.8	.....				do.
New Calebar R.	Fouche Pt., W. Pt.	4.22.7	7.00.0	0.28.00		5.0	9	Barracouta.
	Fouche Point	4.22.0	6.56.8	.....				Esk.
Bonny River	Rough Cor., E. Pt.	4.23.7	7.07.0	0.28.28	20.7	5.0	9	Tide ff. in stream till 6 h.
	Rough Corner	4.26.0	7.03.8	.....				Esk.
Old Calebar R.	Tom Shots Pt., W. Pt.	4.35.0	8.18.6	0.33.14				Barracouta.
	East Head	4.30.0	8.27.8	.....				Esk.
Bimbia Island	.....	3.57.0	9.13.8	.....				do.
Rio del Rey	West Point	4.28.7	8.40.0	0.34.40				Barracouta.
Cameroon Mount.	Highest	4.13.5	9.09.5	0.36.38				do.
Cape Cameroon	.....	3.53.0	9.24.8	.....				Esk.
———	River, S. W. Point	3.49.2	9.32.4	0.38.10	19.3			Barracouta.
St. John Cape	Near Corisco Bay	1.09.7	9.18.7	0.37.15		5.0	7	do.
———	Ditto	1.10.0	9.16.8	.....				Esk.
Corisco Island	Cape Clara	0.30.5	9.17.5	0.37.10	19.0	5.0	17	Barracouta.
Gaboon River	Round Corner	0.18.0	9.11.8	.....				Esk.
		South.		.....				
Nazareth River	Fiteesh Town	0.37.2	8.57.8	0.35.51				Barracouta.
Lopez	Cape	0.36.2	8.40.4	0.34.42	19.8			do.
———	Ditto	0.36.0	8.34.8	.....				Esk.
Mayumba Bay	Matooti Point	3.22.7	10.35.0	0.42.20	21.4			Barracouta in 1826.
Loango River	Entrance	4.39.5	11.42.1	0.46.48	20.6			do.
Congo River	Shark Point	6.04.6	12.12.5	0.48.50	21.7			do.
Logostas	Cape Ext. Bluff	8.45.1	13.11.7	0.52.46	21.0			Lev. & Barracou. 1825
*Loando	Island, North Point	8.46.2	13.09.3	0.52.37	22.0	4.30	6	do.
*———	St. Paul de Loando	8.48.1	13.07.8	0.52.31				do.
	Town Flag Staff							
Palmarinhas	Cape, Extreme Point	9.07.2	12.56.8	0.51.47				
Coanza	River, Entrance	9.19.5	13.07.0	0.52.28				Anonymous & uncert.
Ledo	Cape, Extreme	9.46.0	13.12.0	0.52.48				Lev. & Barracou. 1825
St. Bras	Cape, ditto	10.01.5	13.16.8	0.53.07				do.
Nova Rodonda	.....	11.36.7	13.44.7	0.54.59	22.0			do.
*Benguela	St. Philip's Bonnet	12.34.4	13.14.1	0.52.56	22.0			do.
———	Fort Flag Staff	12.33.9	13.20.0	0.53.20				do.
Salinas	Point, Extreme	12.53.0	12.53.2	0.51.33				No very distinct Pt.
Friars	Islots	13.12.3	12.44.2	0.50.57	23.8			do.
Mary	Cape, Pillar	13.25.2	13.31.8	0.54.07				do.
Martha	Cape	13.54.2	12.23.5	0.49.34	22.0			do.
Browne's Point	West of Little Fish Bay, Extreme	15.13.0	12.02.0	0.48.08				do.
Negro	Cape, Pillar	15.40.7	11.53.3	0.47.33				do.
Alexander Port	Sand forming do. N. pt	15.47.0	11.46.5	0.47.06	23.0			do.
Great Fish Bay	Tiger Island, N. Pt.	16.30.2	11.41.0	0.46.44				No very distinct Cape.
Frio	Cape, Extreme	18.23.0	11.57.2	0.47.49	24.0			do.

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No. 5. EASTERN COAST OF AFRICA

Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West, In Deg. & 10ths	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.		h. m.		
Cross	Cape Extreme	21.50.0	13.51.8	0.55.27				Noverydistinct Cape.
Walwich Bay	Pelican Point	22.52.5	14.22.1	0.57.28	23.0			do.
Hollam'sBirdIsland	Centre.....	24.37.4	14.27.2	0.57.49				do.
*Angra Pequena ..	Pillar	26.38.4	15.02.5	1.00.10				Lev. & Barra in 1825.
Possession Island..	South Point	26.58.5	15.07.5	1.00.30				do.
Orange River	Dry Bar	28.38.5	16.22.5	1.05.30				do.
Voltas	Cape	28.44.0	16.26.5	1.05.47	29.0			do.
Donkin	Cape	31.54.2	18.14.2	1.12.57	29.4			do.
Deseada	Cape	32.18.4	18.16.9	1.13.08				do.
Paternoster Point	Extreme	32.42.2	17.49.2	1.11.17	24.0			do.
Castle Cape	Ditto	32.46.8	17.46.5	1.11.06				do.
Saldanha Bay	Entrance, North Pt.	33.01.8	17.48.5	1.11.14				do.
Isser	Point	33.22.3	18.05.7	1.12.23				do.
*Dassen Island ..	Centre.....	33.26.2	18.01.5	1.12.06				do.
Bock	Point	33.33.8	18.14.0	1.12.56				do.
*Cape of GoodHope	Robben I., Station	33.47.8	18.17.5	1.13.10				do.
*————————	Observatory	33.55.2	18.23.6	1.13.34				do.
*—— Green Point	Light House	33.53.2	18.19.5	1.13.18	28.0	2.20	5	do.
*———————....	Devil's Peak	33.57.2	18.21.5	1.13.26				do.
*——— Cape Town	Castle Flag Staff ...	33.55.2	18.20.8	1.13.23				do.
*——— Cape Point	Extreme	34.22.0	18.24.4	1.13.38	28.2			do.
—— Bellows Rock	Centre.....	34.23.8	18.24.5	1.13.38				do.
*FalseBaySimon'sB	Dock Yard	34.11.3	18.21.0	1.13.24				do.
———	Whittle Rock.....	34.16.5	18.29.0	1.13.56				do.
*———Seal Islands	Southern.....	34.08.6	18.30.2	1.14.01				do.
———	Shoals	34.09.7	18.31.0	1.14.04				do.
———	Anvil Rock.....	34.22.7	18.26.1	1.13.44				do.
East. Coast of Africa								
Hangklip Cape....	Extreme	34.23.8	18.45.0	1.15.00				Leven & Barracouta.
Mudge Point	Extreme	34.27.2	19.08.5	1.16.34				do.
Danger Point	Extreme	34.41.4	19.16.5	1.17.06				do.
Dyer's Island	Centre.....	34.43.7	19.23.2	1.17.33				do.
Quoin Point	Extreme	34.48.8	19.36.7	1.18.27				do.
Lagullas Cape	Extreme	34.51.2	19.56.5	1.19.47				do.
Struy's Point	Extreme	34.42.4	20.11.0	1.20.41				do.
Infanta Cape	Extreme	34.30.8	20.48.0	1.23.12				do.
Vaches Cape	Extreme	34.19.7	21.51.4	1.27.26				do.
Leven Point	Extreme	34.27.3	21.19.9	1.25.20				do.
Flesh Point	Extreme	34.15.0	21.58.0	1.27.52				do.
St. Blaize Cape ..	Extreme	34.06.9	22.06.6	1.28.26				do.
Knysna River	Entrance, East Pt.	34.06.5	23.02.7	1.32.09				do.
Seal Cape	Extreme	34.04.8	23.17.4	1.33.10	32.0			do.
St. Francis Cape ..	Extreme	34.10.0	24.47.6	1.39.10				do.
Zeepard Point	Extreme	34.04.4	25.24.0	1.41.36				do.
Reciffe Cape.....	Extreme	34.02.2	25.36.2	1.42.25				do.
Algoa Bay.....	Command. House ..	33.57.5	25.34.5	1.42.18				do.
——St.Croix Island	Peak	33.47.6	25.41.5	1.42.46				do.
——	Dispatch Rock	33.58.4	25.39.7	1.42.39				do.
——	Doddington Rock ..	33.57.3	26.06.3	1.44.25				do.
—— Chongs or Bird I	Eastern	33.52.1	26.12.8	1.44.51				do.
——	Do. Western	33.51.8	26.05.7	1.44.23				do.
——	Western Reef off do.	33.53.4	26.05.2	1.44.21				do.
Woody Cape	Extreme	33.46.5	26.09.0	1.44.36				do.
Padron Point	Extreme	33.46.5	26.19.5	1.45.18				do.
Kowie River.....	Entrance.....	33.33.7	26.45.0	1.47.00				do.
Great Fish Point ..	Extreme	33.30.2	27.02.2	1.48.09				do.
———— River	Mouth	33.27.0	27.02.5	1.48.10	30.3			do.
Keiskama River ..	Entrance, West Point	33.16.7	27.26.5	1.49.46				do.
Cove Rocks	Centre.....	33.06.0	27.47.5	1.51.10				do.
Hood Point	Extreme	33.03.8	27.52.9	1.51.32				do.
Morgan Cape	Extreme	32.42.1	28.19.7	1.53.17	30.0			do.

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No. 5. EASTERN COAST OF AFRICA.

Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m		
Hole in the Wall..	.....	32.03.2	28.56.0	1.55.44				Leven & Barracouta.
Ram Head	Extreme	31.48.4	29.09.5	1.56.38				do.
Brazen Head	Extreme	31.44.0	29.13.5	1.56.54				do.
St. John River....	Entrance	31.34.5	29.23.7	1.57.35				do.
Natal Cape	Extreme	29.53.0	30.57.2	2.03.49				do.
Fisher's River	Mouth	29.16.3	31.28.0	2.05.52	27.0			do.
Morley's Creek....	Mouth	29.09.6	31.35.5	2.06.22				do.
Durnford Point ..	Extreme	29.00.2	31.46.5	2.07.06	30.3			do.
St. Lucia Point ..	Extreme	28.32.5	32.22.5	2.09.30				do.
——— River	Entrance	28.26.0	32.21.5	2.09.26	27.8			do.
Vidal Cape	Extreme	28.09.6	32.33.0	2.10.12				do.
Goldown's Blind Riv.	Entrance	26.55.5	32.47.8	2.11.11				do.
Delagoa Bay	Cape Colatto	26.04.0	32.55.8	2.11.43				do.
*———	Cape Inyack	25.58.0	32.56.6	2.11.46	25.0			do.
*—Elephant Island	North Point	25.58.2	32.52.3	2.11.29				do.
*———	Reuben Point.....	25.58.8	32.33.5	2.10.14				do.
*——Sheseen Island	N.E. Point	25.52.0	32.41.8	2.10.47		4.40	12	do.
*English Riv. Portuguese Factory	Flag Staff	25.58.2	32.31.7	2.10.07	25.5	5.20	12	do.
* — Cutfield Shoals	Northern	25.36.5	32.48.2	2.11.13				Dist. off shore do.
——	Southern	25.39.0	32.49.7	2.11.19	26.0			
— Cockburn Shoals	Ex. off Elephant Island, North Pt.	25.54.0	32.53.1	2.11.32				Leven & Barracouta.
Lagoa River	Mouth.....	25.20.6	33.08.0	2.12.32	24.0			do.
Inhampura River..	Mouth.....	25.11.6	33.26.5	2.13.46				do.
——— Shoals	North Extreme	25.10.0	33.41.0	2.14.44				do.
——— Do.....	South Extreme	25.12.5	33.34.5	2.14.18				do.
A River	Mouth.....	24.49.3	34.26.0	2.17.44	24.0			do.
Point on the Coast	.....	24.30.0	35.11.0	2.20.44				do.
Corrientes Cape ..	Small Rock	24.07.5	35.25.4	2.21.42				Measured from St. Augustin's Bay, Cape Corrientes is 35°28′.5, E.
*Inhamban	Town	23.51.7	35.19.7	2.21.19	22.3	4.15	10	Leven & Barracouta.
*———	Barrow Hill & Point	23.45.5	35.28.2	2.21.53	22.2			do.
*———	Bar, Mafouroon Id.	23.44.5	35.22.5	2.21.30	23.2	4.15	10	do.
Lady Gray.....	Cape	22.56.2	35.36.0	2.22.24	22.0			do.
*Bazarouta Islands	North Point	21.31.0	35.28.0	2.21.52	23.0			do.
Inverarity's Shoal	Centre.....	20.42.5	35.05.2	2.20.21				do.
Chuluwan Island ..	North Point	20.38.2	34.48.5	2.19.14	23.0			do.
*Sofala	Fort	20.10.7	34.40.9	2.18.44	23.0	4.0	19	do.
Luabo Shoals	Centre.....	18.57.6	35.55.0	2.23.40				do.
*Quillimane, or Zambezi River	Point Tangalane ..	18.01.4	36.56.3	2.27.45	17.5			do.
*——— ..	Town	17.51.8	36.56.0	2.27.44				do.
——— ..	Senna Town	17.30.0	35.38.8	2.22.35				do.
David's Shoals	Centre.....	17.31.5	38.27.2	2.33.49				do.
De Sylva Bank	Do.	17.18.0	38.46.3	2.35.05				do.
Fogo Island	Do.	17.14.4	38.50.3	2.35.21				do.
Crown Bank	Do.	17.11.8	38.54.3	2.35.37				do.
Casuarina or Raza I.	Do.	17.06.5	39.01.3	2.36.05				do.
Epidendron, Trees I.	Do.	17.04.3	39.04.8	2.36.19				do.
Macalonga Point ..	Extreme	16.58.8	39.01.2	2.36.05				do.
Moma Bank	Centre.....	16.47.0	39.28.8	2.37.55				do.
Caldeira Point	Extreme	16.39.0	39.28.2	2.37.53				do.
——— Island	Centre.....	16.38.8	39.40.8	2.38.43				do.
Angozha Is. Hurd I.	Centre.....	16.33.4	39.44.8	2.38.59				do.
—— Michael Reef	Centre.....	16.31.0	39.49.8	2.39.19				do.
—— Walker Bank	Centre.....	16.26.2	39.52.8	2.39.31				do.
—— Point.....	Extreme	16.24.6	39.51.3	2.39.25				do.
*Mafamal I.....	Centre.....	16.20.5	39.58.8	2.39.55				do.
Angozha River....	Entrance	16.16.0	39.52.0	2.39.28				do.
Huddart's Shoals ..	Centre.....	15.46.7	40.22.8	2.41.31	16.6			do.

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No. 5. EASTERN COAST OF AFRICA.

Names of Places.	Points.	Lat. South.	Long. East.	In Time	Variation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Dez. & 10ths	h. m.		
Mogincale Shoals ..	North	15.33.6	40.29.5	2.41.58				Leven & Barracouta.
——— ..	South	15.36.0	40.27.5	2.41.50				do.
Barracouta Point ..	Extreme	15.30.0	40.31.0	2.42.04				do.
——— Reef ..	.....	15.30.0	40.32.8	2.42.11				do.
Bajone Shoal	Centre	15.27.2	40.37.1	2.42.28				do.
——— Point	Extreme	15.09.7	40.40.0	2.42.40				do.
*Mozam. St. Jago I.	Centre	15.03.4	40.43.0	2.42.52				do.
*—— St. George's I.	Centre	15.02.2	40.43.5	2.42.54				do.
*———	Fort	15.01.0	40.41.8	2.42.47		4.15	12	do.
—— Quintangonya.	South Point	14.52.5	40.45.6	2.43.02	16.9			do.
Melamo Point	Extreme	14.25.0	40.45.8	2.43.03				do.
Pinda Shoal	East Extreme	14.15.0	40.45.5	2.43.02				do.
Laguno Point.....	Extreme	14.12.5	40.39.8	2.42.39				do.
Soreessa Point	Extreme	13.32.8	40.31.9	2.42.08				do.
Badgley Point.....	Extreme	13.22.8	40.31.0	2.42.04				do.
Maunhané, devil's pt.	.....	12.56.5	40.32.7	2.42.11				do.
Pomba.....	Entrance, North Pt.	12.55.9	40.28.0	2.41.52	14.5			do.
Areëmba Point	Extreme	12.38.2	40.34.5	2.42.18				do.
Querimba I. Foomo I.	North Point	12.31.0	40.34.0	2.42.16		4.30	9	do.
— Querimba Island	North Point	12.23.7	40.33.8	2.42.15				do.
——— Iho..	Fort	12.20.0	40.33.0	2.42.12				do.
—— Matemo Island	East Point	12.13.8	40.34.8	2.42.19				do.
——— Panganê..	Point	11.59.5	40.29.8	2.41.59				do.
—Mahatoo Island..	N.E. Point	11.58.2	40.33.1	2.42.12		4.30	7	do.
—Ilha dos Mattos..	Centre	11.48.7	40.33.2	2.42.13				do.
—Zanga Island	Centre	11.37.7	40.30.5	2.42.02				do.
—Vumba Island ...	East Point	11.09.3	40.38.2	2.42.33				do.
—— .... Nondo ..	Point	11.00.5	40.30.0	2.42.00				do.
—Tikomadjy Island	N.E. Point	10.46.0	40.35.7	2.42.23				do.
Delgado Cape	Extreme	10.41.2	40.34.6	2.42.28		4.30	9	do.
Roohamba Point ..	Extreme	10.13.5	40.09.0	2.40.36				do.
Monghow River ...	East Point	10.07.7	39.56.8	2.39.47				do.
———	Mushroom Rock ..	10.07.3	39.56.3	2.39.45				do.
Lindy River	Fort	9.59.5	39.40.0	2.38.40	16.0	4.15	12	do.
Masonga River	.....	9.45.0	39.41.8	2.38.47				do.
Kisoohara River ..	North Point	9.26.0	39.33.7	2.38.15				do.
*Keëlwa	Songa Manara or Pagoda Point .	9.01.7	39.32.2	2.38.09				do.
* ——— Island....	Fort	8.57.0	39.29.0	2.37.56		4.45	8	do.
———	Reef of N.E. Extrm.	8.51.5	39.35.7	2.38.23				do.
Songa Songa	North Point	8.32.4	39.30.2	2.38.01	15.0			do.
Monfeea	Kissomang or W. Pt.	7.56.0	39.32.7	2.38.11				do.
———	Moresby Pt. N.E. Ex.	7.38.6	39.52.7	2.39.31				do.
Poana Point	Extreme	7.02.7	39.32.2	2.38.09				do.
*Latham's Island ..	Centre	6.54.2	39.54.8	2.39.39	13.5			do.
†Zanzibar, Ras Kiz.	or South Point....	6.27.7	39.27.8	2.37.51				do.
*——..... Town..	Fort	6.09.6	39.09.4	2.36.38	11.7	4.45	9	do.
—Bawyor French I.	Centre	6.08.4	39.05.9	2.36.24				do.
—— ..... Chuaka	or East Point	6.03.3	39.25.9	2.37.44				do.
—— ..... Ngoowy	or North Point....	5.42.8	30.15.5	2.37.02				do.
Pauganу Riv. Maze. I.	Centre	5.30.0	39.04.0	2.36.16				do.
Pemba Island.....	South Point	5.29.3	39.37.0	2.38.28				do.
—Mesal I. Ch. Ch. bay	S.W. Point	5.15.7	39.35.3	2.38.21		4.15	12	do.
———	N.E. Point	4.54.2	39.47.8	2.39.11				do.
—— Kegomatchy or	N.W. Point	4.52.0	39.38.7	2.38.35				do.
*Mombas Island ...	Fort	4.04.0	39.38.0	2.38.32	11.0	4.00	11	do.
*———	English Beach....	4.03.0	39.38.2	2.38.33				do.
Killeely River.....	Entrance	3.37.8	39.47.8	2.39.11	11.0			do.
Maleenda.....	Vasco di Gama's Pil.	3.12.8	40.06.2	2.40.25				do.
Formosa B. Ras Gom.	Extreme	3.00.0	40.13.5	2.40.54				do.
Formosa Bay Ozy R.	Entrance	2.33.2	40.30.2	2.42.01	11.5			do.
Lamoo	Town.....	2.15.7	40.51.2	2.43.25				do.

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No. 5. EASTERN COAST OF AFRICA.

Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
*Ras Kattow	Extreme	2.18.7	40.52.5	2.43.30				Leven & Barracouta.
Patta	Town.....	2.09.2	40.57.2	2.43.49	11.5	4.00	4½	do.
*Kisingatty	.....	2.06 2	41.07.2	2.44.29				do.
*Dundas Is. Kwyhoo	South Point	2.02.3	41.11.2	2.44.45				do.
——	Peak	2.00.0	41.13.0	2.44.52	11.5			do.
——Simmambaya	Settlement.....	1.45.5	41.26.7	2.45.47				do.
—— Durnford Port	North Point.....	1.13.2	41.49.1	2.47.16				do.
—— Toola Island..	Huts	1.00.0	41.58.2	2.47.53	11.0			do.
—— Thooala Island	North Point.....	0 50.5	42.07.0	2.48.28				do.
—— .. Kismayoo	North Point.....	0.36.8	42.16.8	2.49.07				do.
—— .... Dedalus	Shoals	0.24.4	42.38.7	2.50.03				do.
—— Juba River .	Entrance	0.14.5 North.	42.34.2	2.50.17				do.
Brava	Town.....	1.06.8	43.58.3	2.55.53	10.0			do.
Torra	Straw Town.....	1.26.0	44.16.0	2.57.04				do.
Marka.....	Town.....	1.44.1	44.46.8	2.59.07				do.
Horealy.....	Town.....	1.50.2	44.55.4	2.59.42				do.
Gezerat	Town.....	1.53.8	45.02.0	3.00.08				do.
Mukdeesha	Town.....	2.01.8	45.19.5	3.01.18	9.0			do.
Murot Hill	Peek	2.41.3	46.12.0	3.04.48				do.
Ras Asooad	Extreme	4.34 2	47.55.5	3.11.42				do.
Ras Awath	Extreme	5.32.8	48.34.8	3.14.19				do.
Ras Ul Khyle.....	Extreme	7.43.5	49.40.5	3.18.42				do.
Ras Mabbere.....	Extreme	9.29.0	50.45.0	3.23.00				do.
Ras Hafoon	Extreme	10.27.8	51.16.7	3.25.07				do.
Hor Hardeea.....	Extreme	10.34.5	50.56.0	3.23.44	6.0			do.
Ras Banna.....	Extreme	11.12.4	51.06.0	3.24.24				do.
Jard'afoon, or Guardafui	Extreme	11.41.4	51.12.4	3.24.50				do.
Ras Assere.....	Extreme	11.48.8	51.14.5	3.24.58				do.
Ras Mett	Extreme	11.55.2	50.51.6	3.23.26				do.
*Abdul Koory Island	West Point	12.12.6	52.02.8	3.28.11	4.6			do.
—— ——	N.E. Point	12.11.5	52.18.0	3.29.12				do.
Salts White Rocks .	Centre	12.25.5	52.04.2	3.28.17				do.
Brothers .. Durjy I.	Centre	12.06.0	53.02.8	3.32.11	4.0			do.
——Samaong Island	Centre	12.10.8	52.51.0	3.31.24				do.
Karkafaharoon rcks.	.....	12.39.8	52.57.0	3.31.48				do.
Socotra I., Ras Rarby	West Point	12.30.0	53.03.5	3.32.14				do.
——Galanseea Road	N.E. Point	12.43.0	53.18.2	3.33.13				do.
—— .. Pyramid..	Rock.....	12.44.3	53.22.0	3.33.38	3.5			do.
—— .. Tamarin..	Town.....	12.36.7	53.41.0	3.34.44				do.
—— Ras Shoorguy	East End	12.31.2	54.27.2	3.37.49				do.

No. 6. EASTERN COAST OF ARABIA.

		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Ras Morebat	Extreme	16.55.0	54.42.8	3.38.51				Leven & Barracouta.
Ras Jingera	Extreme	17.06.8	55.02.0	3.40.08	2.3			do.
Ras Noss.....	Extreme	17.23.0	55.10.5	3.40.42				do.
Koorya Moor.I.Tibly	Peak	17.26.4	56.16.0	3.45.04				do.
—— .... Hasky	Peak	17.29.5	55.30.0	3.42.00	3.6			do.
—— .... Soda	Peak	17.28.0	55.49.0	3.43.16				do.
—— .... Hallany	N.E. Point	17.31.3	56.00.0	3.44.00				do.
Ras Garwow	Extreme	17.51.8	56.16.2	3.45.05	2.9			do.
Saugra.....	Cape	18.09.0	56.30.0	3.46.00				do.
Ras Madraka	Extreme	18.58.0	57.45.5	3.51.02				do.
Ras Markass	Extreme	19.10.2	57.41.3	3.50.45				do.
Massera I.Aboo Rass.	South Point	20.07.6	58.33.0	3.54.12	0.9			do.
—— .... Ras Ya	East Point.....	20.30.0	58.51.6	3.55.26				do.
——Ras Alif or Hulf	North Point	20.40.2	58.48.6	3.55.14				do.
Ras Jibsh	Extreme	21.25.8	59.06.5	3.56.26				do.
Ras Al Hubba.....	Extreme	22.14.5	59.44.3	3.58.57				do.
Ras Jins	Extreme	22.26.0	59.46.3	3.59.05				do.

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No. 6.	ISLAND OF MADAGASCAR, EASTERN COAST.							
Names of Places.	Points.	Lat. North.	Long. East.	InTime.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	InDeg. & 10ths	h. m.		
Ras Al Had	Extreme	22.33.2	59.43.2	3.58.53				Leven & Barracouta.
Hajar Bauder..Ent.	East Point	23.33.7	59.39.3	3.58.37				do.
Bunder Jarahm Ent.	East Point	22.33.8	59.36.3	3.58.25				do.
Bunder Soore.....	East Point	22.35.8	59.19.8	3.57.19				do.
Boo Dahood	Extreme	23.21.0	58.54.0	3.55.36	East.			do.
Ras Heiran.....	Extreme	23.31.0	58.43.6	3.54.54	2.7			do.
*Muskat	Palace	23.37.1	58.30.3	3.54.01				do.
Island of Madagascar,	*Eastern Coast.*	South.			West			
*St. Mary's I. Quail Id. or Isle Madame	Establishment	17.00.0	49.48.8	3.19.15	14.	4.00	5	do.
——....Bleve	North Point	16.40.5	49.59.6	3.19.58				do.
—— Halbrand	South Point	17.07.3	49.45.7	3.19.03				do.
Larreé	Point, Extreme....	16.50.3	49.46.8	3.19.07				do.
Tangtang	Flag Staff	16.42.5	49.41.1	3.18.44		4.30	6	do.
Bellones Cape.....	Extreme	16.14.0	49.48.8	3.19.15				do.
Mananbar	Village	16.09.5	49.41.0	3.18.44				do.
Choiseul Port Maran Seetzy	Town.....	15.27.3	49.47.0	3.19.08	11.0	4.00	6	do.
Durnford Noss	Extreme	16.00.0	50.06.2	3.20.28				do.
Mahanbar Table Hill	Centre	14.39.7	50.10.5	3.20.42				do.
Ngoncy, or Cape E.	Town.....	15.14.4	50.25.2	3.21.41	13.0			do.
—— Outer Island.	Centre	15.15.8	50.26.2	3.21.45				do.
Vohemar	Point	13.23.5	49.58.0	3.19.52				do.
Manambatoo	.....	13.14.2	49.53.2	3.19.33				do.
Andrava B.Berry Hd.	S.E. Point.....	12.56.8	49.51.3	3.19.25	13.5			do.
Port Leven..Nosh How Island....	Sun Point	12.47.8	49.48.2	3.19.13				do.
Port Leven	Lingo Rock	12.46.5	49.49.0	3.19.16	13.5	3.30	7½	do.
Looké Port ..... Bathurst Point	East Point.....	12.44.2	49.41.8	3.18.47				do.
Lowry	Cape	12.35.0	49.34.6	3.18.18				do.
British Sound.....	Entrance, Clarence	12.13.8	49.18.3	3.17.13	12.5	4.0	9½	do.
* British Sound, Nranguumoodo	Leven's Station, Village, Point	12.14.1	49.17.8	3.17.11				Leven.
DiegoSuarez Bay, ent	Island	12.10.2	49.18.8	3.17.15	11.0			do.
Amber C., Madagas.	N.E. Extreme	11.57.5	49.13.8	3.16.55				do.
St. Mary's I., Isle Madame or Quail I.	Establishment	17.00.0	49.48.8	3.19.15	15.0			do.
Fenerive	Town.....	17.23.0	49.23.0	3.17.32				do.
*Foule Point	Landing-place	17.40.4	49.32.0	3.18.08	16.0			do.
*Plumb Island	Centre	18.02.8	49.24.0	3.17.36				do.
*Tamatave Point ..	Landing-place	18.10.1	49.23.3	3.17.33	13.0			do.
Fong Isles	Southern one	18.26.5	49.20.4	3.17.22				do.
Vatoo Madré	.....	18.39.8	48.52.8	3.15.31	13.0			Barracouta.
Manooroo	Town.....	19.55.0	48.47.0	3.15.08	12.0			do.
Fanantara	Town.....	20.51.2	48.28.0	3.13.52				do.
Rangazarák	Town.....	20.58.2	48.27.4	3.13.50				do.
Footak	Town.....	24.04.0	47.26.2	3.09.45				do.
Manambatoo, *South*	Town.....	24.17.3	47.19.8	3.09.19	17.0			do.
Loodatoo	Town.....	24.36.7	47.12.2	3.08.49				do.
St. Luce	North Islot	24.44.7	47.09.0	3.08.36				Leven & Barracouta.
Ytapere .....Point	Extreme	24.59.7	47.02.6	3.08.10				do.
*Dauphin.....Fort	Flag Staff	25.01.3	46.57.0	3.07.48	21.0	4.30	7	do.
Western Coast.								
St. MaryC., Madagas.	South Extreme ..	25.38.9	45.01.7	3.00.07	21.0			do.
Star Reefs	Southern	25.24.5	44.12.6	2.56.50				do.
——.....	Northern	25.18.2	44.12.5	2.56.50				do.
——.....	Tozer's Patch	25.12.3	44.08.7	2.56.35	21.0			do.
Leven Island	Centre	25.12.5	44.12.8	2.56.51				do.
Barracouta Island ..	Centre	25.03.0	44.02.2	2.56.09				do.

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No. 6. ISLAND OF MADAGASCAR, WESTERN COAST.

Names of Places.	Points.	Lat. South.	Long. East.	In Time	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
St. Augustine's Bay.	Nos Vey or Sandy I.	23.38.4	43.33.2	2.54.13			13	Leven & Barracouta.
*———	Tent Rock	23.35.4	43.40.5	2.54.42	20.8	4.30	13	do.
Murderer's Bay....	North Point	22.12.5	43.12.7	2.52.51	20.8			Barracouta.
——— Island..	Centre	22.05.3	43.10.2	2.52.41				do.
Grave ..... Island	Centre	21.57.6	43.11.2	2.52.45		4.45	12	do.
St. Vincent.....	Cape	21.54.4	43.15.2	2.53.01				do.
Mourondava	.....	20.18.3	44.14.2	2.56.57	18.7			do.
Barren Islands	South Sand	18.41.4	43.53.2	2.55.33	17.8			do.
———	South Island	18.33.9	43.51.0	2.55.24				do.
———	North Island	18.18.1	43.41.4	2.54.46	16.9	4.45	12	do.
———	North Sand	18.03.3	43.48.5	2.55.14				do.
———	West breakers off do	18.16.2	43.38.5	2.54.34				Leven & Barracouta.
*Coffin Island	Centre	17.29.0	43.42.0	2.54.48	18.0			Barracouta.
St. Andrew.....	Cape	16.11.4	44.25.8	2.57.43				do.
Boyanna Bay, entr.	North Point	15.59.0	45.18.2	3.01.13		4.30	15	do.
*Bembatooka Bay Majunga	Point	15.42.9	46.15.2	3.05.01	15.0			Leven & Barracouta
False Cape.....	Extreme	15.45.7	45.38.0	3.02.32				Barracouta.
Makumba Island ..	Centre	15.42.0	45.52.4	3.03.30	12.0	4.45	17	do.
Majambo Bay, entr.	West Point	15.11.7	46.54.2	3.07.37		4.30	16	do.
Nareenda Bay, do.	West Point	14.40.3	47.21.3	3.09.25	12.0			do.
Luza River	Entrance	14.36.9	47.37.9	3.10.32		4.30	15	do.
Sancasse Island....	North Point.....	14.30.7	47.30.0	3.10.00				do.
Raminitoc Bay	M'Cleur Point....	14.15.0	47.44.0	3.10.56	13.0			do.
Blair Pt., between Port Radama & Rafala Bay....	.....	13.59.0	47.53.2	3.11.33				do.
*Pássandava Bay ..	Nine Pin Island ..	13.28.2	48.09.8	3.12.39	12.5	5.00	15	do.
Nos Beh Island....	North Point.....	13.12.2	48.13.5	3.12.54				do.
Dalrymple Bay	Mouth	13.30.0	47.56.5	3.11.46				do.
Chimpaykee Island	North Point	13.18.5	48.24.3	3.13.37				do.
Minow Island	North Point.....	12.49.5	48.33.8	3.14.15	12.0	5.00	15	do.
St. Sebastian	Cape	12.26.2	48.40.6	3.14.42				do.
Woody Island	Centre	12.16.7	48.36.0	3.14.24				Leven & Barracouta
Delight Sand	Centre	12.13.2	48.44.2	3.14.57	12.0			do.
Magnet Sand.....	Centre	12.12.0	48.50.0	3.15.20				do.
Moresby Island....	Centre	12.09.3	48.56.0	3.15.44				do.
Liverpool..Entrance	North Point	12.03.3	49.06.2	3.16.25				do.
Robinson....Port	North Point	12.00.7	49.08.2	3.16.33				do.
Jenkinson ...Port	North Point	12.01.6	49.07.5	3.16.30				do.

No. 7. ISLANDS, &c. IN THE MOZAMBIQUE CHANNEL.

		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Europa Island	Centre	22.22.5	40.19.0	2.41.16	23.0			Leven. Sometimes called Bassas da India.
Bassas da India....	East Point	21.29.0	39.35.5	2.38.22	21.9			Sometimes called Europa Rocks.
———	N. W. Point	21.26.5	39.27.5	2.37.50				
Juan de Nova	Centre	17.03.5	42.42.3	2.50.49				Leven & Barracouta
Chesterfield Bank..	Centre	16.17.5	43.50.4	2.55.22				do.
Leven's Bank.....	Extreme	12.43.5	47.41.5	3.10.46	15.0			do.
———	Extreme	12.21.8	47.52.2	3.11.28				do.
Intermediate Bank .	Centre	12.24.0	48.20.0	3.13.20				do.
Comoro Is. Mohilla.	North Point.....	12.36.0	45.06.5	3.00.26	12.5			Admiralty Charts.
———	East Point	12.20.0	43.55.5	2.55.42				do.
——— Johanna	Town.....	12.11.0	44.22.3	2.57.29	•			Leven.
———	Highest Peak	12.13.5	44.24.3	2.57.37				5,900 feet high.
——— Comoro Id...	N.E. Point	11.19.5	43.34.0	2.54.16				Admiralty Charts.
———	S.E. Point.....	11.54.0	43.28.0	2.53.52				Leven.
———	S.W. Point.....	11.55.0	43.22.0	2.53.28				Admiralty Charts.
Glorioso Islands....	Isle Glorieuse	11.34.8	47.19.0	3.09.16	13.0			Leven.

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No. 8. ARCHIPELAGO N.E. OF MADAGASCAR.

Names of Places.	Points.	Lat. South.	Long. East.	InTime.	Variation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Seychelle Is. Mahe I.	Town	4.37.5	55.25.0	3.41.40	7.0	5.20	6½	Leven & Barrrcouta.
———	South Point	4.48.7	55.31.0	3.42.04				do.
——St. Anne's Id.	Peak	4.36.0	55.28.5	3.41.54	7.0			do.
———	S. W. Beach	4.36.0	55.28.3	3.41.53				do.
——Silhouette Id.	North Point	4.27.0	55.11.5	3.40.46	6.5			do.
——North Island	North Point	4.22.3	55.12.8	3.40.51				do.
——La Digue	Peak	4.21.2	55.50.0	3.43.20				do.
——I. Marie Ann	North Peak	4.19.4	55.55.5	3.43.43				do.
——Praslin	West Point	4.17.4	55.39.0	3.42.36				do.
——Curieuse Id.	Centre	4.16.2	55.42.2	3.42.49				do.
——Ile Aride	Centre	4.12.5	55.38.5	3.42.34	6.5			do.
——Ile Dennis	Centre	3.48.2	55.38.2	3.42.33				do.
——Bird Island	Centre	3.42.7	55.10.5	3.40.42				do.
——Swan Patch	Centre	4.00.0	54.32.0	3.38.08				do.
——Du Ponts Patch		4.15.5	54.23.0	3.37.32				do.
——Ile Reciffe	Centre	4.34.8	55.45.0	3.43.00				do.
——Frigate Island	Centre	4.35.2	55.56.0	3.43.44				do.
——W. edge of Bank		..	54.00.0	3.36.00				do.
——Coetivy Island		7.09.0	56.13.5	3.44.54				do.
African Islands	North Island	4.53.5	53.28.3	3.33.53				Albatross, 1824, Lev.
———	South Island	4.55.2	53.28.0	3.33.52				do.
——Eagle Island	Centre	5.07.2	53.23.5	3 33.34	7.5			do.
Amiranté Is., I. Daros	East Point	5.24.6	53.23.4	3.33.34	8.0			Best Authorities.
——St. Joseph Id.	East Point	5.27.5	53.32.4	3.34.10				do.
——Des Roches Id	East Point	5.40.0	53.39.0	3.34.36	7.9			Leven.
——Powie Island	Establishment	5.41.0	53.17.7	3.33.11				Best Authorities.
——Etoile Island	Centre	5.47.8	53.03.2	3.32.13	7.5			do.
——— Doubtful		5.54.8	53.19.0	3.33.16				Doubt. H.M.S. Menai
——Marie Louise I.		6.09.0	53.12.7	3.32.51				Best Authorities.
——Isle de Neuf	Centre	6.14.0	53.09.2	3.32.37				do.
——Ile Boudeuse	Centre	6.10.9	52.51.0	3.31.24				do.
——Alphonse Id.	Centre	7.00.5	52.42.6	3.30.50	7.9			Barracouta in 1825.
——Bijoutier		7.03.6	52.42.9	3.30.52				do.
——St. Francis		7.09.7	52.41.6	3.30.46				do [Long.
——Ile Platte	Centre	5.51.6	55.23.3	3.41.33	8.0			Ariadne, Leven's
Wizard Breakers		8.50.0	51.07.5	3.24.30				Wizard in 1824.
Providence Island	Establishment	9.14.0	51.05.5	3.24.22	8.9	4.0	8	H. M. S. Menai.
——— Reef	Island on S. Point	9.33.3	50.58.5	3.23.54	8.9			do.
St. Pierre Island	East Point	9.18.7	50.50.8	3.23.23				do.
Aldabra I., P. Hodoul	East Point	9.26.5	46.29.5	3.05.58				Leven.
———	N. W. Point	9.21.5	46.06.8	3.04.27				do. [Long.
Cosmoledo Groupe	North Island	9.38.2	47.36.2	3.10.25				Menai & Leven's
———	Menai Island	9.42.2	47.32.5	3.10.10				do.
———	Wizard Id., N. Pt.	9.43.2	47.40.2	3.10.41				do.
Assumption Island	Hummock, SE. Pt.	9.46.3	46.28.8	3.05.55	13.7			Leven.
M'Leod's Bank	North Extreme	9.53.0	50.21.5	3.21.26				Mr. Horsburgh.
———	South Extreme	10.00.0	50.19.0	3.21.16				do.
Dupont's I., Doubtful		10.04.2	46.07.5	3.04.30				Dupont's Authority.
Astove Island	Centre	10.06.5	47.43.3	3.10.53				Leven.
Farquhar's Is., formerly the 12 Is. or John de Nova, N.I.	North Point	10.06.7	51.07.8	3.24.31				H. M. S. Ariadne and Wizard.
Farquhar's West. I.		10.12.7	50.56.6	3.23.46				do.
——Southern I.	South Point	10.21.2	51.00.8	3.24.03	13.0			do.
Agalega Isles	Northern	10.24.0	56.27.5	3.45.50	11.3			H.M.S. Menai.
Tromelin, or Sandy I.	Centre	15.53.2	54.31.3	3.38.05				Barracouta in 1825.
Cargados Garayos, Albatross	Island	16.11.3	59.40.1	3.58.40				Albatross in 1825.
——North Island	Centre	16.21.9	59.43.6	3.58.54	9.9	2.30	4	do.
——Establishmt.	Flag Staff	16.25.2	59.41.5	3.58.46				do.
——Pearl Island	Centre	16.31.5	59.34.2	3.58.27				do.
——Cocoa Island	Centre	16.47.4	59.35.1	3.58.20	10.0			do.

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No. 8. ARCHIPELAGO NORTH-EAST OF MADAGASCAR.

Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ′	° ′	h. m. s.	In Deg. & 10ths	h. m.		
Isle Roderigue	Centre	19.41.0	63.20.0	4.13.20	13.0	12.30	6	Admiralty Charts.
Mauritius, I. of France	Cooper's Island ..	20.10.0	57.26.8	3.49.51				Leven & Barracouta.
——— Round I.	.....	19.50.5	57.45.0	3.51.00				Admi. Charts; Andromache & De la Caille.
——— Brabant	Cape	20.27.0	57.14.0	3.48.56				Admi. Charts; Andromache & De la Caille.
Bourbon I., St. Dennis	Town.....	20.52.5	55.26.5	.....				Leven in 1824.

No. 9. COAST OF MALABAR.

		North.	° ′	h. m. s	In Deg. & 10ths	h. m.			Mr. Horsburgh's Directory places these pts. the number of miles to the East of these Longs. as here shown.	′
Sacrifice Rock	Centre	11.30.0	75.16.8	5.01.07	0.2 E			Leven in 1823.		34.0
Cannanore	Flag Staff	11.57.0	75.07.3	5.00.29	0.3W			do.		34.0
Mount Dilly	Summit	11.59.0	74.58.3	4.59.53	0.3W			do.		33.0
Mangalore	Flag Staff	12.50.5	74.36.7	4.58.27	1.7 E			do.		30.3
Molky Rocks	Centre	13.11.0	74.24.7	4.57.39				do.		
St. Mary's Islots....	Centre	13.22.5	74.20.8	4.57.23	1.5 E			do.		
Pigeon Island	Centre	14.02.5	74.15.7	4.56.23	0.7W			do.		15.6
Ramas	Cape	15.05.0	73.45.1	4.55.00	0.7 E			do.		21.0
Vingorla Rocks	Western	15.51.0	73.16.8	4.53.07				do.		
Melundy	Flag Staff	16.03.0	73.17.2	4.53.09	0.7			do.		
Retna Geriah	Flag Staff	17.02.0	72.54.8	4.51.39	0.2			do.		30.7
Zyghur	Point	17.16.0	72.53.8	4.51.35	1.0			do.		23.7
Boria	Point	17.25.0	72.52.8	4.51.31				do.		
Severndroog	Flag Staff	17.47.5	72.50.8	4.51.23	1.0			do.		
Bancoot	Fort and Point....	17.57.0	72.43.8	4.50.55		11.00	11	do.		25.2
Rajapore	North Point	18.16.0	72.50.8	4.51.23	1.0	11.00	12	do.		
Bombay	Flag Staff	18.55.8	72.46.3	4.51.05	1.0	11.00		do.		9.3
Diu	Castle	.....	70.55.7	4.43.43				do.		18.8

Note.—The Latitudes in this Table are inserted from Mr. Horsburgh's Directory, and the Longitudes are here marked, as observed on board the Leven; but as their determination was not at that time the particular object of her voyage, they do not perhaps merit the same degree of confidence as those in the other parts of the Table.

W. F. W. OWEN.

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APPENDIX.

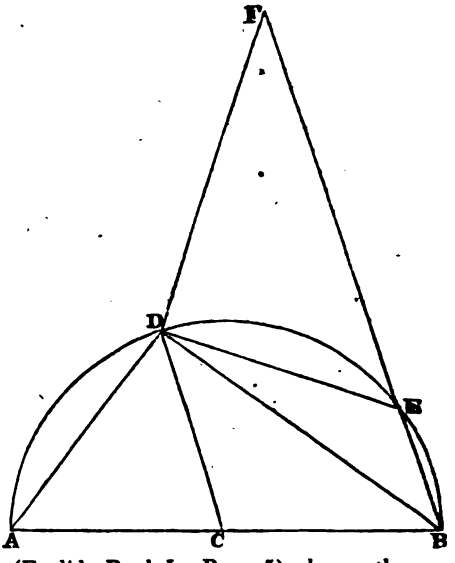
SHOWING the Method of finding the Ratio which the Circumference of a Circle bears to its Diameter; the Method of deducing the Natural Sines from the Circle, both numerically and geometrically; and, the Method of performing the Operation called "TETRAGONISM," or the *Squaring of the Circle.*

To find the Ratio which the Circumference of a Circle bears to its Diameter.

Since the ratio of a circle, as determined and handed down to us by the ancients, is generally taken for granted without any direct evidence; being thus more practically than theoretically understood; I shall therefore investigate the principles upon which it is founded, for the satisfaction of all persons who may be at all curious in such an interesting inquiry.

THEOREM.

If in any semi-circle, as ADEB, *chord-lines be drawn from the extremities of two equal arcs, as* AD *and* DE, *to meet in the point* B *determined by the chord* AB, *which passes through the centre: then will the middle chord* BD *be a mean proportional between the sum of the extreme chords* AB *and* BE *multiplied by the radius* CB:—*that is* $AB + BE \times CB = BD^2$.



DEMONSTRATION.

Produce BE indefinitely, take BD in the compasses and lay it off from D to F: join DF, and also CD.—Now, because the chord AD is equal to the chord DE, the angle ABD, or CBD, is therefore equal to the angle DBE or DBF; for it is evident that equal arcs must be subtended by equal angles. (Euclid, Book III., Prop. 27.) And because BC is equal to CD, and BD equal to DF by construction, the two triangles CBD, and DBF are isosceles; but the angles at the base of an isosceles triangle, or side opposite to the vertex, are equal (Euclid, Book I., Prop. 5): hence the angle CBD is equal to the angle CDB; and the angle DBF is equal to the angle DFB or = DFE; for all these angles being the subtenses of equal arcs, they are therefore mutually and respectively equal to each other. And since the angles at the base BD are equal to the angles at the base BF; the angle at the vertex BCD of the one is equal to the angle at the vertex BDF of the other: wherefore the two triangles CBD and DBF are isosceles, by Euclid, Book I., Prop. 6; and they are also equiangular and homologous. — Hence, per similar triangles, Euclid, Book VI, Prop. 4.,—

As $BC : BD :: BD : BF = BE + EF$:—hence, $BE + EF \times BC = BD^2$.

We have now to prove that the side EF is equal to the side AB.

Because the quadrilateral figure ADEB is inscribed in a semicircle, the opposite angles are equal to two right angles (Euclid, Book III., Prop. 22). And because the angle in the segment DEB, which is less than a semicircle, is obtuse; the opposite angle in the segment DAB, which is greater than a semicircle, is acute; and therefore the sum of the two angles is equal to two right angles. (Euclid, Book III., Prop. 31.)

Now, the exterior angle DEF of the quadrilateral figure ADEB is equal to the opposite interior angle DAB; for the sum of the adjacent angles DEF and DEB is equal to two right

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angles (Euclid, Book I., Prop. 13); and we have just seen that the sum of the two opposite angles D E B and D A B is equal to two right angles: therefore, D E F + D E B is evidently equal to D E B + D A B: from each of these equals take away the common angle D E B, and then the remaining angle D E F will be manifestly equal to the remaining angle D A B; for, if equals be taken from equals, the remainders are equal.

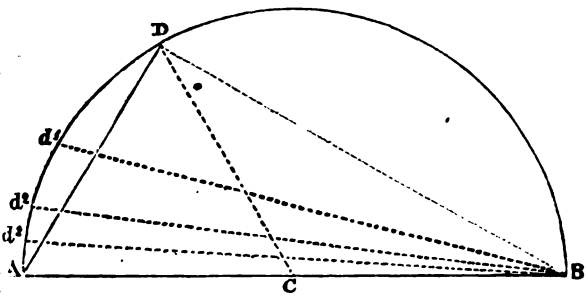
Now, since it has been demonstrated that the angle A B D is equal to the angle D F E; and that the angle D A B is equal to the angle D E F; and since the side A D, of the triangle A D B, is equal to the side D E of the triangle D E F; and, moreover, since the angles at the base A B are respectively equal to the angles at the base E F; therefore the remaining angle A D B of the one is equal to the remaining angle E D F of the other; and they are right angles, because A D B is an angle in a semicircle. (Euclid, Book III., Prop. 31.)

But when two sides and the contained angle of one triangle are respectively equal to two sides and the contained angle of another triangle, the remaining or third side of the one is equal to the remaining or third side of the other. (Euclid, Book I., Prop. 4.) Therefore, the side E F is equal to the side A B; consequently the two triangles A D B and E D F are identically equal in every respect.

Having thus demonstrated that the side E F is equal to the side A B, the above proportion, viz., as BC : B D :: B D : B F (= B E + E F), becomes, as BC : B D :: B D : 2 BC + B E (= A B + B E = B E + E F). Then, by taking the rectangles of the extremes, it will be $2\,BC + BE \times BC = BD^2$; but since the radius B C is unity or 1, and that multiplying by 1 is useless; there the expression becomes $2\,BC + BE = BD^2$,— or $\sqrt{2\,BC + BE} = BD$, in which $2\,BC = AB = EF$. Wherefore, if the measure of the supplemental chord of any arc of a circle, whose radius is unity or 1, be increased by the number 2, or the value of the diameter, the square root of the sum will express the correct measure of the supplemental chord of half that arc. Thus, if A D be bisected, then $\sqrt{BD + 2}$ = the supplemental chord of the bisection adjacent to the diameter A B.

As the arcs A D and D E B make a semicircle, they are the supplements of one another, and therefore if the arc A D be taken as $\frac{1}{6}$, $\frac{1}{12}$, $\frac{1}{24}$ &c. of the circumference, the line B D becomes the supplemental chord of that arc.

Now, from the above theorem we can readily find the true ratio which the circumference of a circle bears to its diameter.



Let the arc A D, in the annexed diagram, be taken equal to the radius unity or 1, and it will be the side of a hexagon inscribed in a circle. (Euclid, Book IV., Prop. 15.) Draw B D and it will be the supplemental chord of A D. Let the side of the hexagon A D be bisected successively, as Ad^1, Ad^2, Ad^3 &c., as far as convenient; in this instance we will extend it to the twelfth bisection, or Ad^{12}, which will reduce the circle to a regular polygon, consisting of 24576 sides: that is, it will express the side of a polygon equal to the 24576th part of the circumference of a circle whose radius is unity or 1. Join Bd^1, Bd^2, Bd^3, &c., and they will be the supplemental chords of the arcs of those bisections.

Now, since the radius AC or BC is unity, consequently the diameter A B is 2; and since AD is equal to the radius, and that the triangle A D B is rectangular (Euclid, Book III., Prop. 31), —Therefore, in the right-angled triangle A D B, the hypothenuse A B, and the leg A D are given, to find the leg B D: hence, by Euclid, Book I., Prop. 47,— $\sqrt{AB^2 - AD^2} = BD$ = the supplemental chord of the arc A D of the one-sixth part of the circumference. Then, working agreeably to the theorem, it will be $\sqrt{2 + BD} = Bd^1$; $\sqrt{2 + Bd^1} = Bd^2$; $\sqrt{2 + Bd^2} = Bd^3$, &c. &c. Thus by numbers.

Since A B = 2, and A D = 1; therefore the square of A B = 4, and that of A D = 1; then, 4 — 1 = 3; and $\sqrt{3}$ = BD = 1.7320508075688772935274463415 06, &c. &c. = the measure of the supplemental chord of A D. To this add 2, and the sum will be

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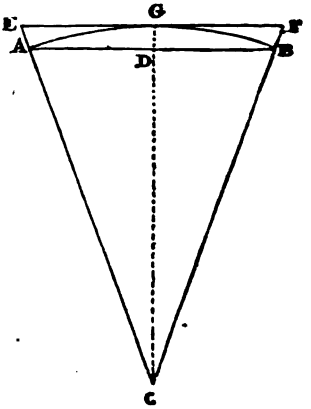
3. 7320508075688772935274463415 06, the root of which is $Bd^1 = 1.931851652578136$, &c. &c.; to this add 2, and the sum will be 3. 931851652578136, &c. &c., the root of which is $Bd^2 = 1.982889722747620$, &c. &c.: to this add 2, and the sum will be 3. 982889722747620, &c. &c., the root of which is $Bd^3 = 1.995717846477207$, &c. &c.; proceeding after this manner, the twelfth extraction will give $Bd^{12} = 1.999999346361928443818721918099819288031$; increase this by 2, and the sum will be the square of the supplemental chord Bd^{12}. Now, the square of A B — the square of Bd^{12} = the square of the chord Ad^{12}. Hence, $AB^2 = 4.0000$ &c. &c.

And $Bd^{12} + 3 = 3.999999346361928443818721918099819288031$

Difference of the squares = square of $Ad^{12} = 0.000000653638071556181278081900180711969$, the root of which is 0. 00025566346464760687; which therefore is the correct length of the chord Ad^{12}, or the measure of the side of the inscribed polygon of 24576 sides. Hence, 0. 00025566346464760687 × 24576 = 6. 28318530717958643712 is the perimeter of a regular polygon of 24576 sides inscribed in a circle whose radius is unity or 1; which perimeter must approximate so very closely to the circumference of its circumscribed circle, that the one may be substituted for the other without producing any sensible difference.



Now, to show the very close approximation of the circumference of the circle and the perimeter of its inscribed regular polygon of 24576 sides,—Let A B, in the annexed diagram, represent one of the sides of that polygon = 0. 00025566346464760687, and let E F represent the side of another regular and similar polygon described about the circle. Bisect A B in D, and draw the perpendicular C D G. Then, as A D is the half of A B; it is therefore equal to 0. 00012783173232380343 5. Now, in the right-angled triangle A D C, the hypothenuse AC and the leg A D are given, to find the leg C D. Hence,

The square of AC or 1 = 1. 0000 &c. &c.
The square of AD = 0. 000000016340951788904531952047504517799225
Difference = CD^2 = 0. 999999983659048211095468047952495482200775, the root of which is 0. 99999999182952407216 9 = the measure of C D. Then, because of the parallels AB and E F (Euclid, Book VI., Prop. 2), it will be as C D : A B :: C G (= C A) : E F. Thus, as 0. 99999999182952407216 9 : 0. 00025566346464760687 :: 1 : 0. 00025566346673649907 = E F, or the measure of the side of the circumscribed polygon of 24576 equal sides. Hence, 0. 00025566346673649907 × 24576 = 6. 28318535851620114432, is the perimeter of the circumscribed polygon. Now, the circumference of the circle being greater than the perimeter of the inscribed polygon, but less than that of the circumscribed polygon, it must consequently be greater than 6. 28318530717958643712
And less than 6. 28318535851620114432

Sum of Perimeters = 12. 56637066569578758144

Half sum . . = 6. 28318533284789379072; which is equal to the circumference of a circle whose radius is unity or 1; and which is strictly correct to *the ten-millionth decimal place*. And since the circumference of the circle is greater than the perimeter of the inscribed polygon, and less than that of the circumscribed polygon; it must therefore lie evenly betwixt those perimeters; and since the perimeters exactly correspond with each other as far as the ten-millionth decimal place; therefore the circumference of the circle which lies evenly between them must evidently be equal to, and actually correspond with, them to the ten-millionth decimal place; which is as great a coincidence as the most rigid species of calculation requires.

Now, since circles are to each other as their diameters; therefore, 6. 28318533284789379072

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÷ 2 = 3. 14159266642394689536, is the correct circumference of a circle whose diameter is 1.—And since this coincides with the perimeters of its inscribed and circumscribed polygons, to the ten-millionth decimal place; therefore, 3. 14159266 is the true *ratio of the circumference of a circle to diameter unity or* 1.

Having thus found the ratio of the circumference of a circle to diameter unity, we have only to determine a few of the natural sines; and if these agree with the natural sines deduced geometrically from the circle;—then, we shall have a very satisfactory and conclusive proof that the ratio of the circumference of a circle to its diameter is as above stated.

Since the diameter of the trigonometrical circle is 2; therefore, 3. 14159266 × 2 = 6. 28318532 is the circumference of the circle used in the trigonometrical canon. And since the circumference of all circles contains 360 degrees, or 21600 minutes; therefore, 6. 28318532 ÷ 21600 = 0. 0002908882 is the chord of the arc of 1 minute; but since the chord of so small an arc as one minute of a degree, and which is adapted to a radius so exceedingly minute as to be only the ten thousand millionth part of unity, or 1 line (this is the *true radius of the trigonometrical canon*), is physically equal to its sine; therefore, the natural sine of 1 minute is 0. 0002908882. Now, having thus found the value of one minute, the natural sines of every minute in the quadrant may be readily obtained by the following formula, viz.:—

From twice the sine of the mean arc betwixt any two equidistant extremes subtract the sine of the given extreme, and the remainder will be the sine of the other extreme,* as thus:—

To find the sine of 2 minutes.	To find the sine of 3 minutes.
Sine of 1′=.0002908882 × 2=.0005817764	Sine of 2′=.0005817764 × 2=.0011635528
Subtract the sine of 0′= . .0000000000	Subtract the sine of 1′ = . .0002908882
The sine of 2 minutes = . .0005817764	The sine of 3 minutes = . .0008726646
To find the sine of 4 minutes.	**To find the sine of 5 minutes.**
Sine of 3′=.0008726646 × 2=.0017453292	Sine of 4′=.0011635528 × 2=.0023271056
Subtract the sine of 2′= . .0005817764	Subtract the sine of 3′ = . .0008726646
The sine of 4 minutes = . .0011635528	The sine of 5 minutes = . .0014544410

Proceeding in this manner, the natural sine of 1 degree will be found to be .0174524; the natural sine of 15 degrees, .2588190; the natural sine of 30 degrees, .5000000; that of 45 degrees, .7071068; that of 60 degrees, .8660254; that of 75 degrees, .9659258; and that of 90 degrees, 1.0000000.

Now, having found the sines of those arcs, let us see whether they coincide with the sines of similar arcs, which flow *naturally* from the geometrical properties of the circle; and, if so, it will be a direct mathematical proof that the preceding ratio of the circumference of a circle to diameter unity has been truly determined.

Let the circumference of the circle in the following diagram be described with the radius of 10000, taken from any scale of equal parts; and let it be graduated to every tenth degree.—From the points 80, 70, 60, &c. in the semi-circle A B S, draw the vertical parallels 80, 70, 60, &c., meeting the semi-diameter C B in the points 8, 7, 6, &c.—And from the points 10, 20, 30, &c. in the semi-circle R A B, draw the horizontal parallels 10, 20, 30, &c., meeting the radius C A in the points 8, 7, 6, &c.; then, the former will represent the *natural sines*, and the latter the *natural co-sines* of those parallels.

The sines and co-sines thus determined, are denominated *natural*, because they flow naturally from the circle without the intervention of art.

If the radius C A (= C B) of 10000 equal parts be taken from any good-sized diagonal scale, the measure of the natural sines and co-sines, thus flowing from the circle, will be found to agree (as near as can be expected from projection) with the natural sines and co-sines given in the common Trigonometrical Tables.

Thus, in the quadrant A B, the extent from 30 to 3, or the sine of 30 degrees, is .5000; and from 30 to 6, the co-sine of 30 degrees is .8660. The extent from 45 to I = the sine of 45 degrees is .7071; that from 45 to *b*, or the co-sine of 45 degrees, is also .7071. The extent

* See the last paragraph in page 54, Volume I.

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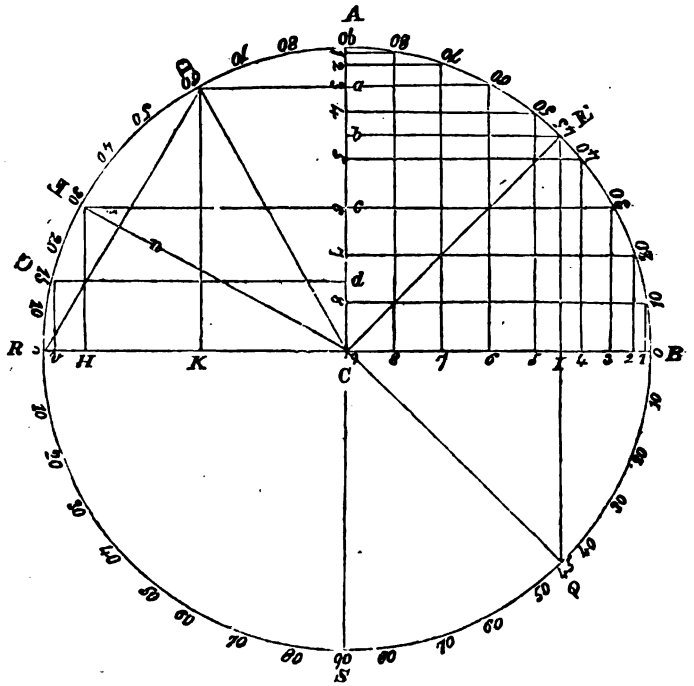

from 60 to 6, or the sine of 60 degrees, is .8660; and that from 60 to *a*, or the co-sine of 60 degrees, is .5000, and so on of the rest.

Now, the right lines representing the measures of the natural sines and natural co-sines, being thus drawn, the correct values of those lines may be obtained by the laws of Geometry, as follows, viz.—

Bisect the quadrants A B and B S, and from the points of bisection draw the vertical line E Q, cutting the semidiameter C B in I. Draw E *b* parallel to C B, and join the points C E and C Q. Then E I is the natural sine of 45 degrees, and I C = E *b*, its natural co-sine.—Now, because the angle E C Q is composed of the two octants, or half right angles B C E and B C Q, it is therefore a right angle: hence the line E Q opposite to the right angle is the side of a square inscribed in a circle (Euclid, Book IV., Prop. 6). Then, in the right angled triangle E C Q, the legs C E and C Q are given, to find the hypothenuse E Q. Hence, Euclid, Book I., Prop. 47,—

$$\begin{aligned} CE^2 \text{ or } 1.000000^2 &= 1.00000000000000 \\ CQ^2 \text{ or } 1.0000000^2 &= 1.00000000000000 \\ \hline \end{aligned}$$

Sum of the squares = 2.00000000000000; the root of which is E Q = 1.4142136.

Now, because the line C I divides the right angle E C Q into two equal parts, the angles E C I and I C Q are equal (Euclid, Book I., Prop. 9); and because C I divides the right angle into two equal parts, it also divides the hypothenuse E Q into two equal parts (Euclid, Book VI., Prop. 3); therefore E I, the sine of 45 degrees, is equal to the half of E Q. Hence, E Q = 1.4142136 ÷ 2 = E I = 0.7071068 is the natural sine of 45 degrees.

Since E C Q is an isosceles triangle, the two triangles C I E and C I Q into which it is divided, are also isosceles; and as the angles at the base of an isosceles triangle are equal (Euclid, Book I., Prop. 5); therefore, the sides E I and I C are equal. But we have seen that the sine of E I is 0.7071068; therefore, its natural co-sine I C = E *b* is also 0.7071068. Hence, the sine and the co-sine of 45 degrees, are exactly the same.

Now, in the quadrant R A C. Because the chord line R D is the side of a hexagon inscribed in a circle, it is the subtense of 60 degrees, and, therefore, equal to the radius C A or C R (Euclid, Book 4, prop. 15); and since half the side of a polygon, inscribed in a circle, is equal to the sine of half its circumscribing arc; therefore, half the chord R D, viz.—R *u* is equal to

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F H = the sine of 30 degrees:—but R u is equal to half the radius; therefore, F H, the sine of 30 degrees, is also equal to half the radius = R K.—Now, since the radius is expressed by unity, or 1.0000000, its half, R K = R u = F H, is 0.5000000; which, therefore, is the correct measure of F H, or the natural sine of 30 degrees.

Having thus found the sine of 30 degrees, its co-sine may be readily determined; for, in the right angled triangle C H F, the hypothenuse C F, and the leg F H, are given; to find the leg C H = the co-sine of 30 degrees.* Hence,—

$$CF^2 \text{ or } 1.0000000^2 = 1.00000000000000$$
$$FH^2 \text{ or } .5000000^2 = .25000000000000$$

Difference of squares = 0.75000000000000; the root of which is C H = 0.8660254, which is the natural co-sine of 30 degrees; or the natural sine of 60 degrees: for, since the two triangles, C D K and C F H, are identically equal in every respect; therefore, the leg D K of the one, is equal to the leg C H of the other. Hence D K, or the sine of 60 degrees, is 0.8660254.

Again.—In the triangle R H F, the legs F H and R H are given; to find the hypothenuse R F. Thus,—

$$CR - CH = RH^2\ (1 - .8660254) = .1339745^2 = 0.01794916665025$$
$$FH^2 \text{ or } 0.5000000^2 = \ldots\ldots\ldots\ldots 0.25000000000000$$

Sum of the squares = ... 0.26794916665025; the root of which is R F = 0.5176381; but since this is the chord of the arc, or the length of the side of the polygon R F; therefore its half, or 0.2588190, is the measure of G v, or the natural sine of 15 degrees; from which its co-sine, or the sine of 75 degrees, may be obtained; as thus:—

In the right angled triangle C v G, the hypothenuse C G and the leg v G are given; to find the leg C v, the co-sine of 15 degrees, or the sine of 75 degrees. Hence,—

$$CG^2 = 1.0000000^2 = 1.00000000000000$$
$$Gv^2 = 0.2588190^2 = 0.06698727461000$$

Difference of squares = 0.93301272539000; the root of which is C v = 0.9659258, which, therefore, is the natural co-sine of 15 degrees, or the natural sine of 75 degrees.

Now, on taking a comparative view of the values of the sines which flow from the circle, both naturally and geometrically, it will be found that they exactly correspond in every respect with the sines deduced from the ratio of the circumference of the circle to diameter *unity;* and, therefore, we have an unquestionable proof that the ratio deduced from a polygon of 24576 sides is 3.14159266, as particularly specified in page 665.

Remark.—If the bisection of the side of the hexagon A D, (see diagram, and the succeeding paragraph in page 663,) be continued to the *sixteenth place*, or A D^{16}; it will reduce the circle to a regular polygon of 393216 sides; and since the more the sides are multiplied, the nearer will the polygon approach to a perfect circle; therefore, if the ratio of the circumference of the circle to its diameter be deduced from its inscribed and circumscribed polygons of 393216 sides, according to the principles laid down in pages 663 and 664, it will approximate to a still closer degree of exactness. In this case, the eighth decimal place will come out a 5 instead of a 6, thus making the ratio 3.14159265; and this is the ratio that is made use of in the miscellaneous problems at the end of the first Volume.

Now, from the ratio thus established we can easily deduce several useful recurring numbers, as in the following articles:—

1.—*To find the value of the Arc which is equal to the radius of the Circle.*

Since the circumferences of all circles are to each other as their diameters, and that the diameter of the circle used in the trigonometrical canon is 2; therefore, the circumference of that circle is 6. 28318530:—hence its semi-circumference is 3. 14159265, and its radius unity or 1. Now, since the semi-circumference of every circle is equal to 180 degrees; therefore, 180° ÷ 3.14159265 = 57°.2957795 is the value of the arc, which is equal to the radius.—Or, let 180° be reduced to *thirds;* then 38880000‴ ÷ 3. 14159265 = 57°.17′.44″.48‴., is the value of the arc in different denominations that is equal to the radius.

* See the first paragraph in page 54, vol. i.

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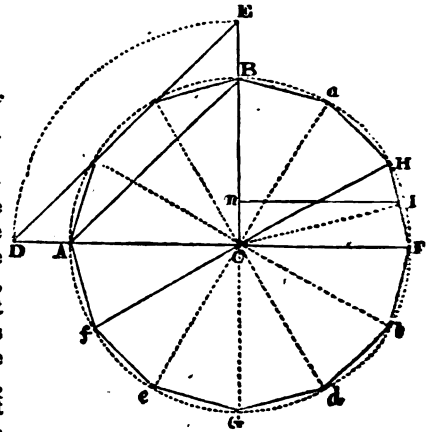
2.—*To find the length of the Arc of one degree of the Circle.*

Since the measure of the semi-circle used in the trigonometrical canon is 3. 14159265. and that this is equal to 180 degrees; therefore, 3. 14159265 ÷ 180° = 0. 0174533, is the length of the arc of *one degree* of the circle.

3.—*To find the Area of a Circle whose diameter is unity or* 1.

Every circle may be conceived to be a polygon of an infinite number of sides: for the sides of a polygon, inscribed in a circle, may be imagined to be so indefinitely multiplied, that each side shall be so far less than any assignable length, as to be reduced to a dimensionless point; and as a continued succession of those points, each being equally distant from the centre, forms a uniform curve; therefore, the perimeter of the polygon becomes such a *perfect curve* as to be identically equal to the circumference of its circumscribing circle; and, consequently, the perpendicular will become equal to the radius, and the area of the polygon equal to that of the circle.



In the annexed diagram, conceive a polygon of an indefinite number of sides to be inscribed in the circle A B F G, and that radii are drawn to all the angular points, dividing it into as many isosceles triangles as there are sides in the polygon;—let one of those triangles be expressed by the points F C H, and its perpendicular by the line C I.

Draw *n* I parallel to C F; then, because the parallelogram C *n* I F stands upon *half the base* of the triangle F C H, and between the same parallels, the area of the parallelogram is therefore equal to the area of the whole triangle.* Hence it is manifest, that half the side of the polygon F H, viz., the part F I, multiplied by the perpendicular C I, expresses the area of the triangle, and also the area of the parallelogram that stands upon *half* its base. Now, since the polygon consists of as many triangles as it has sides; therefore it is equal to a parallelogram that is comprehended under the rectangle of its perpendicular and a straight line that is equal to the length of *half* its perimeter. But, when the sides of a polygon are indefinitely multiplied, its perimeter is generated into the curve of its circumscribing circle; and therefore the area of a circle is equal to the area of a parallelogram whose shortest side is represented by the semidiameter, and its longest side by a straight line equal in length to the semi-circumference. Hence, every circle is equal to the rectangle which is comprehended under its semidiameter and the *half* of its circumference.

Now, since the circumference of a circle whose diameter is unity or 1, is 3. 14159265, therefore, the product of half the circumference by half the diameter, viz., 1. 570796325 x 0. 5 = 0. 7853981625, is the area, or superficies, of a circle whose diameter is unity or 1. And, because the areas of circles are to each other as the squares of their diameters (Euclid, Book XII, Proposition 2); therefore, if the square of the diameter of any circle be multiplied by 0. 7853981625, the product will be its area.

4.—*To find the Area of a Circle whose circumference is unity or* 1.

Since the diameters of circles are to each other as their circumferences; and that the product of half the diameter by half the circumference expresses the area of the circle, as explained in Article 3; therefore, as 3. 14159265 : 1 :: 1 to 0. 318309, the diameter of the circle whose circumference is unity. Now, the half of this multiplied by the half of unity = 0. 1591545 x 0. 5 = 0. 079577, is the area of a circle whose circumference is unity or 1. And because the areas of circles are to each other as the squares of their circumferences; therefore, if the square of the circumference of any circle be multiplied by 0. 079577, the product will be the area of such circle.

* If a parallelogram and a triangle stand upon the same base and between the same parallels; the parallelogram shall be the double of the triangle. (Euclid, Book I., Proposition 41.)

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6.—*To find the side of a Tetragon or Square that is equal in area or superficies to a Circle whose diameter is unity or* 1.

The area of a circle whose diameter is unity is 0.7853981625, as shown in Article 3.—Now, the square root of that area is 0.8862269; which, therefore, is the side of the square that is equal in area to a circle whose diameter is unity or 1. And, because the sides of tetragons, or squares, are as the diameters of their circumscribing circles; therefore, the product of the diameter of any circle by 0.8862269, will be the side of the square that is equal in area to such circle. Hence, if the *radius* of a circle be unity, or 1, its diameter will be 2; and, therefore, $0.8862269 \times 2 = 1.7724538$, is the side of a square that is equal in area to a circle whose *radius* is unity or 1. And because the sides of tetragons are as the diameters of their circumscribing circles; they are also as the radii or semidiameters of those circles. Hence, if the semidiameter of a given circle be multiplied by 1.7724538, the product will be the side of the square that is equal in area to the given circle.

7.—*To find the Side of a Tetragon or Square inscribed in a Circle, the radius, or semidiameter, of which is unity or* 1.

In the diagram, page 668, if the diameter of the circle be 2; its semidiameter, A C, or B C, will be unity, or 1. join A B, and it will represent the side of the inscribed tetragon, or square. Then (by Euclid, Book 1., Prop. 47), $AC^2 + BC^2 = AB^2$. Hence, $1 \times 1 + 1 \times 1 = 2$; the square root of which is 1.41421356, and which, therefore, is the side of the tetragon inscribed in a circle whose radius or semidiameter is unity or 1.—Now, since the sides of tetragons, or squares, inscribed in circles are as the radii or semidiameters of those circles; therefore, if the semidiameter of any circle be multiplied by 1.41421356, the product will be the side of the tetragon inscribed in such circle:—hence, if the diameter of a circle be 1, its radius will be 0.5; then, $1.41421356 \times 0.5 = 0.70710678$, is the side of a tetragon, or square, inscribed in a circle whose diameter is 1.

8.—*To find the Radius that will circumscribe a Square which is equal in area to a Circle whose semidiameter is unity or* 1.

In the diagram page 668, let the radius or semidiameter of the circle be unity; then, the side of the inscribed square A B, found by Article 7, will be 1.41421356.—Now, the side of the square D E, which is equal in area to a circle whose radius is unity, or 1, is 1.7724538, as shown in Article 6:—hence, by similar triangles (Euclid, Book VI., Prop. 4),—As A B : B C :: D E : E C; that is, as 1.41421356 : 1 :: 1.7724538, to 1.2533142; which, therefore, is the value of the side E C, or the radius that will circumscribe the tetragon, or square, which is equal in area to a circle whose semidiameter is unity, or 1. And since the radii of circles are as the sides of their inscribed tetragons, therefore, if the semidiameter of any given circle be multiplied by 1.2533142, the product will be the length of the radius that will circumscribe the square which is equal in area to such given circle.

Note.—As the radius B C is 1, and the radius E C 1.2533142; the difference = E B is therefore 0.2533142; and as this difference *approximates to a fourth part of the radius* B C = unity or 1; we thus see the reason why mechanics *in squaring a circle* always augment its semidiameter by the one-fourth part of its value.

9.—*To Square the Circle.*

The squaring of a circle, or *tetragonism*, is a subject that has frequently engaged the attention of the ablest mathematicians, ever since the days of the celebrated *Archimedes*, who was killed, at the storming of Syracuse, by the Romans, in the year 212 before the birth of Christ.

The reduction of a circle to a perfect geometrical square amounts to a mathematical impossibility; for, let the bisection of the side of the hexagon A D (see the diagram, page 663) be extended so far as to make the polygon consist of millions of sides; still, in extracting the square root of the last term, there will always be a remainder, or a visible fractional part of unity.—Hence, the ratio which the circumference of a circle bears to its diameter cannot be exactly determined; and therefore it is mathematically impossible to construct a square that shall be exactly equal in area to a given circle. However, although the perfect squaring of the circle is likely to remain for ever as *a desideratum*; yet, since the ratio of the circumference of the circle to its diameter is known to a very rigid degree of approximation; therefore a circle may be squared by means of that ratio to the utmost extent of any assignable point of exactness that can come within the range of geometrical and mechanical operations, as may be seen in the following example, viz.;—

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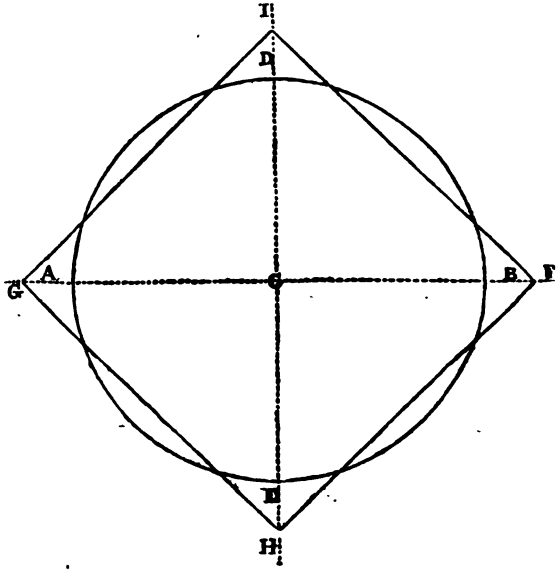
To reduce a Circle whose diameter is 50 to a Geometrical Square.

Since the diameter is 50; therefore, by the last paragraph of Article 3, in page 668,—$0.7853981625 \times 50^2 = 1963.49540625$, is the area or superficies of the given circle. Now, agreeably to the latter part of Article 6, since the diameter of the given circle is 50, its radius or semidiameter is 25; then, $1.7724538 \times 25 = 44.311345$, is the side of the square that is equal in area to the given circle; and $44.311345 \times 44.311345 = 1963.49540625$ is the area of the square; being exactly equal to the area of the given circle, as shown above.—Again,

Since the semidiameter of the given circle is 25; therefore, computing in conformity with the latter part of Article 8,—$1.2533142 \times 25 = 31.332855$ is the radius that will circumscribe a square equal in area to the given circle. Having thus found the length of the radius, the circle may be *squared* by scale and compasses in the following manner, viz.—



With the semidiameter of the given circle=25, in the compasses (taken from any scale of equal parts), describe the circle A B D E; through the centre C draw the diameter A B, and, at right angles thereto, the diameter D E; each of which produce at pleasure beyond the circumference.—Take the computed radius 31.332855 in the compasses (from the same scale of equal parts); set one leg on the centre C, and note, by *points*, where the other leg falls on the produced diameters. The connection of those points by right lines constitutes the square G H F I; which square is equal in area to the given circle:—for the four segments of the circle that are cut off by the four sides of the square, are equal *in value* to the four angles of the square that are cut off by the circumference of the circle.—Now, if one of the sides of this square be taken in the compasses, and applied to the same scale of equal parts that the radii were taken from, it will be found to measure 44.31, &c. &c.; the square of which is 1963.4954, &c. And hence it is manifest, that as the area or superficies of the square G H F I, is numerically and physically equal to the area or superficies of the circle A B D E; the given circle is, therefore, reduced to a square that is both geometrically and mechanically equal to it in superficial content.

Remark.—If the circle be *squared* according to the mechanical mode, *viz.*—by *adding a fourth part to its semidiameter*, it will be productive of a considerable error; as thus,—the semidiameter of the given circle, as above, is 25; the one-fourth of which is 6.25; then $25 + 6.25 = 31.25$ is the mechanical radius for cutting *the produced diameters*.—Now, the side of the square corresponding to this radius (Article 7) is 44.19417375;—the square of this is only 1953.1248, &c.; which is 10.3706, &c., *less* than the area of the circle; and thus it is evident that the mechanical mode of *squaring the circle* is not correct; for the area of the square constructed agreeably to that mode will be always *less* than the area of the circle.

THE END.

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